701 Xenia Avenue South | Suite 300 | Minneapolis, MN 55416 | (763) 541-4800

Transmittal

To:	Stephanie McNamara	Date:	July 12, 2018
	Vadnais Lake Area WMO	Re:	Lino Lakes LWMP
		Location:	Lino Lakes
		Project No.:	02988-500

We are sending to you: ☒ Attached ☐ Separately ☐ By Messenger

☐ Shop Drawings ☐ Specifications ☐ Contracts ☒ Report

☐ Prints ☐ Correspondence ☐ Other

Document Description

Lino Lakes LWMP July 2018 Draft for agency review

The above are:

☐ Shop drawings as checked	☐ For your use	☐ For your information
☐ No exceptions taken	☒ For your approval	☒ For your review
☐ Rejected	☐ For your distribution	☐ As you requested
☐ Revise and resubmit	☐ For your processing	☐ For signature
☐ Note markings	☐ For your records	☐ Other

Remarks: Please review the attached plan.

cc:	Michael Grochala	By:	Madison Rogers
	City of Lino Lakes	Tele:	763-287-8521

CITY OF LINO LAKES

2040 COMP PLAN

Local Water Management Plan

July 2018

Prepared For
City of Lino Lakes
600 Town Center Parkway
Lino Lakes, Minnesota 55014

WSB

WSB Project No. 02988-500

Contents

List of Tables

List of Figures

Local Water Management Plan

EXECUTIVE SUMMARY

Local Water Management Plan Purpose

The City of Lino Lakes' Local Water Management Plan (LWMP) is a local management plan that meets the requirements of Minnesota Statutes 103B.235, Minnesota Rules 8410, the Rice Creek Watershed District Watershed Management Plan (dated January 2010, as amended November 9, 2016), and Vadnais Lake Area Water Management Organization Watershed Management Plan (dated October 26, 2016), and Minnesota Statute 103B.201 states that 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 for surface and groundwater management;
- Prevent erosion of soil into surface water systems;
- Promote groundwater recharge;
- 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 Lino Lakes' Local Water Management Plan addresses these purposes. The LWMP was adopted by City Council in 2018 and is incorporated as Chapter 7 and Appendix A of the 2040 Comprehensive Plan.

Local Water Management Responsibilities and Related Agreements

The City of Lino Lakes has not entered into any water management related agreements with its neighboring cities, the County, Rice Creek Watershed District (RCWD), Vadnais Lake Area Water Management Organization (VLAWMO), or the State of Minnesota, other than on a project-specific agreement for BMP's constructed to meet water quality requirements. The City of Lino Lakes is responsible for construction, maintenance, and operation of the City's stormwater management system.

Background

The City of Lino Lakes (population 20,216) is located in Anoka County in the seven county Twin Cities metropolitan area, approximately 20 miles north of downtown Saint Paul. The City covers approximately 33 square miles. Lino Lakes is nestled between the Cities of Blaine and Circle Pines to the west, Columbus to the north, Hugo to the east, and Shoreview and North Oaks to the south. The City of Centerville is located near the center of Lino Lakes.

Lino Lakes is within two watershed agencies: Rice Creek Watershed District (RCWD) and Vadnais Lake Area Water Management Organization (VLAWMO). RCWD is a watershed district and has the authority to regulate development impacts on water resources; VLAWMO is not a permitting agency, but does provide guidance on the implementation of best management practices within its jurisdiction. This plan addresses the rules and regulations put forth by the Rice Creek Watershed District and Vadnais Lake Area Water Management Organization.

Surface water in Lino Lakes general drains to the Rice Creek Chain of Lakes which includes: Baldwin Lake, Rice Lake, Reshanau Lake, Marshan Lake, George Watch Lake, Centerville Lake, Peltier Lake, and Rondeau Lake, as well as Rice Creek, Hardwood Creek (Jurisdictional Ditch 2) and Clearwater Creek (Jurisdictional Ditch 3).

A large portion of the city remains undeveloped. Although the community has been identified as Suburban Leading Edge, it still retains its rural and agricultural roots, Section 2.6 of the 2040 Comprehensive Plan discusses land use in Lino Lakes.

Summary of Implementation Section

The need to address water quality within the city is partially illustrated in the map showing the various impaired lakes (**Figure 2-8**) which has regulatory implications that are still being developed, the City's stormwater infrastructure (**Figure 2-7**), the underlying soils and geology (**Figures 2-2 and 2-3**), the groundwater resources (**Figure 2-9**) and the existing floodplain (**Figure 2-13**). The following is a generalized list of the key implementation strategies, policies and/or actions proposed in the LWMP to address the City of Lino Lakes' water resources issues:

- Implement the Resource Management Plan through development of Subwatershed Management Plans for each RMU. These plans will establish:
  - A clear vision of the multi-functional Greenway System for City Staff and developers and will be used as a tool early in the land development process.
  - Create a wetland bank to provide replacement opportunities for development or roadway projects.
  - Utilize the runoff volume credit and banking system, in collaboration with RCWD.
  - Work with RCWD on the ditch abandonment process for public drain tile systems and explore partial abandonment for surface ditch systems, in cases where the public drainage system requires redesign to implement the multi-functional Greenway System.
  - Implement water quality improvements via the Subwatershed Plans for each RMU specific to the waterbodies of the area and upcoming regulations (ex. impairments, TMDLs).

- Implement the design guidelines of Northeast Lino Lakes Comprehensive Stormwater Management Plan (CSMP) with future development in the Peltier Lake and Clearwater Creek subwatersheds

- Continue to manage the City's wetlands and natural resources by:
  - Implementing City-wide Natural Resource Revolving Fund Plan, in cooperation with RCWD and VLAWMO
  - Continuing to participate in pre-permit application meetings with the RCWD and Army Corps of Engineers that support the collaborative permitting process implemented through RCWD Rule and the Corps' Programmatic General Permit that implements the Special Area Management Plan.
  - Continuing to manage and protect heron rookery, tamarack swamps, and other important plant and animal communities.

- Review existing City policies, regulations, ordinances and plans, including:
  - Continue to implement and enforce the City's Stormwater Pollution Protection Program (SWPPP) as part of the NPDES Municipal Separate Storm Sewer System (MS4) permit.
  - Implement the Wellhead Protection Plan to protect the groundwater source from contamination.
  - Continue to implement the City's Water Conservation Management Plan
  - Evaluate the need to modify existing ordinances to ensure implementation of all components of the multi-functional Greenway System
  - Revise maximum allowable impervious surface requirements for low- and medium-density residential districts

- Establish and adopt Better Site Design (BSD) standards for new and re-development that:
  - Provide guidance for staff, City Boards, and City Council
  - Protect high priority wetlands, their biological condition, and their function as high quality habitat;
  - Enhance groundwater hydrology and protect groundwater-dependent natural resources;
  - Provide natural flood reduction;
  - Integrate water quality improvement components in the landscape; and
  - Implement the Resource Management System Plan

- Evaluate revisions to Road Design Standards including:
  - Reducing minimum pavement widths;
  - Ribbon curbs and curb cuts, with roadside swales, infiltration, and biofiltration; and
  - Use of pervious pavements

- Review existing watershed models and work with the RCWD and VLAWMO to address flow constraints in the system.

- Continue public outreach, education and dissemination of information, including:
  - Work with private landowners to retrofit/implement the multi-functional Greenway System, for those parcels that are not part of a Master Plan or are already developed.
  - Partner with RCWD, VLAWMO and Minnesota Department of Natural Resources (MnDNR) to establish program to educate residents on the means to identify and eradicate invasive species.
  - Participate with other public agencies and organizations on education and outreach efforts.
  - Develop, distribute and present public with information regarding the importance of shoreland buffers.

- Evaluate financing options to implement activities and policies in LWMP, such as:
  - Pursue funding through Federal and State grant opportunities
  - Pursue grants through the RCWD's Urban Stormwater Remediation Program to assist in the funding of projects that will reduce the impact of existing development on local water resources.
  - Pursue funding support from VLAWMO for projects in the Amelia Lake and Wilkinson Lake watersheds.
  - Review and evaluate funding sources for surface water management including ad valorem taxes, development charges, grants and user fees.
  - Update and continue to implement Trunk Surface Water Management Fee System.

1. INTRODUCTION

The City of Lino Lakes (population 20,216) is located in Anoka County in the seven county Twin Cities metropolitan area, approximately 20 miles north of downtown Saint Paul (**Figure 1-1**). The City covers approximately 33 square miles. Lino Lakes is nestled between the Cities of Blaine and Circle Pines to the west, Columbus to the north, Hugo to the east, and Shoreview and North Oaks to the south. The City of Centerville is located near the center of Lino Lakes.

Lino Lakes is within two watershed agencies: Rice Creek Watershed District (RCWD) and Vadnais Lake Area Water Management Organization (VLAWMO). RCWD is a watershed district and has the authority to regulate development impacts on water resources; VLAWMO is not a permitting agency, but does provide guidance on the implementation of best management practices within its jurisdiction. This plan addresses the rules and regulations put forth by the Rice Creek Watershed District and Vadnais Lake Area Water Management Organization.

Surface water in Lino Lakes general drains to the Rice Creek Chain of Lakes which includes: Baldwin Lake, Rice Lake, Reshanau Lake, Marshan Lake, George Watch Lake, Centerville Lake, Peltier Lake, and Rondeau Lake, as well as Rice Creek, Hardwood Creek (Jurisdictional Ditch 2) and Clearwater Creek (Jurisdictional Ditch 3).

This Local Water Management Plan (LWMP) builds off three previous plans, completed in 1994, 2005, and 2015.

1.1 Purpose

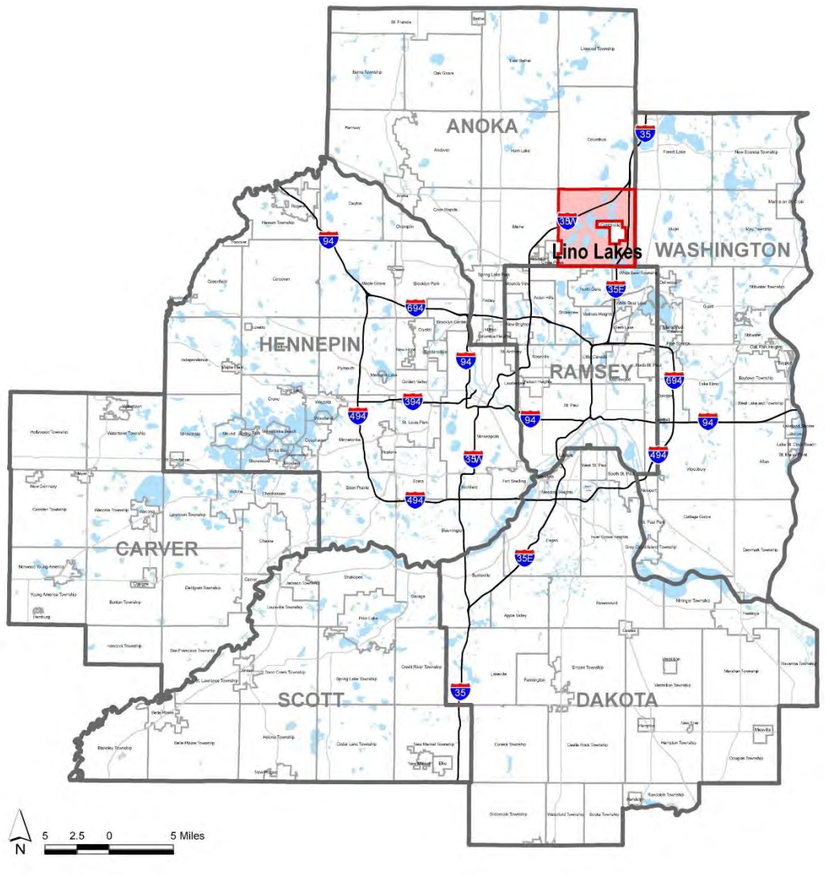
The City of Lino Lake's Local Water Management Plan (LWMP) is a local management plan that meets the requirements of Minnesota Statutes 103B.235, Minnesota Rules 8410, the RCWD Watershed Management Plan (adopted January 4, 2010 and amended November 9, 2016), and the VLAWMO 2017-2026 Comprehensive Water Plan (adopted October 26, 2016).

Minnesota Statute 103B.201 states that the purposes of the local 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 for surface and groundwater management;
- Prevent erosion of soil into surface water systems;
- Promote groundwater recharge;
- 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 Lino Lakes Local Water Management Plan addresses these purposes.

Figure 1-1. Location Map



1.2 Local Water Management Responsibilities and Related Agreements

The City of Lino Lakes has not entered into any water resource management related agreements with its neighboring cities, Anoka County, Rice Creek Watershed District, Vadnais Lake Area Watershed Management Organization, or the State of Minnesota. The City of Lino Lakes is responsible for construction, maintenance, and other projects in or along the City's stormwater management system that are not considered part of a county or watershed district's public drainage system.

1.3 Amendments to the Local Water Management Plan

The City may need to revise this Plan prior to the next update for it to remain a useful long-term planning tool. Plan amendments will be needed if significant changes are required involving goals, policies, administrative procedures, funding or the capital improvement program, or if problems arise that are not addressed in the Plan. This Plan will remain in full effect through 2028 unless an updated plan is approved prior to that date.

Technical information (i.e. from City-led studies and monitoring and new data from City partners) will require frequent updating. The City intends to post this updated information on the City website. Technical information that results in new action items will be incorporated into City operations through implementation of the City's programs, projects and watershed management strategies as appropriate. Generally, these technical updates and studies are considered part of the normal City operations consistent with the intent of this Plan and will not trigger a Plan amendment. However, when the new technical information or study findings result in a significant policy change, or the District intends to initiate a program or construct a capital improvement not sufficiently identified in the Plan, a plan amendment will be required.

All major amendments to the Plan that deviate from the existing Plan scope and direction will be submitted to RCWD and VLAWMO for review and approval. The review process is 60 days unless the City agrees to an extension of the review period. The Plan amendment may also be submitted to the Metropolitan Council for a 45-day review to be incorporated into the review of the RCWD and VLAWMO.

1.4 Roles and Responsibilities

Federal

Coordination with federal agencies on water issues for the City of Lino Lakes often is with the U.S. Army Corps of Engineers (USACE), and sometimes also with the U.S. Environmental Protection Agency (EPA), the Federal Emergency Management Agency (FEMA), the United States Geological Survey (USGS), the United States Department of Agriculture (USDA), the U.S. Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration (NOAA).

The USACE regulate activities in navigable waters and wetlands. Therefore, coordination is required for activities that have the potential to affect wetland and lake systems in the City of Lino Lakes. The USACE issues permits under Section 404 of the Clean Water Act and allow for approval of permitting and replacement plans that meet the requirements of Section 404 on a regional basis. Lino Lakes has and approved Special Area Management (SAMP) with the USACE. The SAMP is implemented through a Programmatic General Permit (PGP) that includes special wetland regulatory conditions for the City of Lino Lakes. In summary, the PGP provides mitigation flexibility for impacts that are consistent with the SAMP.

The EPA has delegated many of its responsibilities within Minnesota to the Minnesota Pollution Control Agency (MPCA) including the administration and enforcement of National Pollutant Discharge and Elimination (NPDES) permits and the Total Maximum Daily Load (TMDL) program.

FEMA's mission is to support communities and first responders to prepare for, protect against, respond to, recover from and mitigate all hazards. Most often in Lino Lakes, this translates to implementation of the National Flood Insurance Program (NFIP). The Minnesota DNR (MnDNR) has assumed responsibility for most of the floodplain management roles through adopting state-wide higher standards and works directly with the City of Lino Lakes to update flood insurance rate maps and floodplain ordinances.

The USGS collects data on stream flow, groundwater levels, and other information which is useful to the City in evaluating its resources. The USDA oversees the National Resource Conservation Service (NRCS) and the Farm Service Agency who provide technical services, conservation programs and funding to agricultural producers. In addition, the soils and technical data collected by the NRCS is information used by the City. The USFWS works to conserve and improve fish and wildlife and their habitat. NOAA, among other activities, collects weather and climate data used by the City for design and informational purposes.

State

On a state level, regulatory coordination related to water and natural resources includes addressing impaired waters, managing storm sewer systems and construction sites, managing shorelines, and a number of other areas. Agencies the City may coordinate with include the MPCA, the MnDNR, the Minnesota Department of Transportation (MnDOT), and the Minnesota Department of Health (MDH).

The MPCA oversees the programs addressing municipal separate storm sewer systems (MS4s), construction site stormwater, industrial stormwater, impaired lakes and streams, feedlots, soil and groundwater contamination, and wastewater treatment. A number of these programs affect the City of Lino Lakes. The two main areas requiring coordination are the Municipal Separate Storm Sewer (MS4) program and addressing impaired waters. The City's stormwater system is designated as an MS4 by the MPCA. The City's Storm Water Pollution Prevention Program (SWPPP) was developed to address the requirements for MS4s. A permit re-issuance was approved in May 2013 and went into effect August 1, 2013.

A number of Total Maximum Daily Load studies (TMDLs) are in process and others have been completed to address impaired waters in Lino Lakes. These studies establish daily load limits for certain compounds that were found to contribute to the impairment. The City of Lino Lakes will likely have a wasteload allocation in the future that establishes the maximum allowed discharge of the regulated pollutant for each TMDL. RCWD and VLAWMO will document progress towards achieving the load reductions needed to meet the TMDL allocations for impaired water bodies within their jurisdictions. The City of Lino Lakes will provide information on a routine basis to RCWD and VLAWMO regarding new projects and programs that lead to load reductions needed to meet a TMDL.

The MnDNR leads programs that regulate shoreline and floodplain development, groundwater use, and conducts various efforts to support water-based recreation and quality fisheries. The City has a shoreline and floodplain ordinance that is in compliance with the MnDNR's standards.

MnDOT manages the state's transportation system including a number of highways in the City of Lino Lakes. Coordination with MnDOT is needed when an activity may impact a state highway or its right of way.

The MDH works to address a number of health issues, but the primary area of coordination for the City is with the protection of drinking water resources including wellhead protection and drinking water treatment.

Regional

Regulatory coordination on a regional level involves coordination with the Metropolitan Council and with watershed management organizations, particularly RCWD and VLAWMO. The City addresses the water-related concerns of the Metropolitan Council primarily through the City's Comprehensive Plan and this Local Water Management Plan. The Comprehensive Plan frames how the city will address issues such as housing and transportation along with water concerns noted by the Metropolitan Council.

RCWD implements and enforces a set of rules related to stormwater and natural resource management. In addition, the RCWD is the WCA Local Government Unit (LGU) for a number of jurisdictions including Lino Lakes. The City works with the RCWD to protect and manage the wetland and water resources of the City. VLAWMO also works to protect and improve water resources. VLAWMO is also the WCA LGU for a number of jurisdictions including those portions of Lino Lakes within their jurisdictional boundary.

City Administration of Surface Water Management Plan

The implementation of this Plan will be coordinated by staff with input from the Environmental Board. The staff will coordinate within the various departments as needed to ensure implementation of this plan over the next ten years. After this Plan is approved by the watershed organizations, the City of Lino Lakes will adopt and implement the Plan within 120 days and will update and approve its ordinances and official controls to be consistent with this Plan within 180 days.

2. PHYSICAL ENVIRONMENT AND RESOURCE ASSESSMENT

2.1 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 in this area from 1981 to 2010 (the most recent year the data was available) is approximately 30.81 inches, of which approximately 40% occurs in the months of June, July and August (MnDNR 2017). The annual snowfall is about 37.3 inches (MRCC 2017) and is roughly equivalent to 2.9 inches of water. Additional climatological information for the area may be obtained from the Minnesota State Climatology Office.

Table 2-1. 1981-2010 Climatic Data for Lino Lakes, MN

1981-2010 Monthly Normal Precipitation - Lino Lakes, MN												
Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
30.81	0.86	0.76	1.74	2.68	3.57	4.32	4.02	4	3.33	2.69	1.7	1.14
1891-2017 Monthly Precipitation – Lino Lakes, MN												
Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
28.96	0.83	0.83	1.53	2.36	3.63	4.45	3.71	3.70	3.16	2.31	1.48	0.99
1972-2014 Monthly Pan Evaporation – University of Minnesota, St. Paul												
Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
36.83	-	-	-	1.85	6.72	7.50	8.06	6.67	4.75	1.26	-	-
1981-2010 Monthly Normal Snowfall - Vadnais Lake NCDC Station												
Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
37.9	9.5	5.7	7.6	0.9	0	0	0	0	0	0.3	5.4	8.5
1981-2010 Monthly Normal Temperature – Vadnais Lake NCDC Station												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max	25.8	31	42.8	58.4	71	80	84.6	82	72.9	59.3	42.3	28.7
Min	7.1	11.6	23.7	37.6	50	59.4	64.1	61.8	52.8	40.8	27	12.8
Mean	16.5	21.3	33.3	48	60.5	69.7	74.4	71.9	62.9	50.1	34.7	20.7

Precipitation is often defined in terms of recurrence intervals, or the probability of a certain rainfall occurring during a given year. For example, a rainfall event of 6.13 inches has a 2% probability of occurring in any given year, which is also expressed as once in every 50 years, the 9.81 rainfall event has a probability of 0.2% and is expressed as once every 500 years. The following table presents the probability of typical design rainfall events within the City of Lino Lakes, including the 100-year 10-day snowmelt event.

Table 2-2. NOAA Atlas 14 Design Storm Events (Sanja et al, 2013).

Recurrence Interval [years]	**1**	**2**	**5**	**10**	**25**	**50**	**100**	**100**	**200**	**500**	**1,000**
Probability	100%	50%	20%	10%	4%	2%	1%	1%	0.5%	0.2%	0.1%
Duration	24-hour	24-hour	24-hour	24-hour	24-hour	24-hour	24-hour	10-day	24-hour	24-hour	24-hour
Rainfall Amount [in]	2.43	2.80	3.50	4.17	5.22	6.13	7.12	9.86	8.22	9.81	11.10

2.2 Topography, Soils and Geology

Topography

The topography of Lino Lakes is generally rolling, with the highest ground in the southeast corner of the City and the lowest around Baldwin Lake. The majority of Lino Lakes is dominated by the Rice Creek Chain of Lakes, interspersed with lakes, wetlands, streams and various judicial and county ditches.

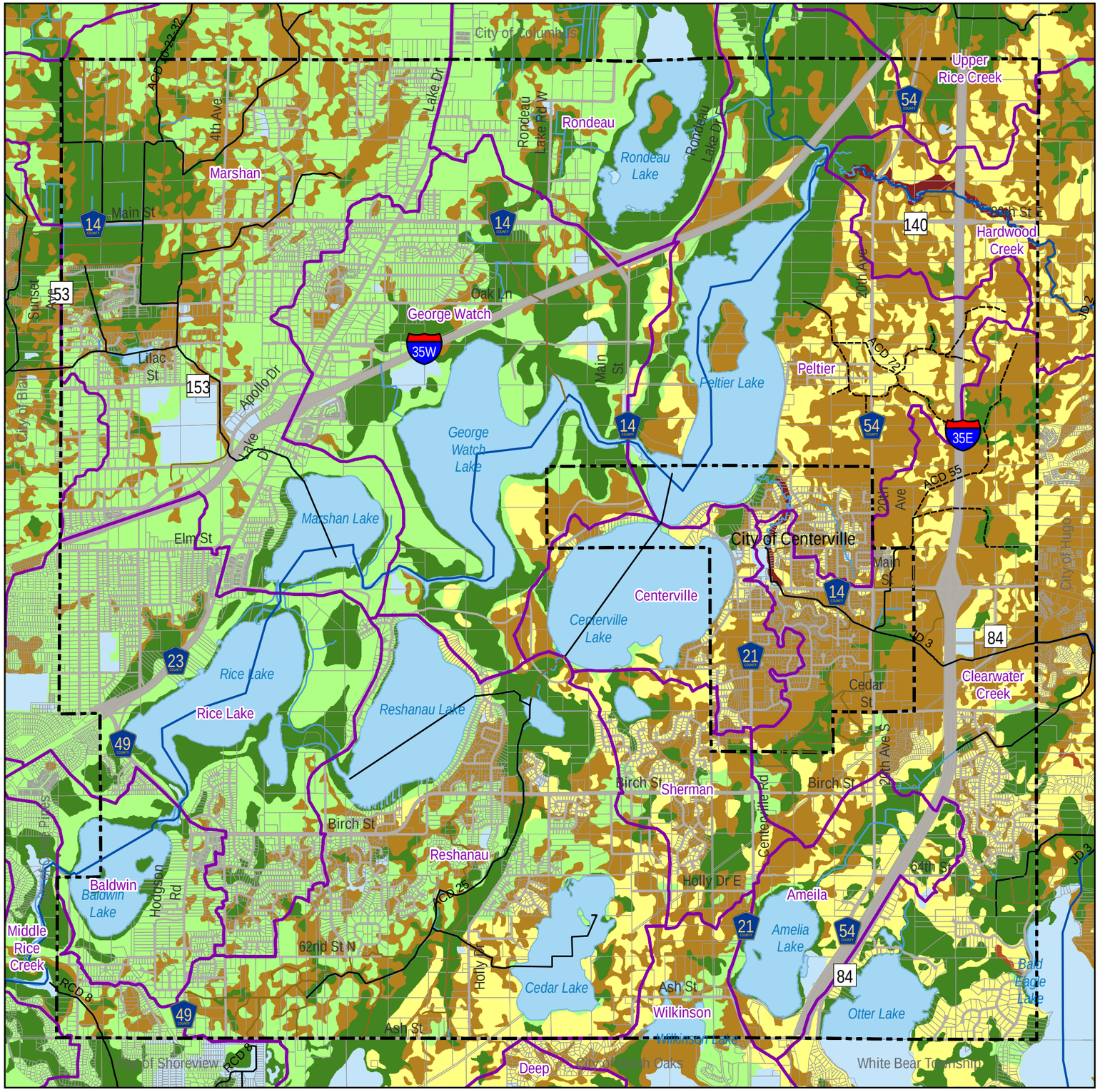
Soils

Soils in Lino Lakes consist of Zimmerman fine sands, Rifle muck, and Isanti soil complexes (Soil Survey Staff 2017). In the northwest, the soils are predominately well-draining, on top of the Anoka Sand Plan, while on the southeast, the soils are poorly draining and result in a higher runoff potential compared to the northwest. The hydrologic soils group, a measure of the infiltration and runoff potential of the surface soils, is provided in **Figure 2-1**.

Geology

The surficial geology of eastern Lino Lakes are primarily glacial ice deposits of loamy tills with peat and muck around the Chain of Lakes and in isolated pockets (**Figure 2-2**). The loamy till is from the New Ulm formation and is chiefly loam texture with unsorted sediment. Peat and muck was deposited in the quaternary era and is composed of partially decomposed organic matter deposited in marshes. Peat and muck also includes fine grained organic matter laid down in ponded water and marl (Setterholm 2013). The western area of Lino Lakes is primarily lake deposits from the Late Wisconsin Pleistocene (Meyer 1993).

Bedrock geology consists of sandstones (**Figure 2-3**). St. Peter Sandstone and the Prairie du Chien Group from the Ordovician and Lower Ordovician periods comprise the southeast corner of Lino Lakes. The northwest corner is made up of the Jordan Sandstone, the Tunnel City Group, and St. Lawrence Formation. Buried stream channels that are incised into several rock formations are a primary influence on the distribution of bedrock geologic units, including under the Rice Creek Chain of Lakes (Berg, 2016).



CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-1
Hydrologic Soil Group

Legend

Hydrologic Soil Group
- A
- A/D
- B
- B/D
- C
- C/D
- D

- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

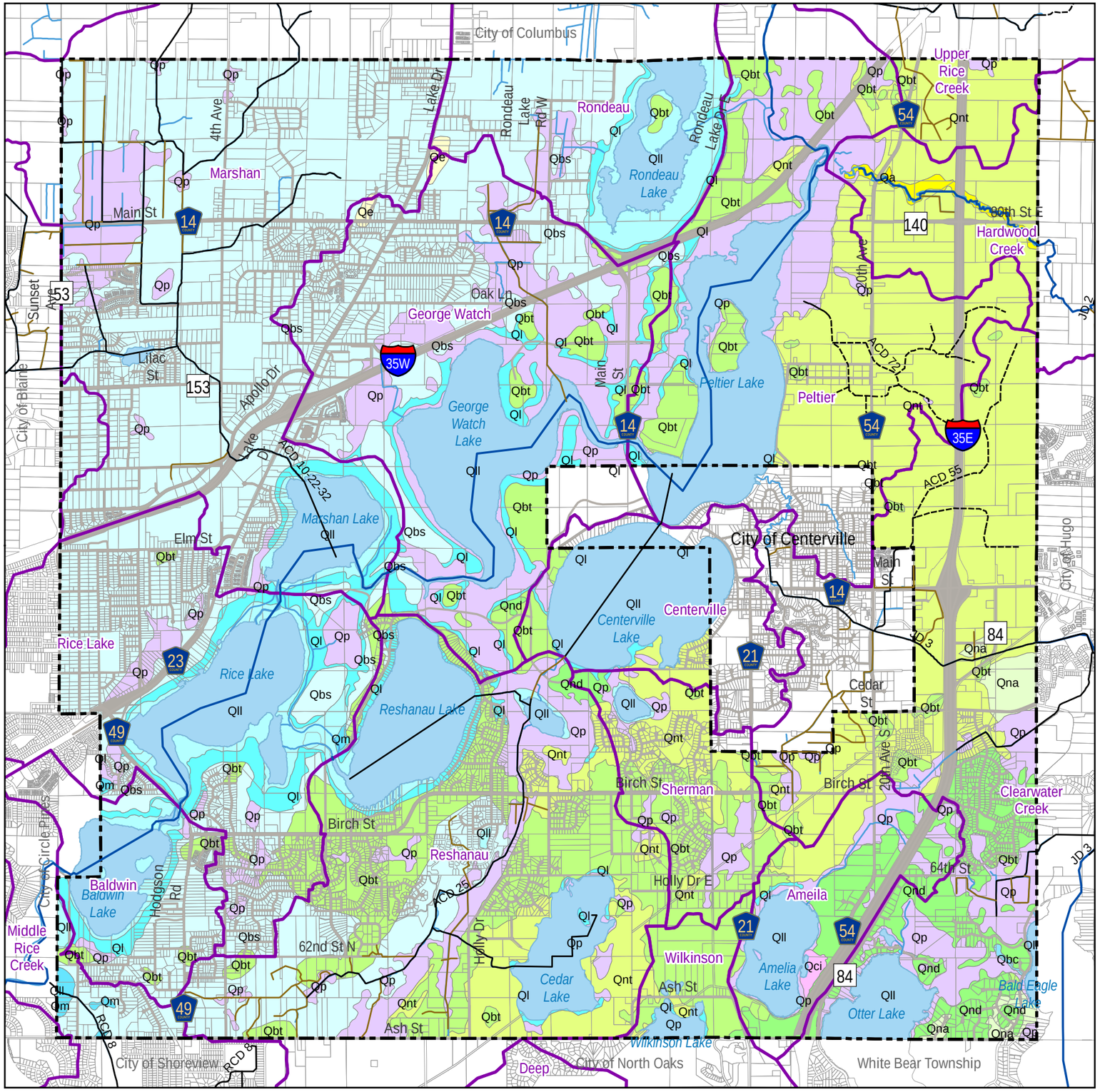
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-2
Surficial Geology



Legend

Quaternary Units

- Alluvium (Qa)
- Lake Sand (Ql)
- Lake Silt and Clay (Qll)
- Peat and Muck (Qp)
- Marl (Qm)
- Eolian Sand (Qe)
- Sand Facies (Qbs)
- Silt and Clay (Qbc)
- Sand over gray loamy to sandytill (Qbt)
- Loamy Till (Qnt)
- Sandy Till (Qna)
- Mixed Till (Qnd)
- Ice-contact Deposit(Qci)

- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
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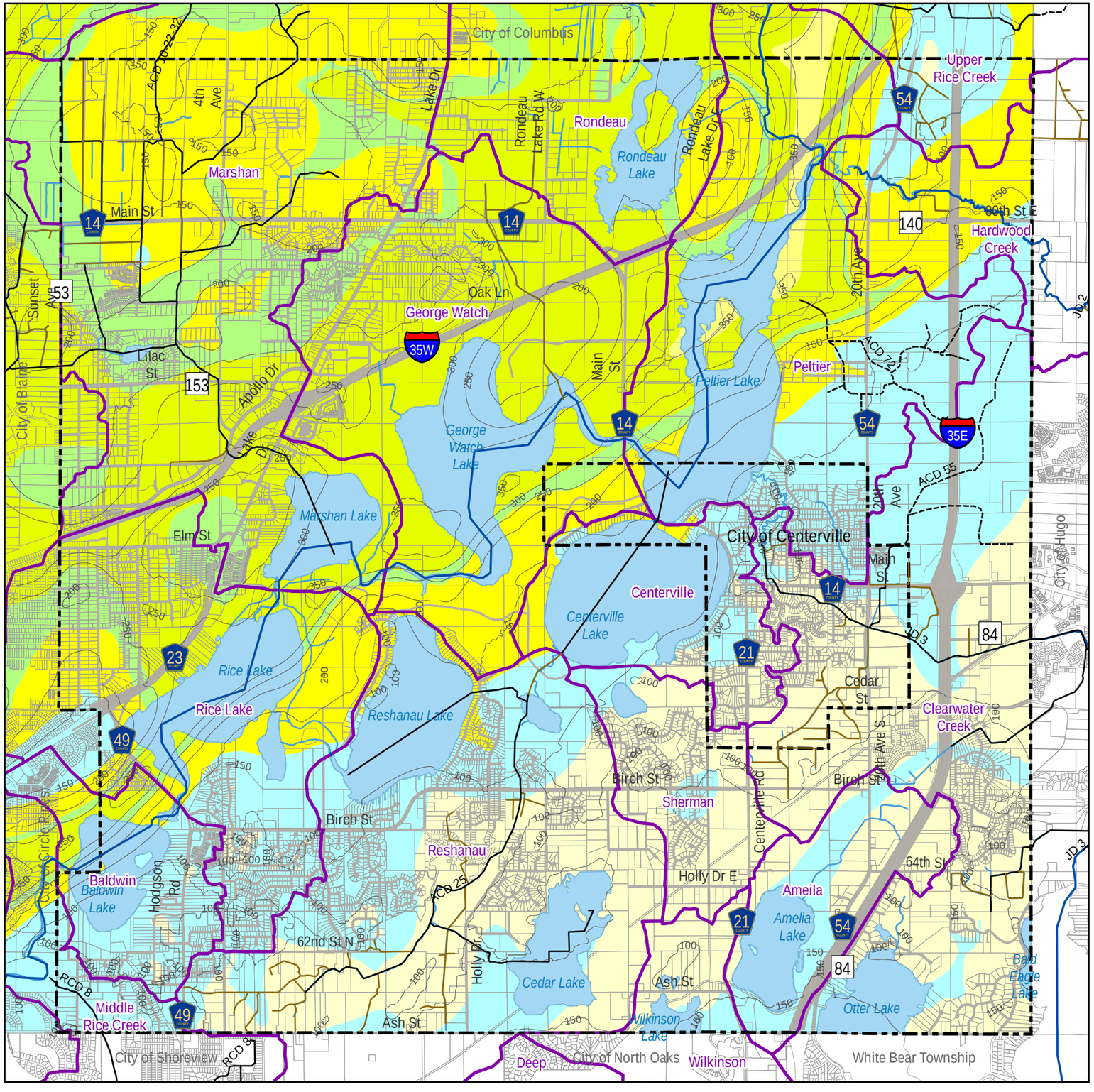
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-3
Bedrock Geology



Legend

PALEOZOIC ROCKS

- Platteville Limestone, Up. Ord.
- St. Peter Sandstone, Mid. to Up. Ord.
- Prairie du Chien group, Lower Ord.
- Jordan Sandstone, Up. Camb.
- St. Lawrence Formation, Up. Camb.
- Tunnel City group,Up. Camb.
- Wonewoc Sandstone, Up. Camb.
- Eau Claire Formation, Mid. to Up. Camb.
- Mt. Simon Sandstone, Mid. Camb.

- Depth to Bedrock Contour Lines (ft.)
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

2.3 Resource Management Units

The 2008 Lino Lakes Resource Management Plan identifies fifteen Resource Management Units (RMUs) within the City (**Figure 2-4**). RMUs are subwatershed based drainage areas that break the City of Lino Lakes into distinct hydrologic units. The purpose is to provide drainage-area specific management recommendations that address the unique conditions of each subwatershed area. When developing the RMUs, a full analysis was completed using existing and future land use conditions to gain a full understanding of the resources and the stressors that cause impairments within each RMU. Each RMU has its own stressors based on the existing and future land use conditions. For example, for some RMUs stormwater volume is a stressor, and for others it is excess nutrients.

RMUs are used in the development of goals and policies for the City's surface water resources in **Sections 3** and **4** and existing inventories for each RMU are provided in **Appendix B**. The intent of implementing RMU specific goals, policies, and implementation recommendations is to achieve the aquatic resource management goals of the 2008 Lino Lakes Resource Management Plan and achieve a watershed-based approach to flood control and protecting high quality wetlands.

In Section 5, the RMU classification is used within the stormwater management implementation plan (**Table 5-23)** to demonstrate funding prioritization for RMUs. Additionally, the development of Subwatershed Management Plans for RMUs is listed in **Table 5-23** as an action item for the top priority RMUs over the next ten years. RMU priority for subwatershed plan development is intended to occur in the following order:

1. Clearwater Creek RMU
2. Marshan RMU
3. Reshanau RMU
4. Wilkinson RMU
5. Amelia RMU
6. Hardwood Creek RMU
7. Rice Lake RMU

If the need arises and resources allow, subwatershed plans for the remaining RMUs will be developed. The RMU specific subwatershed plans will expand on the Resource Management Plan identified stressors, and will develop specific projects and actions to manage impairments and existing and future land use using a watershed-based planning approach.

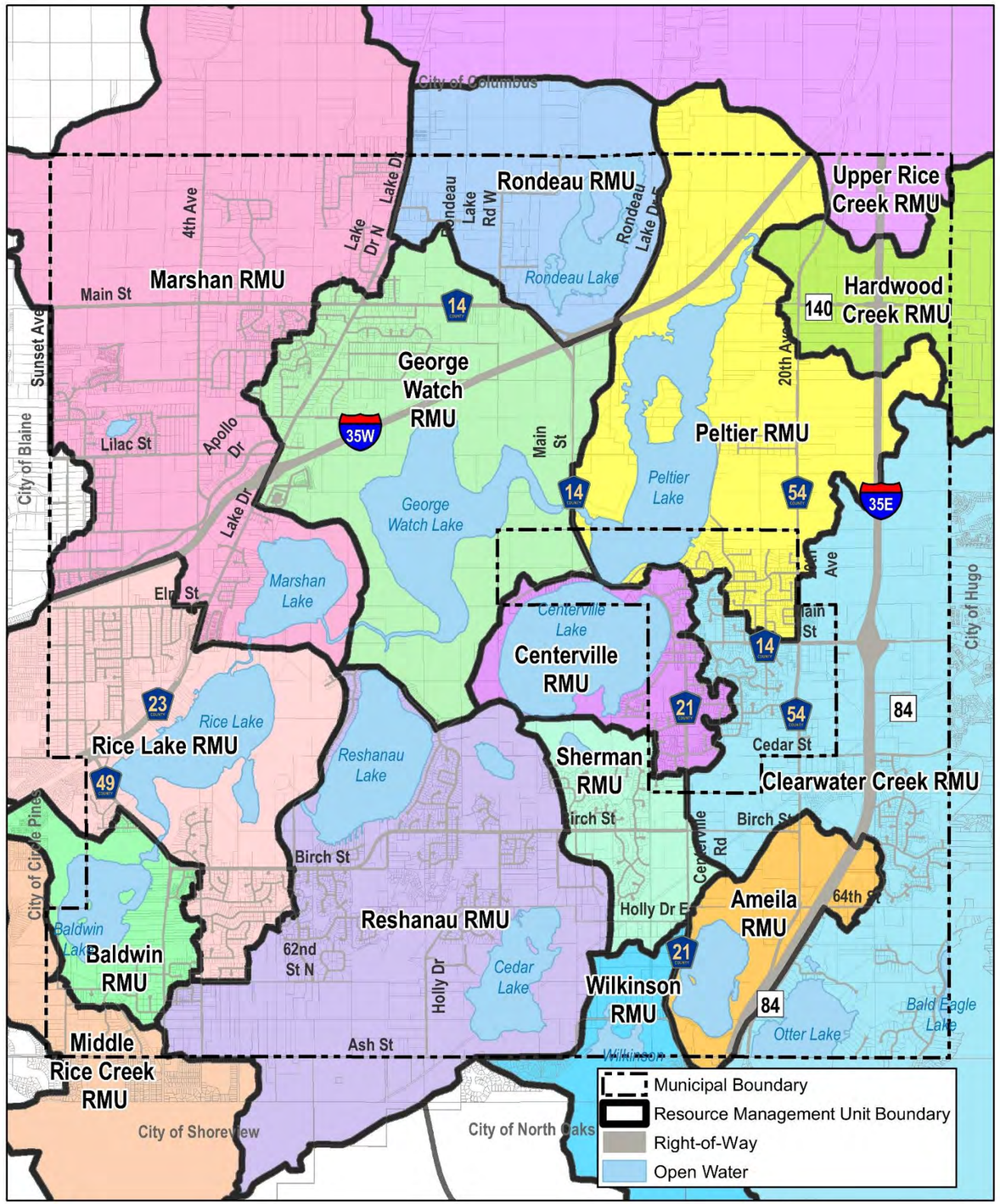


Figure 2-4
Resource Management Units

2.4 Surface Water Resources

Lakes, wetlands, judicial and county ditches dominate the landscape of the City of Lino Lakes, open water makes up 14% of the City's land, prominently represented by the Chain of Lakes. The surface water resources are shown in **Figure 2-4**. These natural features play an extensive role in the way the community has developed and will develop in the future. Two watershed districts cover the City of Lino Lakes; Rice Creek Watershed District, which covers most of Lino Lakes, and Vadnais Lake Area Watershed Management Organization in the southeast corner.

Public Waters

The City contains all or part of fifteen lakes. Of the City's lakes, nine of them (Baldwin, Centerville, George Watch, Marshan, Peltier, Reshanau, Rice, Sherman, and Ward) are located within or abutting the Chain of Lakes Regional Park. The City's lakes generally fall into three shoreland management categories: Natural Environment, Recreational and General Development. The Natural Environment lakes are primarily located in the Chain of Lakes area and include Peltier, George Watch, Marshan, Rice, Ward, Sherman, Cedar, Amelia, Rondeau and Wilkinson, most of the lakes in the Chain of Lakes are shallow lakes with maximum depths of 20 feet or less. Recreational lakes include Otter, Centerville, Reshanau, and Baldwin. Bald Eagle Lake is a General Development Lake. They are used for a variety of aquatic recreational uses such as swimming, boating, fishing and water skiing. Centerville, Bald Eagle, Peltier and Reshanau Lakes are considered game fishing lakes. The details of each lake are presented in **Section 2.4** and **Appendix B**.

Creeks

The City's river and stream resources are characterized by three major stream systems: Rice Creek, and two of its tributaries, Hardwood Creek and Clearwater Creek. A network of ditches and storm sewer drain to these streams; the ditch and storm sewer system is discussed in **Section 2.6**. Rice Creek, Hardwood Creek and Clearwater Creek join at Peltier Lake with a combined drainage area of 70 square miles (44,800 acres). Hardwood Creek, with a total drainage area of 28 square miles, originates in Washington County's Rice Lake at a normal lake elevation of 920 feet and flows to Peltier Lake at an approximate elevation of 884 feet. Clearwater Creek originates in White Bear Lake and flows into Bald Eagle Lake, which has a normal elevation of about 884 feet. From there, it proceeds to Centerville Lake and then to Peltier Lake.

Two creek reaches are listed in the 2014 Minnesota Pollution Control Agency 303(d) list of impaired waters. The reach of Clearwater Creek between Bald Eagle Lake and Peltier Lake was listed in 2002 for fish bioassessments, and in 2006 for aquatic macroinvertebrate assessments. A TMDL for these assessments was conducted during 2013-2016 to determine the stressors for these impairments. The reach of Hardwood Creek between Hwy 61 and Peltier Lake was listed in 2002 for fish bioassessments. Based on a TMDL started in 2003, this listing was updated as a dissolved oxygen stressor on aquatic life in 2004.

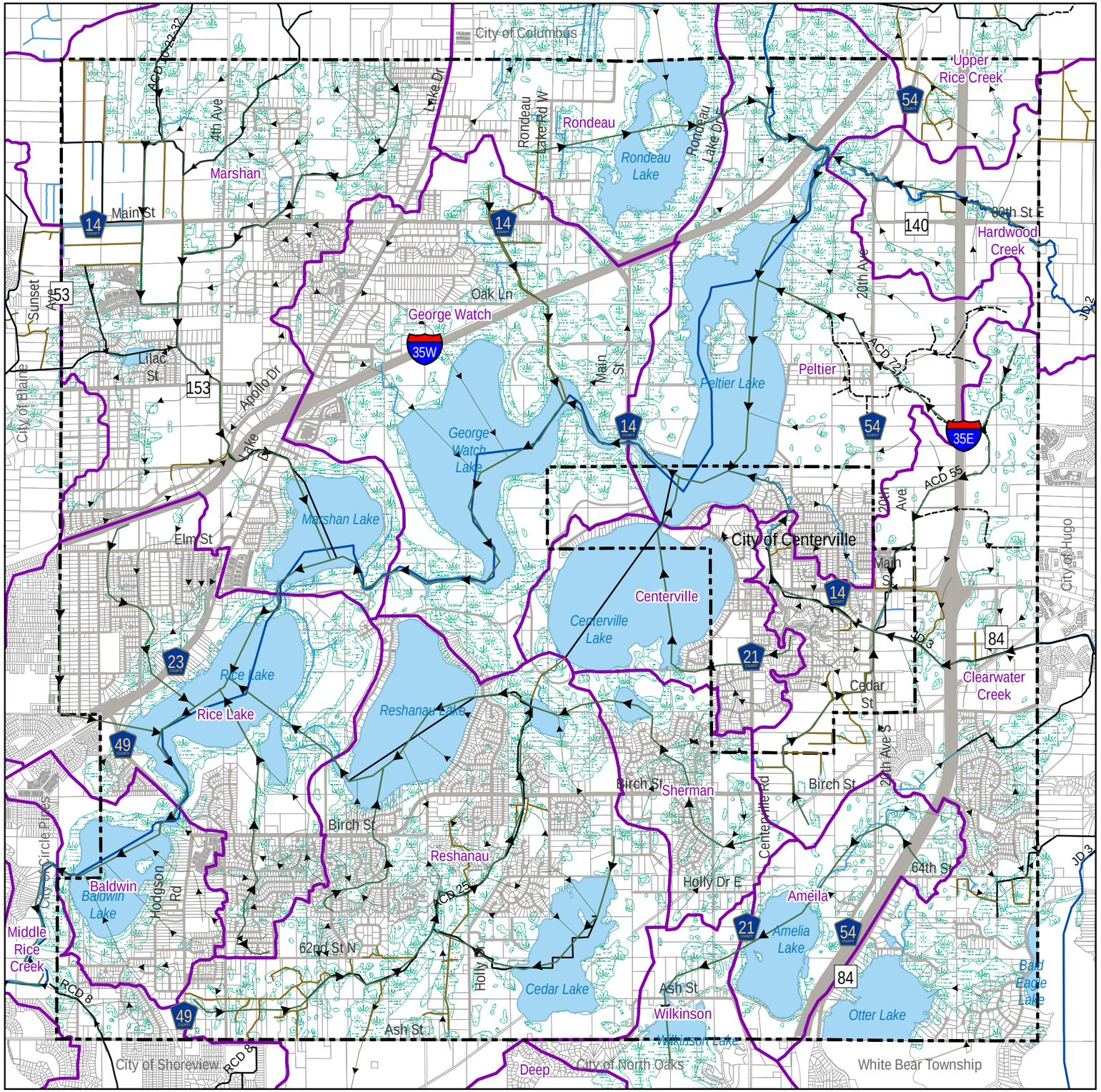
Wetlands

Wetland inventories have been completed by the U.S. Fish and Wildlife Service as published on the National Wetland Inventory Maps, and by the Minnesota Department of Natural Resources, as published in their Protected Waters Inventory. These wetland inventories will be utilized to assist in determining if a wetland is present on a given parcel of property within the City.

A number of comprehensive wetland studies have been conducted to guide the management of wetlands and their benefits within Lino Lakes. The two key studies are the Lino Lakes Resource Management Plan (RMP, 2008) and the draft Lino Lakes Special Area Management Plan (SAMP, 2010). These two studies provide the foundation for the management of wetlands, surface water, floodplains, and greenway resources within the City of Lino Lakes. The SAMP and RMP establish Resource Management Units and standards to support the wetland resources of the City under future development in a manner that integrates with floodplain management, stormwater management, and greenway management.

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-5
Surface Water



Legend

- Major Drainage Routes
- Minor Drainage Routes
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- National Wetlands Inventory
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

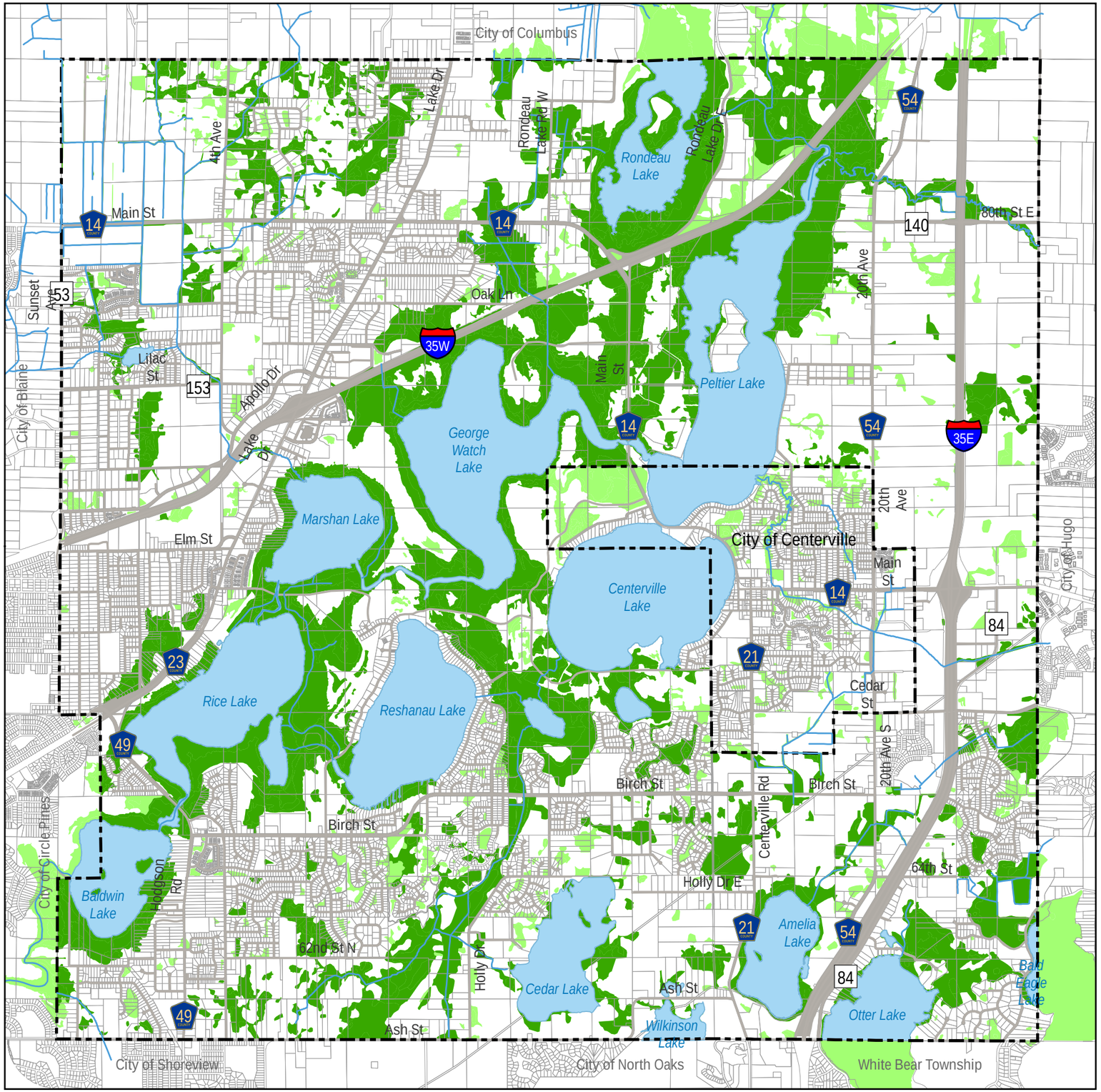
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-6
High Priority Wetlands



Legend

- High Priority Wetlands
- Wetlands
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

Amelia Lake

Amelia Lake is located in the boundaries of the Vadnais Lake Area Watershed Management Organization and outflows to the south. Amelia has a surface area of 195 acres and a maximum depth of 4 feet.

Table 2-3. Amelia Lake Summary

DNR ID[1]	02001400
Watershed District[3]	Vadnais Lake WMO
Watershed Area[3]	754 ac
Surface Area[3]	195 ac
Category[4]	Shallow Lake
Maximum Depth[3]	4 ft
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	908.26
Lowest Recorded[1]	900.98
Highest Known[1]	911.9
RCWD Regulatory Floodplain[2]	-
FEMA Base Flood Elevation[5]	910.2
Impaired Water[6]	No
Impairment[6]	-
Approved TMDL[6]	-

Lake Summary Sources:
[1] Minnesota Dept. of Natural Resources Lake Finder
[2] Rice Creek Watershed District
[3] Vadnais Lakes Area Watershed Management Organization
[4] Minnesota Pollution Control Agency
[5] FEMA Anoka County Flood Insurance Study, 2015
[6] MPCA Impaired Waters List, 2012

Bald Eagle Lake

Bald Eagle Lake has a surface area of 1,071 acres, a watershed area of 10,835 acres, and a maximum depth of 36 feet. Only a small portion of Bald Eagle Lake is located within the City of Lino Lakes municipal boundary. Bald Eagle is a deep lake and is managed to support aquatic life and recreational uses such as boating and swimming. Bald Eagle was listed as impaired for nutrient/eutrophication biological indicators in 2002.

Table 2-4. Bald Eagle Lake Summary

DNR ID[1]	62000200
Watershed District[2]	Rice Creek WD
Watershed Area[2]	10,835 acres
Surface Area[1]	1,071 acres
Category[4]	Lake
Maximum Depth[1]	36 ft
Uses:[4]	1C, 2Bd, 3C
Aquatic Recreation[4]	X
Water Access[1]	X
Aquatic Life[4]	X
Fish Stocking[1]	X [Walleye]
Aquatic Consumption Advisory[1]	X [Mercury]
Drinking Water Supply[4]	X [reserve]
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	911.18
Lowest Recorded[1]	906.2
Highest Known[1]	912.89
RCWD Regulatory Floodplain[2]	912.5
FEMA Base Flood Elevation[5]	912.5
Impaired Water[6]	Y - 1998
Impairment[6]	Mercury in fish tissue
Approved TMDL[6]	Y - 2008

Baldwin Lake

Baldwin Lake has a surface area of 220 acres, a watershed area of 612 acres, and a maximum depth of 4.5 feet. Baldwin is a shallow lake and is managed to support aquatic life and enhance passive recreational uses. Baldwin was listed as impaired for nutrient/eutrophication biological indicators in 2010.

Table 2-5. Baldwin Lake Summary

DNR ID[1]	02001300
Watershed District[2]	Rice Creek WD
Watershed Area[2]	612 acres
Surface Area[1]	220 acres
Category[4]	Shallow Lake
Maximum Depth[1]	4.5 ft
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	883.25
Lowest Recorded[1]	877.73
Highest Known[1]	885.2
RCWD Regulatory Floodplain[2]	887
FEMA Base Flood Elevation[5]	887
Impaired Water[6]	Y - 2010
Impairment[6]	Nutrient/Eutrophication Biological Indicators
Approved TMDL[6]	27.94 mg-TP/day [2013]

Cedar Lake

Cedar Lake is a small lake located east of Reshanau Lake. Lake surface area, watershed area, and maximum depth are unknown. Cedar is not listed as an impaired water body.

Table 2-6. Cedar Lake Summary

DNR ID[1]	02001200
Watershed District[2]	Rice Creek WD
Watershed Area[2]	662 acres
Surface Area[1]	208 acres
Category[4]	-
Maximum Depth[1]	-
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	893.06
Lowest Recorded[1]	892.87
Highest Known[1]	892.87
RCWD Regulatory Floodplain[2]	894.4
FEMA Base Flood Elevation[5]	-
Impaired Water[6]	No
Impairment[6]	-
Approved TMDL[6]	-

Lake Summary Sources:
[1] Minnesota Dept. of Natural Resources Lake Finder
[2] Rice Creek Watershed District
[3] Vadnais Lakes Area Watershed Management Organization
[4] Minnesota Pollution Control Agency
[5] FEMA Anoka County Flood Insurance Study, 2015
[6] MPCA Impaired Waters List, 2012

Centerville Lake

Centerville Lake has a surface area of 495 acres, a watershed area of 424 acres, and a maximum depth of 19 feet. Centerville is a deep lake and is managed to support aquatic life and recreational uses such as boating and swimming. Centerville was listed as impaired for nutrient/eutrophication biological indicators in 2002.

Table 2-7. Centerville Lake Summary

DNR ID[1]	02000600
Watershed District[2]	Rice Creek WD
Watershed Area[2]	866 acres
Surface Area[1]	424 acres
Category[4]	Lake
Maximum Depth[1]	19 ft
Uses:[4]	1C, 2Bd, 3C
Aquatic Recreation[4]	X
Water Access[1]	X
Aquatic Life[4]	X
Fish Stocking[1]	X [Walleye]
Aquatic Consumption Advisory[1]	X [Mercury]
Drinking Water Supply[4]	X [reserve]
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	885.15
Lowest Recorded[1]	883.27
Highest Known[1]	886.5
RCWD Regulatory Floodplain[2]	887.9
FEMA Base Flood Elevation[5]	887.9
Impaired Water[6]	Y - 2002
Impairment[6]	Nutrient/Eutrophication Biological Indicators
Approved TMDL[6]	Y - 2005

Clearwater Creek

Only a small portion of the Clearwater Creek watershed is located in Lino Lakes. It's beneficial uses include supporting the propagation and maintenance of a healthy indigenous fish communities, associated aquatic life, and their habitats. Clearwater Creek is also suitable for non-motorized boating and other forms of aquatic recreation. Clearwater Creek was listed as an impaired water body in 2006 for low levels of dissolved oxygen affecting aquatic life. A TMDL was established in 2015 to address these impairments.

George Watch Lake

George Watch Lake has a surface area of 979 acres, a watershed area of 2,824 acres, and a maximum depth of 5 feet. George Watch is a shallow lake and is managed to support aquatic life and enhance passive recreational uses. George Watch was listed as impaired for nutrient/eutrophication biological indicators in 2002.

Table 2-8. George Watch Lake Summary

DNR ID[1]	02000500
Watershed District[2]	Rice Creek WD
Watershed Area[2]	2,824 acres
Surface Area[1]	979 acres
Category[4]	Shallow Lake
Maximum Depth[1]	5 ft
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	-
Lowest Recorded[1]	-
Highest Known[1]	-
RCWD Regulatory Floodplain[2]	887.0
FEMA Base Flood Elevation[5]	Zone A
Impaired Water[6]	Y - 2002
Impairment[6]	Nutrient/Eutrophication Biological Indicators
Approved TMDL[6]	31.95 mg-TP/day [2013]

Hardwood Creek

Only a small portion of the Hardwood Creek watershed is located in Lino Lakes. It's beneficial uses include supporting the propagation and maintenance of a healthy fish communities, associated aquatic life, and their habitats. Hardwood Creek is also suitable for non-motorized boating and other forms of aquatic recreation. Hardwood Creek is not listed as an impaired waterbody.

Marshan Lake

Marshan Lake has a surface area of 299 acres and a maximum depth of 3.5 feet. Marshan is a shallow lake and is managed to support aquatic life and enhance passive recreational uses. Marshan was listed as impaired for nutrient/eutrophication biological indicators in 2002.

Table 2-9. Marshan Lake Summary

DNR ID[1]	02000700
Watershed District[2]	Rice Creek WD
Watershed Area[2]	4,956 acres
Surface Area[1]	299 acres
Category[4]	Shallow Lake
Maximum Depth[1]	3.5 ft
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	883.45
Lowest Recorded[1]	878.68
Highest Known[1]	882.56
RCWD Regulatory Floodplain[2]	887
FEMA Base Flood Elevation[5]	887
Impaired Water[6]	Y - 2002
Impairment[6]	Nutrient/Eutrophication Biological Indicators
Approved TMDL[6]	26 mg-TP/day [2013]

Otter Lake

Otter Lake has a surface area of 229 acres, a watershed area of 1,512 acres, and a maximum depth of 21 feet. Otter is a deep lake and is managed to support aquatic life and recreational uses such as boating and swimming. Otter is not listed as an impaired water body

Table 2-10. Otter Lake Summary

DNR ID[1]	02000300
Watershed District[2]	Rice Creek WD
Watershed Area[2]	1,512 acres
Surface Area[1]	229 acres
Category[4]	Lake
Maximum Depth[1]	21 ft
Uses:[4]	1C, 2Bd, 3C
Aquatic Recreation[4]	X
Water Access[1]	X
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	X
Drinking Water Supply[4]	X [reserve]
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	911.7
Lowest Recorded[1]	906.2
Highest Known[1]	912.92
RCWD Regulatory Floodplain[2]	912.7
FEMA Base Flood Elevation[5]	912.7
Impaired Water[6]	Y - 2010
Impairment[6]	Mercury in fish tissue
Approved TMDL[6]	Y - 2008

Peltier Lake

Peltier Lake has a surface area of 552 acres, a watershed area of 33,595 acres, and a maximum depth of 16 feet. Peltier is classified as a deep lake and is managed to support aquatic life and enhance passive recreational uses. Peltier was listed as impaired for nutrient/eutrophication biological indicators in 2002.

Table 2-11. Peltier Lake Summary

DNR ID[1]	02000400
Watershed District[2]	Rice Creek WD
Watershed Area[2]	33,595 acres
Surface Area[1]	552 acres
Category[4]	Lake
Maximum Depth[1]	16 ft
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	X
Aquatic Life[4]	X
Fish Stocking[1]	X [walleye]
Aquatic Consumption Advisory[1]	X
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	884.85
Lowest Recorded[1]	876.98
Highest Known[1]	886.63
RCWD Regulatory Floodplain[2]	887.7
FEMA Base Flood Elevation[5]	887.7
Impaired Water[6]	Y - 1998 Y - 2002
Impairment[6]	Mercury in fish tissue Nutrient/Eutrophication Biological Indicators
Approved TMDL[6]	Y - 2008 Y - 2005

Reshanau Lake

Reshanau Lake has a surface area of 375 acres, a watershed area of 913 acres, and a maximum depth of 10 feet. Reshanau is a shallow lake and is managed to support aquatic life and enhance passive recreational uses. Reshanau was listed as impaired for nutrient/eutrophication biological indicators in 2006.

Table 2-12. Reshanau Lake Summary

DNR ID[1]	02000900
Watershed District[2]	Rice Creek WD
Watershed Area[2]	913 acres
Surface Area[1]	375 acres
Category[4]	Shallow Lake
Maximum Depth[1]	10 ft
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	X
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	883.65
Lowest Recorded[1]	879.36
Highest Known[1]	885.5
RCWD Regulatory Floodplain[2]	887
FEMA Base Flood Elevation[5]	887
Impaired Water[6]	Y - 2006
Impairment[6]	Nutrient/Eutrophication Biological Indicators
Approved TMDL[6]	0.71 mg-TP/day [2013]

Rice Lake

Rice Lake has a surface area of 560 acres, a watershed area of 2,229 acres, and a maximum depth of 4.75 feet. Rice is a shallow lake and is managed to support aquatic life and enhance passive recreational uses. Rice was listed as impaired for nutrient/eutrophication biological indicators in 2010.

Table 2-13. Rice Lake Summary

DNR ID[1]	02000800
Watershed District[2]	Rice Creek WD
Watershed Area[2]	2,229 acres
Surface Area[1]	560 acres
Category[4]	Shallow Lake
Maximum Depth[1]	4.75 ft
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	X
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	883.25
Lowest Recorded[1]	878.35
Highest Known[1]	885.2
RCWD Regulatory Floodplain[2]	887
FEMA Base Flood Elevation[5]	887
Impaired Water[6]	Y - 2010
Impairment[6]	Nutrient/Eutrophication Biological Indicators
Approved TMDL[6]	30.68 mg-TP/day [2013]

Rondeau Lake

Rondeau Lake has a surface area of 546 acres, a watershed area of 1,533 acres, and a maximum depth of 12 feet. Rondeau is classified as a shallow lake and is managed to support aquatic life and enhance passive recreational uses. Rondeau is not listed as an impaired water body.

Table 2-14. Rondeau Lake Summary

DNR ID[1]	02001500
Watershed District[2]	Rice Creek WD
Watershed Area[2]	1,533 acres
Surface Area[1]	546 acres
Category[4]	Shallow Lake
Maximum Depth[1]	12 ft
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	-
Lowest Recorded[1]	884.63
Highest Known[1]	887.35
RCWD Regulatory Floodplain[2]	887.6
FEMA Base Flood Elevation[5]	887.6
Impaired Water[6]	No
Impairment[6]	-
Approved TMDL[6]	-

Sherman Lake

Sherman Lake has a surface area of 44 acres, a watershed area of 680 acres. Maximum depth is unknown, however Sherman Lake is a known shallow lake. Sherman is not listed as an impaired water body.

Table 2-15. Sherman Lake Summary

DNR ID[1]	02001100
Watershed District[2]	Rice Creek WD
Watershed Area[2]	680 acres
Surface Area[1]	44 acres
Category[4]	Shallow Lake
Maximum Depth[1]	-
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	-
Lowest Recorded[1]	-
Highest Known[1]	-
RCWD Regulatory Floodplain[2]	886.9
FEMA Base Flood Elevation[5]	Zone A
Impaired Water[6]	No
Impairment[6]	-
Approved TMDL[6]	-

Upper Rice Creek

Only a small portion of the Upper Rice Creek is located in Lino Lakes. It's beneficial uses include drinking water supply, supporting the propagation and maintenance of a healthy indigenous fish communities, associated aquatic life, and their habitats. Rice Creek is also suitable for boating and other forms of aquatic recreation. Rice Creek was listed as an impaired water body in 2004 for low levels of dissolved oxygen affecting aquatic life. A TMDL was established in 2012 to address these impairments.

Wards Lake

Wards Lake has a surface area of 163 acres and a watershed area of 1,663 acres. Maximum depth is unknown, however Wards Lake is a known shallow lake. Wards is not listed as an impaired water body.

Table 2-16. Wards Lake Summary

DNR ID[1]	02001000
Watershed District[2]	Rice Creek WD
Watershed Area[2]	1,663 acres
Surface Area[1]	163 acres
Category[4]	Shallow Lake
Maximum Depth[1]	-
Uses:[4]	2B, 3C
Aquatic Recreation[4]	X
Water Access[1]	
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	883.86
Lowest Recorded[1]	881.14
Highest Known[1]	885.3
RCWD Regulatory Floodplain[2]	886.9
FEMA Base Flood Elevation[5]	Zone A
Impaired Water[6]	No
Impairment[6]	-
Approved TMDL[6]	-

Wilkinson Lake

Wilkinson Lakes is a 94 acre water body with a maximum depth of 4.5 foot. The lake is located at the south end of the City and was listed as impaired for nutrient/eutrophication biological indicators in 2010. At its ordinary high water level, it extends into the City of Lino Lakes.

Table 2-17. Wilkinson Lake Summary

DNR ID[1]	62004300
Watershed District[3]	Vadnais Lake WMO
Watershed Area[3]	1,108 acres
Surface Area[3]	94 acres
Category[4]	Shallow Lake
Maximum Depth[3]	4.5 ft
Uses:[4]	1C, 2Bd, 3C
Aquatic Recreation[4]	X
Water Access[1]	
Aquatic Life[4]	X
Fish Stocking[1]	
Aquatic Consumption Advisory[1]	
Drinking Water Supply[4]	X
Industrial Supply[4]	X
Agriculture Irrigation[4]	X
Lifestock and Wildlife[4]	X
Aesthetic Enjoyment[4]	X
Ordinary High Water Level[1]	895.36
Lowest Recorded[1]	893.53
Highest Known[1]	893.53
RCWD Regulatory Floodplain[2]	-
FEMA Base Flood Elevation[5]	-
Impaired Water[6]	Y - 2010
Impairment[6]	Nutrient/Eutrophication Biological Indicators
Approved TMDL[6]	Y - 2013

2.5 Stormwater Management System

Hydrologic boundaries do not stop at the municipal borders and orderly coordination between related municipalities is addressed in the Lino Lakes Resource Management Plan (RMP). Hydrologic boundary based, Resource Management Units (RMU) identified in the RMP are the basis for neighbor community coordination of shared water resources. The modeling encompasses true watershed catchments even where the boundaries are outside the municipal boundaries. The RCWD District-Wide Regional Model covers small portions of land area within North Oaks, Hugo, and Blaine, as well as all of Centerville. Rice Creek Watershed District has similar, larger, boundaries and modeling called Resources of Concern (ROC), that are delineated based on lakes, while the City of Lino Lakes' RMUs are subsets within the RCWD ROCs.

Public Ditch System

The State of Minnesota has established a set of rules (Minn. Statute 103E) to provide an opportunity for individual landowners to obtain drainage and to minimize the effects to downstream landowners. There are a number of County Ditches (Nos. 8, 10, 22, 25, 32, 47, and 55) and two Judicial Ditches (Nos. 2 and 3) that run through the City. The majority of the drainage system was constructed during the late 1800's and early 1900's. Over the decades, much of the system was minimally maintained by different ditch authorities. Today, many ditches function as straightened creeks within a partially or marginally drained wetland slough or riparian corridor. The major public ditch systems in Lino Lakes are:

- Anoka County Ditch (ACD) 10-22-32
- ACD 25
- ACD 47 (abandoned)
- ACD 55
- ACD 72
- Judicial Ditch (JD) 2 (Hardwood Creek)
- JD 3 (Clearwater Creek)

In Lino Lakes, Anoka and Ramsey Counties have delegated the jurisdiction over all public ditches to the Rice Creek Watershed District (RCWD), who has the authority for managing the drainage systems, including improvements and repairs. Thus, the RCWD is the ditch authority for the purposes of implementing Minnesota Statute §103E (Drainage Law). There are a number of private ditches within the City that are not managed under Minn. Statute 103E, instead are managed individually by private landowners.

Municipal Storm Sewer and Stormwater Treatment Features

The City's storm sewer network and catalogued best management practices (BMPs) treatment devices and structures, as available in GIS, are shown in **Figure 2-7**. The City is also actively updating their infrastructure database and will be adding information, such as BMP normal water levels (NWL) and high water levels (HWL) in the future, but was not comprehensively available at this time. The RCWD also has hydrologic and hydraulic information available for the system and should be contacted if that information is needed. The numbering system and level of resolution of the RCWD data and modeling was not consistent with City information, so the RCWD information should be obtained directly from the RCWD.

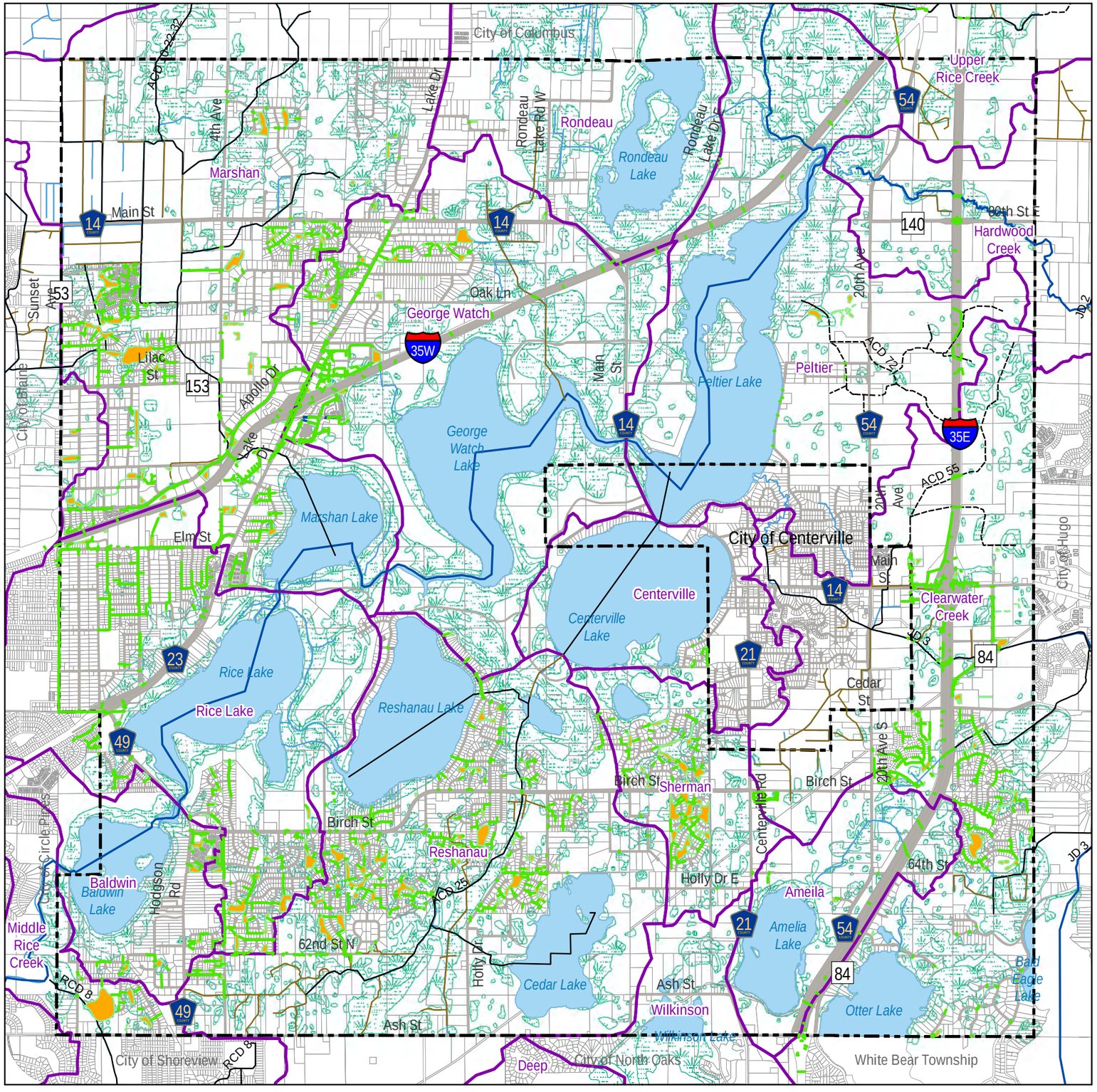
2.6 Water Quality Data and Impairments

Water quality data for the City has been obtained from the Minnesota Pollution Control Agency (MPCA) Environmental Data Access site. This database is utilized by the participating agencies to compile water quality testing data and is almost entirely used for the storage of water quality parameters. Many waterbodies in Lino Lakes are currently identified on the state List of Impaired Waters (**Figure 2-8**), also known as the 303(d) List from the applicable section of the Federal Clean Water Act, these waters are ones that do not currently meet their designated use due to the impact of a particular pollutant or stressor. If monitoring and assessment indicate that a waterbody is impaired by one or more pollutants, it is placed on this list. In Lino Lakes, these impairments for excess nutrients (total phosphorus), mercury, dissolved oxygen, and bacteria are elaborated in the following reports:

- the Hardwood Creek Impaired Biota (Fish) and Dissolved Oxygen TMDL (2009);
- Bald Eagle Lake Nutrient TMDL (2012), Lino Lakes Chain of Lakes Nutrient TMDL (2013);
- Peltier Lake and Centerville Lake TMDL (2013);
- Vadnais Lake Area WMO Total Maximum Daily Load and Protection Study (2014);
- Upper Mississippi River Bacteria TMDL Study and Protection Plan (2016).

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-7
Existing Storm Sewer System



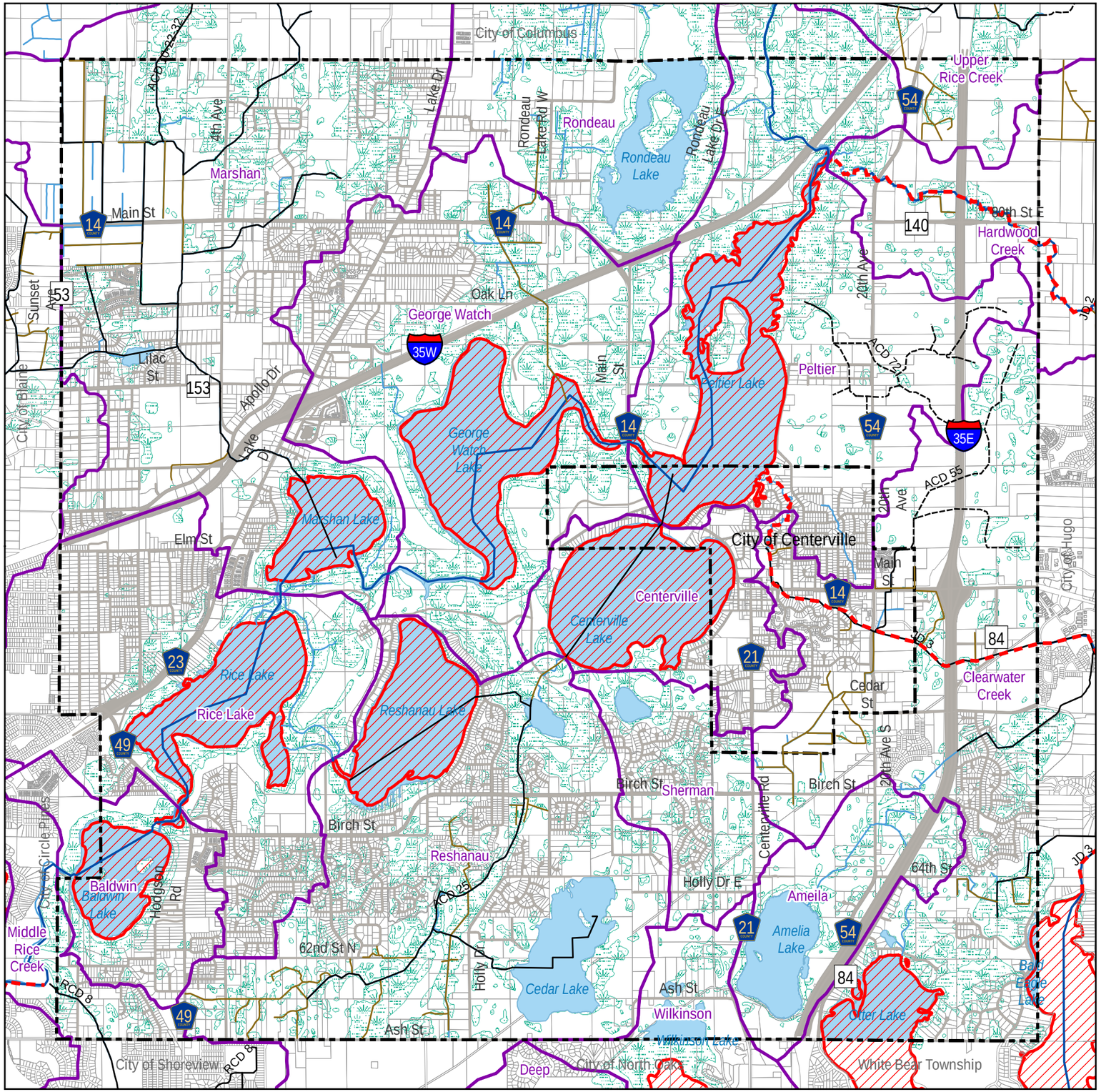
Legend

- Storm Sewer
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Stormwater BMPs
- Resource Management Units
- National Wetlands Inventory
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 6/28/2018



CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-8
Impaired Waters

Legend

- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Impaired Streams
- Impaired Lakes
- Resource Management Units
- National Wetlands Inventory
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

Intercommunity Flows

The City of Lino Lakes is surrounded by several neighboring communities and receives watershed runoff from Blaine, Centerville, Columbus, Hugo, Shoreview, and White Bear Township. Rice Creek Watershed District (RCWD) has estimated the flows to its jurisdictional reaches and, as such, downstream communities, like Lino Lakes, are required to include their allocated flows in their future planning studies, so as to limit adverse impacts to their downstream neighbors of Centerville, Hugo and Circle Pines. The city is contemplating an alternate outlet for build-out conditions pursuant to the development of a Comprehensive Stormwater Management Plan (CSMP) under RCWD Rule C.5 (f). Intercommunity flows and modeled peak flow rates as provided by RCWD are shown below (**Table 2-18**). The City intends to either maintain or reduce intercommunity flow rates relative to the established benchmarks through its goals and policies as well as deference to RCWD rules.

Table 2-18. Benchmark Intercommunity Flow Rates

Receiving City	Watercourse	Peak Flows [cfs]			
		2-Year 24-Hour Rainfall	10-Year 24-Hour Rainfall	100-Year 24-Hour Rainfall	100-Year 10-Day Snowmelt
Centerville	JD 3 Main Trunk	157	291	544	388
Circle Pines	RCD 8 Main Trunk	9	21	39	36
Circle Pines	Rice Creek	119	292	698	1214
Hugo	JD 3 Branch 4	34	67	163	64
Hugo	JD 3 Branch 1	15	17	53	8
Centerville	ACD 55 Main Trunk	7	15	108	31

2.7 Groundwater Resources

Various agencies are responsible for groundwater management and protection. The Minnesota Department of Natural Resources (MnDNR) regulates groundwater usage rate and volume as part of its charge to conserve and use the waters of the State. The Minnesota Department of Health (MDH) is the official State agency responsible for addressing all environmental health matters, including groundwater protection, the well abandonment program, and regulation of the installation of new wells. The Minnesota Pollution Control Agency (MPCA) administers and enforces laws relating to the pollution of groundwater. The Minnesota Geological Survey provides a complete account of the State's groundwater resources. The RCWD serves in an advisory and educational role in cooperating and assisting the DNR, MDH, and the MPCA in their groundwater protection efforts.

The City is located over the Prairie du Chien-Jordan and the Mt. Simon-Hinckley aquifers, as well as glacial sand and gravel. Groundwater is at or near the surface in most of Lino Lakes (**Figure 2-9**). Groundwater flow generally follows the surface topography and flows towards the Rice Creek Chain of Lakes (Berg 2016) and ultimately towards the Mississippi River (Palen 1993).

Groundwater has been known to seep out of natural artesian wells in the Chain of Lakes, especially near the capped St. Paul Water Authority wells in Centerville Lake. The Metropolitan Council has reviewed the surface water and groundwater interactions for Lino Lakes, (**Figure 2-10**) which supports these observations and documents the aquifer recharge areas within Lino Lakes.

Groundwater studies which include the City of Lino Lakes were completed, or were in the process of being completed during the time this plan was written. Those studies include the following:

- Lino Lakes Wellhead Protection Plan
- North & East Metro Groundwater Management Area Plan
- Anoka County Geologic Atlas, Part B
- Anoka Sand Plain Regional Hydrogeologic Assessment
- Minnesota DNR Draft Groundwater Management Plan

The City of Lino Lakes currently operates six active water supply wells, which draw from groundwater from the Prairie du Chien and Jordan aquifers (**Error! Reference source not found.**). The total annual volume appropriated to the City's water supply system by the DNR is 900 million gallons. Locations of the wells are identified in **Figure 2-9**, all six wells are located in a highly sensitive aquifer area, and the vulnerability of the City's wells and groundwater source varies. Areas closer to Wells No. 1, 3, 4, and 5 contains a lack of low permeability material above the Prairie du Chien and Jordan buried sand, while areas closer to Well No. 2 are considered less vulnerable due to the low permeability of the surficial soils. There are 750 private, non-municipal wells, averaging 103-feet in depth, within the City's Drinking Water Supply Management Area (DWSMA), which are a source of concern for potential contamination. Unmaintained, damaged, poorly constructed, or unused/abandoned wells could provide a direct route for contaminants to enter the aquifers utilized by the City of Lino Lakes as the principal drinking water supply.

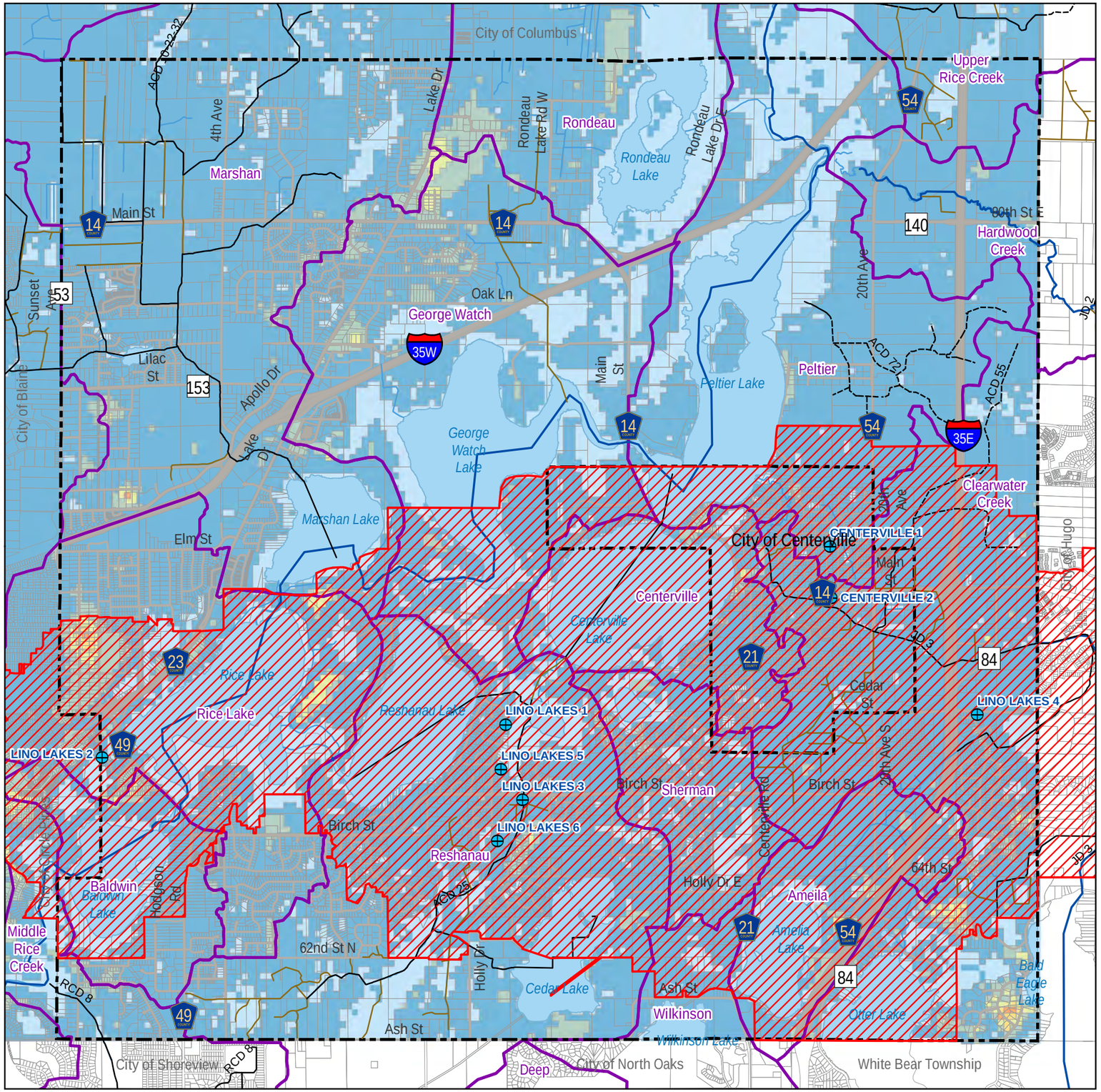
Table 2-19. Lino Lakes Public Water Supply Wells

Local Well Name	Unique Number	Aquifer	Well Depth [ft]	Date Constructed	Authorized Pumping Rate [gpm]
Well No. 1	240171	Prairie du Chien - Jordan	306	1971	900
Well No. 2	110471	Jordan	258	1986	850
Well No. 3	559379	Prairie du Chien - Jordan	283	1995	1,100
Well No. 4	554207	Prairie du Chien - Jordan	338	1995	675
Well No. 5	722629	Prairie du Chien - Jordan	273	2005	1,100
Well No. 6	767887	Prairie du Chien - Jordan	295	2016	1,200

There are ten other active water appropriations permitted by the DNR within the City of Lino Lakes. The St. Paul Water Utility maintains a surface water appropriation from the Chain of Lakes for 8,000 million gallons annually. Other active water appropriations include crop irrigation, sod farms, athletic fields, nursery, and institutional uses of groundwater and surface water.

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-9
Groundwater Resources



Legend

- Municipal Wells
- Drinking Water Supply Management Area

Modeled Depth to Water Table (ft)

- 0 to 10
- >10 to 20
- >20 to 30
- >30 to 40
- >40

- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

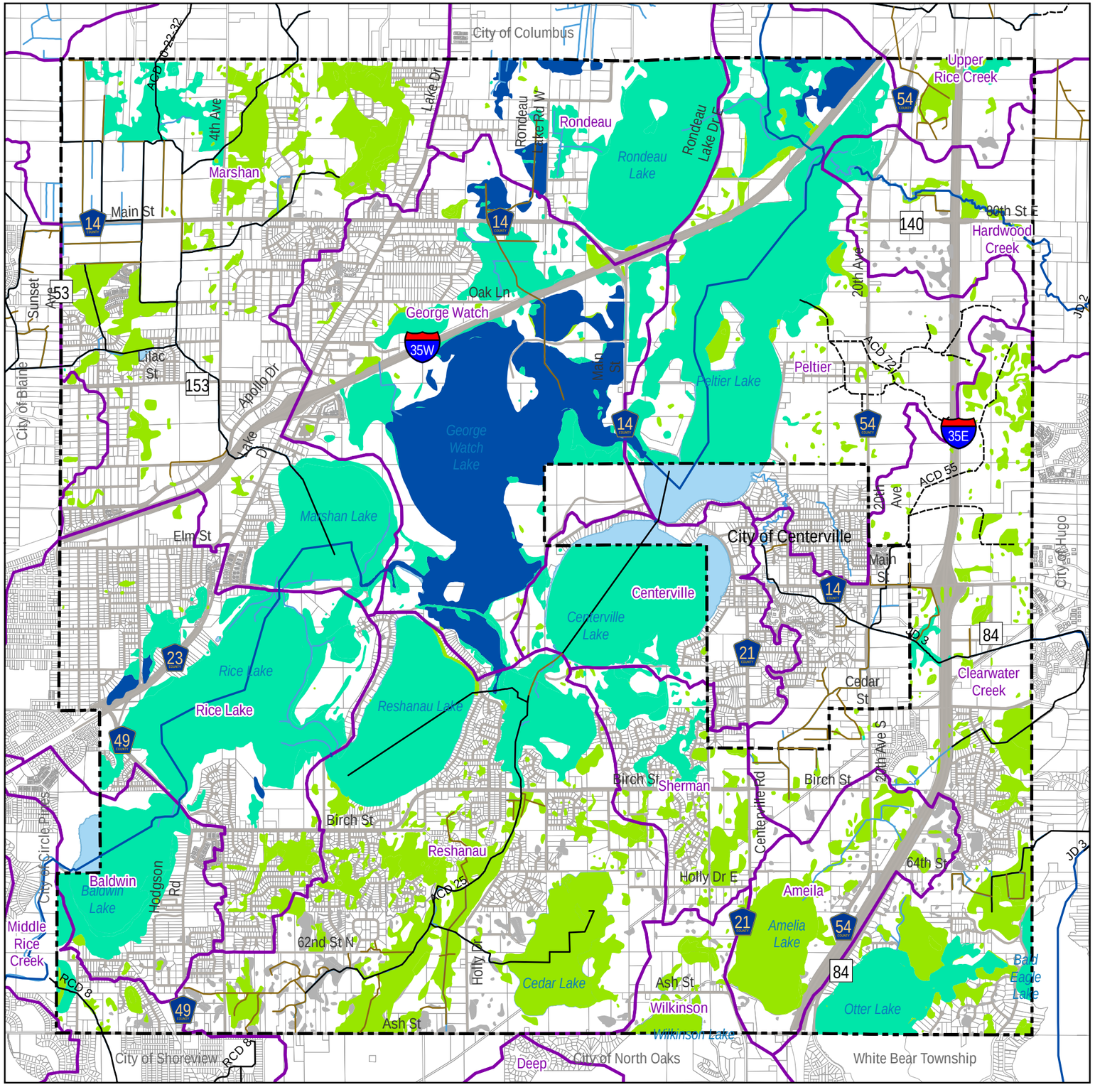
3,500 1,750 0 3,500 Feet

N

Date: 6/28/2018

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-10
Surface Water Groundwater Interaction



Legend

Surface Water Type

- Disconnected from the regional groundwater system
- Recharges aquifers
- Receives and discharges groundwater
- Supported by upwelling groundwater
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

2.8 Existing Conditions

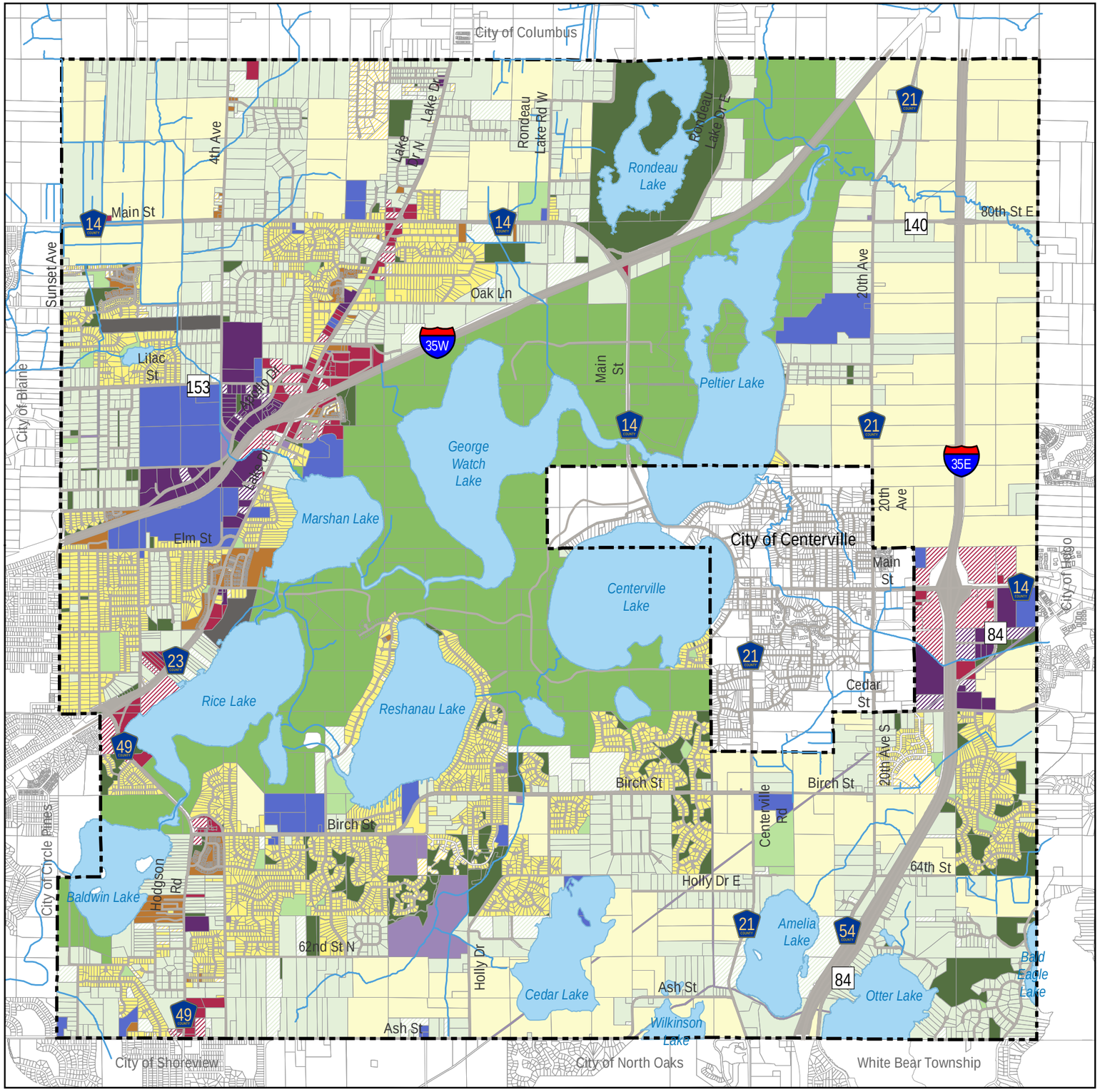
Land Uses and Utilities

Most of the land in Lino Lakes is classified as rural residential (24.9%), agricultural (23.3%) or single family residential (13.5%) and shown on the existing land use map (**Figure 2-11**). The land uses are defined below:

- Private Airfield: Aviation related uses
- Parks and Open Space: Passive or active recreational areas and facilities as well as lands under public control that area designated as permanently undeveloped for the purpose or resource management or protection
- Commercial: Retail, office, and service uses
- Industrial: Manufacturing, processing, warehousing, and research and development uses
- Mixed Use: Mix of residential, retail, and office uses either within one building, structure or development. Residential development may include higher density housing options.
- Low Density Residential: Residential development at 1.6 to 3.9 dwelling units per acre
- Medium Density Residential: Residential development at 4.0 to 5.9 dwelling units per acre
- High Density Residential: Residential development at 6.0 to 10.0 dwelling units per acre
- Permanent Rural: Areas that are not intended to receive sewer service due to topography and soil issues. Development limited to residential single family at low densities or agriculture related uses
- Civic and Institutional: Public buildings or facilities, private or public utilities and infrastructure, public and private schools, and cemeteries

A more detailed definition of land uses within the City of Lino Lakes is available in Chapter 3 – Land Use of the Lino Lakes 2040 Comprehensive Plan.

Public utility services within the City of Lino Lakes include city sewer and water. The Metropolitan Urban Service Area (MUSA) is the area in which public utilities are available, agreed upon with the Metropolitan Council and the City of Lino Lakes (**Figure 2-11**).



CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-11
2017 Existing Land Use

Legend

- Agricultural
- Rural Residential
- Single-Family Residential
- Multi-Family Residential
- Commercial
- Industrial
- Utility
- County Park and Recreation
- City Park and Recreation
- Open Space and Conservation
- Public/Semi-Public
- Private Airfield
- Vacant-Commercial
- Vacant-Industrial
- Vacant-Residential
- Vacant-Rural Residential
- Open Water
- Right-of-Way
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 12/12/2017
DRAFT

Shoreland

The City of Lino Lakes had adopted a Shoreland Management Overlay District, a copy of which is located in **Appendix C**. This ordinance requires setbacks from Shoreland areas and limits the type of development, amount of impervious area, and use of the City's Shoreland areas (**Figure 2-12**).

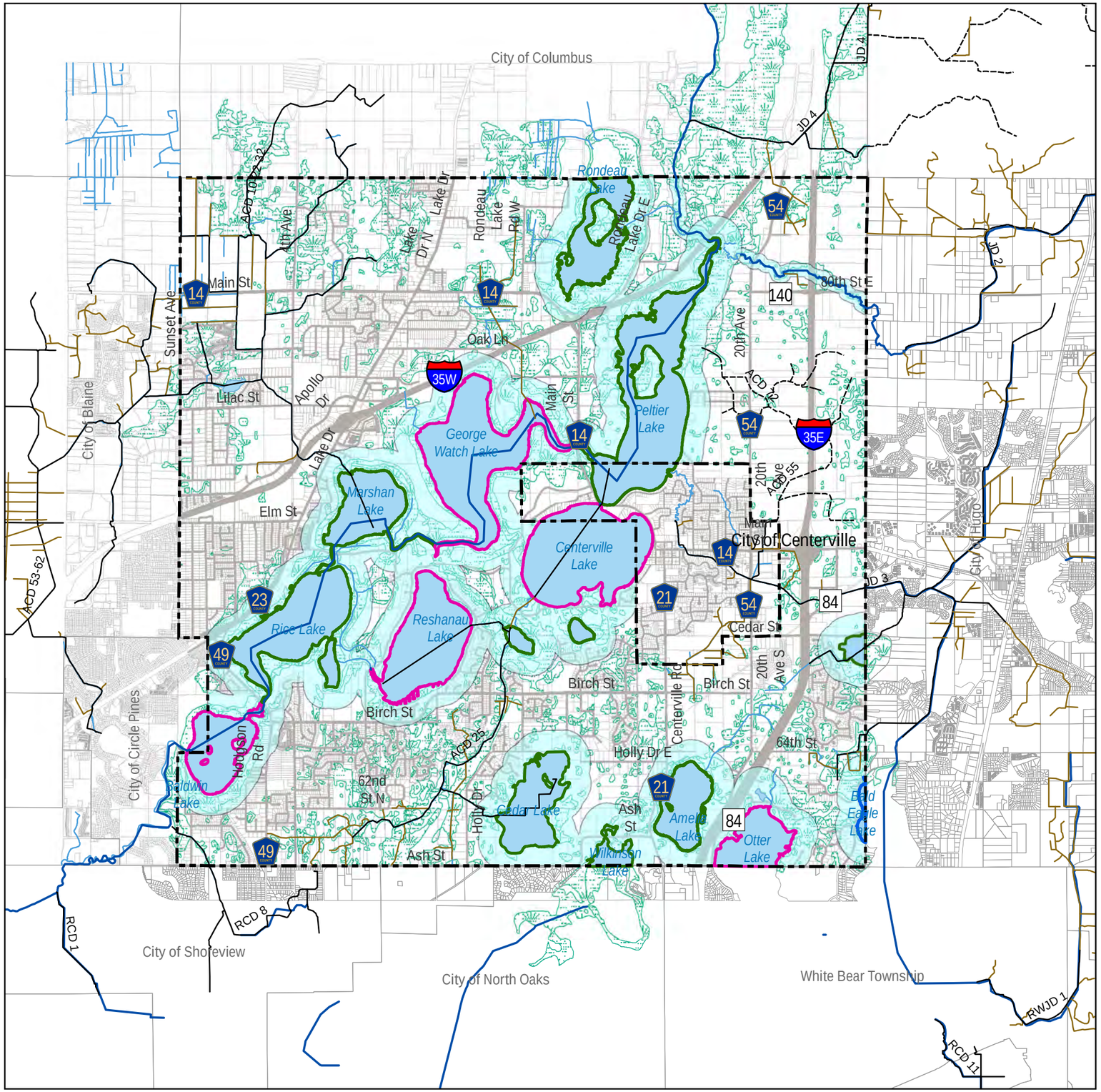
Floodplain

The City of Lino Lakes is the administrator of the National Flood Insurance Program (NFIP) for the community and has adopted a Floodplain Overlay District in the floodplain management ordinance in accordance with the requirements of the NFIP. This ordinance generally regulates developments, land uses and alterations within each of the floodway, flood fringe, and general floodplain districts shown on **Figure 2-13** to minimize potential losses due to periodic flooding in these areas.

The City's Resource Management Plan and I-35E Alternative Urban Areawide Review, as well as Rice Creek Watershed District, identify specific areas of flooding concern under a full buildout scenario, summarized in **Table 2-20** below.

Table 2-20. Summary of Flooding Concerns by Resource Management Unit

RMU	Conveyance Type	Receiving Waters	Receiving Waters Flooding Concern	Existing Flooding Concerns	Partially Drained Wetlands	Future Flooding Concerns	Pollutant Loading Concerns
Upper Rice Creek	None	n/a	n/a	No	Yes	Yes	Yes
Hardwood Creek	Natural Channel	Peltier Lake	Yes	No	No	Yes	Yes
Clearwater Creek	Ditch and pipe	Clearwater Creek/Peltier Lake	Yes	Yes	Yes - Ditches 47 and 55	Yes	Yes
Rondeau	None or private ditch	n/a	n/a	No	No	No	Yes
Peltier	Pipe and pond; ditch and pipe; private ditch	Peltier wetlands	Yes	Yes	Yes - Ditch 72	Yes	No
Centerville	Pipe and pond	Centerville wetlands and lake	Yes	Yes - minor	No	No	No
George Watch	Pipe and pond; private ditch	George Watch groundwater-supported wetlands and lake	Yes	No	No	No	Yes
Marshan	Ditch and pipe	Marshan wetlands and lake	Yes	Yes	Yes – Ditch 10-22-32	Yes	Yes
Reshanau	Pipe and pond, ditch	Reshanau wetlands or lake	Yes	Yes - minor	No	No	Yes
Rice	Pipe	Groundwater-supported wetlands and Rice wetlands and lake	No	No	No	No	Yes
Baldwin	Pipe	Baldwin wetlands	Yes	No	No	No	No
Sherman	Pipe	Sherman Lake and high priority wetlands	Yes	n/a	No	No	No
Amelia	Pipe	Amelia Lake and high priority wetlands	No	Yes	No	No	No
Wilkinson	None	n/a	n/a	n/a	No	No	No
Middle Rice Creek	Pipe	High priority wetlands	Yes	n/a	No	No	Yes



CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-12
Shoreland Management

Legend

- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- National Wetlands Inventory
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams
- Shoreland Management Area

Shoreland Classification

- General Development
- Natural Development
- Recreational Development

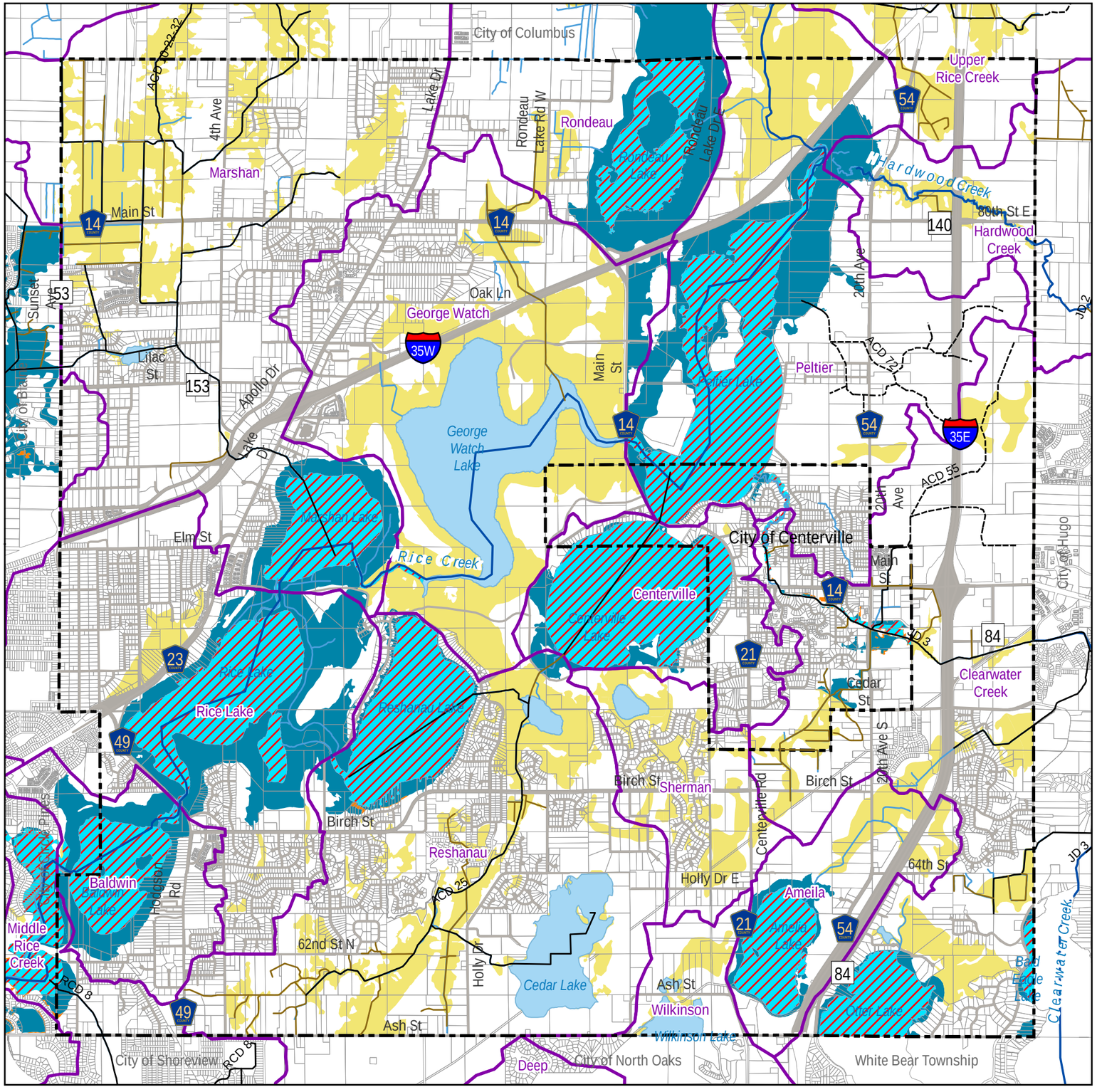
3,500 1,750 0 3,500 Feet

N

Date: 7/11/2018

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-13
Floodplain Districts



Legend

- General Floodplain (Zone A)
- Flood Fringe (Zone AE)
- Floodway (Zone AE)
- 500-year Floodplain (Zone X)
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

2.9 Fish and Wildlife Habitat

The 2008 Resource Management Plan established RCWD's Wetland Management Corridor (WMC), which is the basis of the City's Greenway System. Lino Lakes continues to evaluate and update the resources that go into this plan and continues to implement this plan through development reviews. In cooperation with Rice Creek Watershed District, the WMC is updated regularly to incorporate changes resulting from development and land acquisition. Chapter 10 of the Lino Lakes 2040 Comprehensive Plan outlines the current data used to identify the Greenway System.

The area's mix of plant community types provides diverse habitat for amphibians, reptiles, and mammals as well as numerous species of birds found in multiple habitat niches. The most recent known bird surveys conducted in the mid 1970's for Lino Lakes and Anoka County documented well over 200 species occurring in the immediate vicinity. The shoreline and shallows north of the island serve as a spawning area for Northern pike and walleye, and as a resting area for terns, black crown night herons, and other waterfowl. The north arm of the lake is one of the few remaining places in the metro area with healthy native vegetation, including water willow, which is considered a species of special concern.

Rare and Endangered Species

The City has a notable number of rare biological resources, see **Table 2-21** below. As the Resource Management Plan (RMP) was developed, these rare features and habitats that support rare species were prioritized for protection and incorporation into the Wetland Preservation Corridor. These important natural resource areas were carried forward into the 2040 Comprehensive Plan and identified as part of the multi-functional Greenway System. In general, the rare plant species are found along the upland- wetland transitional zones. Extensive botanical survey work has occurred within the City to document locations of these rare plant species. The City has also invested resources in identifying and protecting Blanding's turtle habitat. The critical habitat areas were identified and incorporated into the Wetland Preservation Corridor and Greenway System.

Table 2-21. Documented Rare and Endangered Species in Lino Lakes

Common Name	Scientific Name	Status
Autumn Fimbry	*Fimbristylis autumnalis*	Special Concern
Bald Eagle	*Haliaeetus leucocephalus*	Watchlist
Bell's Vireo	*Vireo bellii*	Special Concern
Black Huckleberry	*Gaylussacia baccata*	Threatened
Blanding's Turtle	*Emydoida blandingii*	Threatened
Clinton's Bulrush	*Trichophorum clintonii*	Threatened
Cross-leaved Milkwort	*Polygala cruciata*	Endangered
Forster's Tern	*Sterna forsteri*	Special Concern
Lance-leaf Violet	*Viola lanceolata var. lanceolata*	Threatened
Least Moonwort	*Botrychium simplex*	Special Concern
Sandhill Crane	*Grus canadensis*	Watchlist
Snailseed Pondweed	*Potamogeton bicupulatus*	Endangered
St. Lawrence Grapefern	*Botrychium rugulosum*	Special Concern
Toothcup	*Rotala ramosior*	Threatened
Trumpeter Swan	*Cygnus buccinator*	Special Concern
Tubercled Rein Orchid	*Platanthera flava var. herbiola*	Threatened
Twisted Yellow-eyed Grass	*Xyris torta*	Endangered
Upland Sandpiper	*Bartramia longicauda*	Watchlist
Water-willow	*Decodon verticillatus var. laevigatus*	Special Concern

2.10 Regulated Pollutant Sources

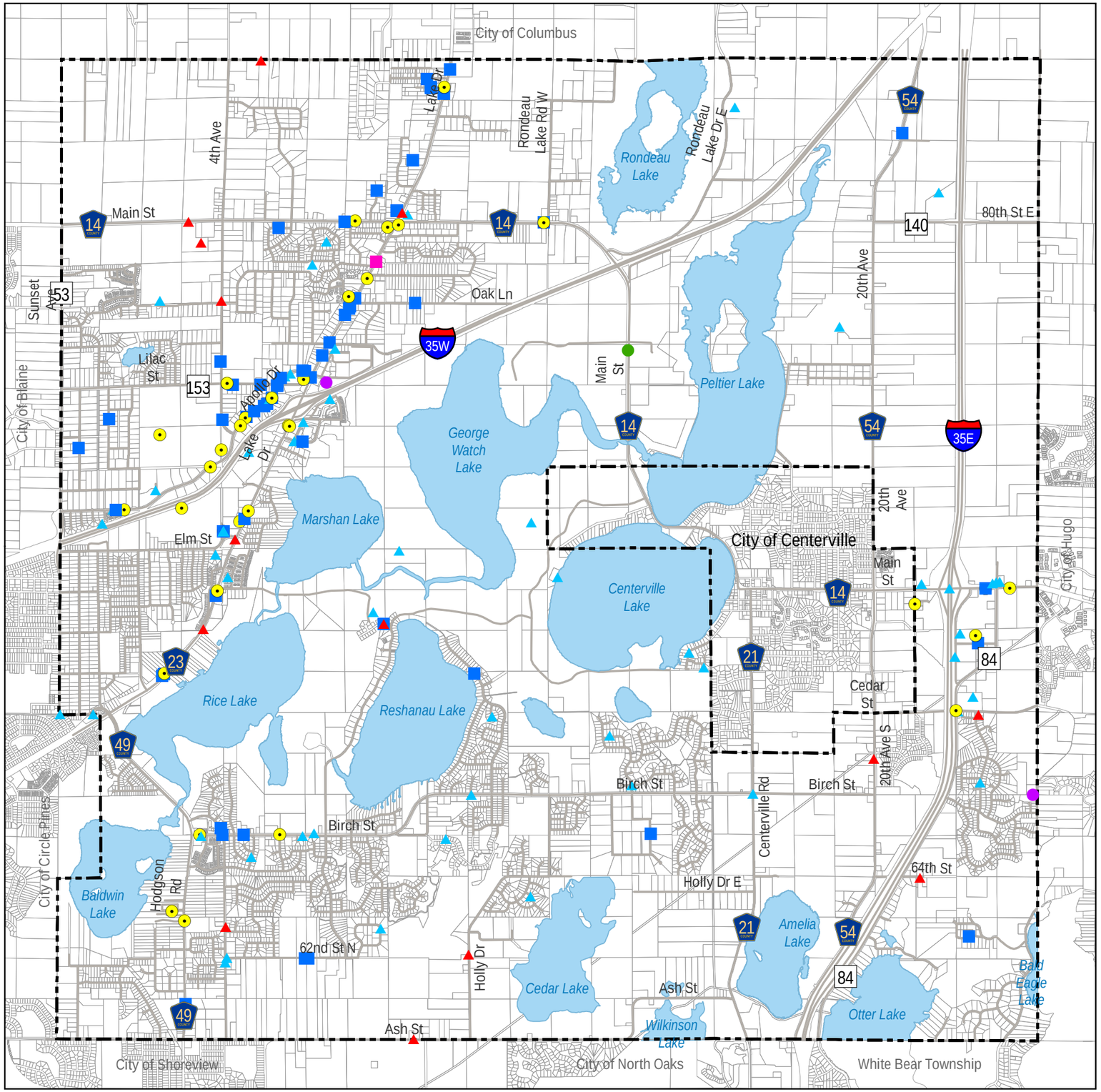
Point Sources

The Minnesota Pollution Control Agency (MPCA) is charged with regulating businesses that have applied for and received different types of environmental permits and registrations from the MPCA. The MPCA has also been tracking potentially contaminated sites since the early 1980s when major federal and state cleanup programs were created. **Figure 2-14** depicts the locations of properties that have active environmental permits or have a record related to a potential environmental hazard. Additional information of specific sites can be found through the "What's in My Neighborhood" feature on the MPCA website. Potential environmental hazards vary from properties where a spill or problem has already been cleaned up, to those currently being investigated or cleaned up. In addition, some sites depicted in **Figure 2-14** have no record of known spills or problems; but rather mark locations where hazardous materials or wastes are used or generated. The most common types of sites in Lino Lakes are small to minimal quantity hazardous waste generators, multiple activity sites, and tank sites. The following descriptions are intended to elucidate sites illustrated in **Figure 2-14** and provide the description given by the MPCA for each site type listed in the figures legend. The total number of each sites is given in the brackets below.

- **Unpermitted Dump Site [2]:** Unpermitted dump sites are landfills that never held a valid permit from the Minnesota Pollution Control Agency (MPCA). Generally, these dumps existed prior to the permitting program established with the creation of the MPCA in 1967. These dumps are not restricted to any type of waste, but were often old farm or municipal disposal sites that accepted household waste. State assessment staff have investigated many of these dump sites.
- **Voluntary Investigation & Cleanup (VIC) Site [2]:** The Voluntary Investigation and Cleanup (VIC) Program is a non-petroleum brownfield program. VIC provides technical assistance to buyers, sellers, developers or local governments seeking to voluntarily investigate or clean up contaminated land. Properties often enter the VIC program in preparation for sale, financing or redevelopment. Voluntary parties that complete investigation and / or cleanup activities under Minnesota Pollution Control Agency (MPCA) oversight can receive liability assurances that protect them from future Superfund liability. In some cases, the MPCA may use institutional controls as part of the overall site remedy and notify interested parties of any property use conditions or restrictions.
- **Landfill, Permitted by Rule [1]:** A landfill that is permitted by rule is not required to obtain an individual solid waste permit if it meets certain eligibility criteria. However, it must comply with waste management rules and regulations. Landfills may be permitted by rule if they have a small capacity and/or operate for a short period of time. Some yard waste composting facilities, recycling facilities and energy recovery facilities are also permitted by rule.
- **Leak Site [3]:** Leak sites are locations where a release of petroleum products has occurred from a tank system. Leak sites can occur from aboveground or underground tank systems as well as from spills at tank facilities. A leak can result from an accident or from activities that occur over a long time. The Minnesota Pollution Control Agency (MPCA) Petroleum Remediation Program staff investigates potential leaks and work to minimize or clean up contamination at those sites.
- **Tank Site [14]:** A tank site is a place with an underground or aboveground storage tank of a certain size on the premises. One tank site may have multiple tanks, and these tanks may contain food products, petroleum products, or other substances. Tank sites include gas stations, bus companies and trucking companies, as well as factories that process sugar beets, ethanol, pulp and paper, or chemicals. The Minnesota Pollution Control Agency (MPCA) requires monitoring and maintenance at these sites, which helps to ensure that tanks do not cause environmental contamination.
- **Industrial Stormwater Permit [2]:** At industrial sites such as factories, salvage yards and airports, stormwater may come into contact with harmful pollutants, including toxic metals, oil, grease, de- icing salts and other chemicals. Industrial stormwater permits are designed to limit the amount of these contaminants that reaches surface water and groundwater, by requiring good practices for storing and handling materials. Facilities with these permits must prepare a Stormwater Pollution Prevention Plan, detailing the practices they will use to limit stormwater pollution.
- **Hazardous Waste, Small to Minimal Quantity Generator [62]:** A small to minimal quantity generator is a facility that generates less than 1,000 kilograms (2,200 pounds) of hazardous waste or 1 kilogram (2.2 pounds) of acutely hazardous waste per calendar month. These facilities have less stringent rules than large quantity generators. This group includes Small Quantity Generators (SQGs), which produce 100 - 1000 kg of hazardous waste per month; Very Small Quantity Generators (VSQGs), which produce less than 100 kg of hazardous waste per month; and Conditionally Exempt Generators, which produce less than 100 kg or 10 gallons of hazardous waste per year. Like large quantity generators, SQGs and VSQGs must have current hazardous waste licenses.
- **Multiple Activities [31]:** Multiple Activity sites are locations where there are multiple Minnesota Pollution Control Agency (MPCA) activities occurring. These sites vary from facilities with a wastewater permit and an air quality permit to cleanup sites with more than one permit.

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-14
Potential Environmental Hazards



Legend

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

- Open Water
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 6/28/2018

Nonpoint Sources

Nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground. Runoff picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, and groundwater. Because of the nutrient (phosphorus) impairments of the Chain of Lakes, phosphorus is the most important nonpoint source pollutant in Lino Lakes. The current total phosphorus budgets for the Chain of Lakes are identified in the 2013 Lino Lakes Chain of Lakes Nutrient TMDL.

Chloride pollution is an emerging contaminant of concern in much of the metro area. Snowmelt and spring runoff picks up road salts used for deicing purposes and deposits them into stormwater ponds, wetlands, lakes and groundwater. Other sources include residential water softeners and municipal waste water treatment plant effluents. Once salts enter surface or groundwater, there are no existing methods available to remove it, and at high concentrations it can be harmful to plants and wildlife as well as foul drinking water supply sources.

2.11 Proposed Conditions

Lino Lakes is forecasted to add 3,300 households between 2020 and 2040. As part of the metropolitan region, the City is required to accommodate a portion of the region's forecasted growth. As Lino Lakes grows, it is anticipated that development patterns will change in many areas of the City.

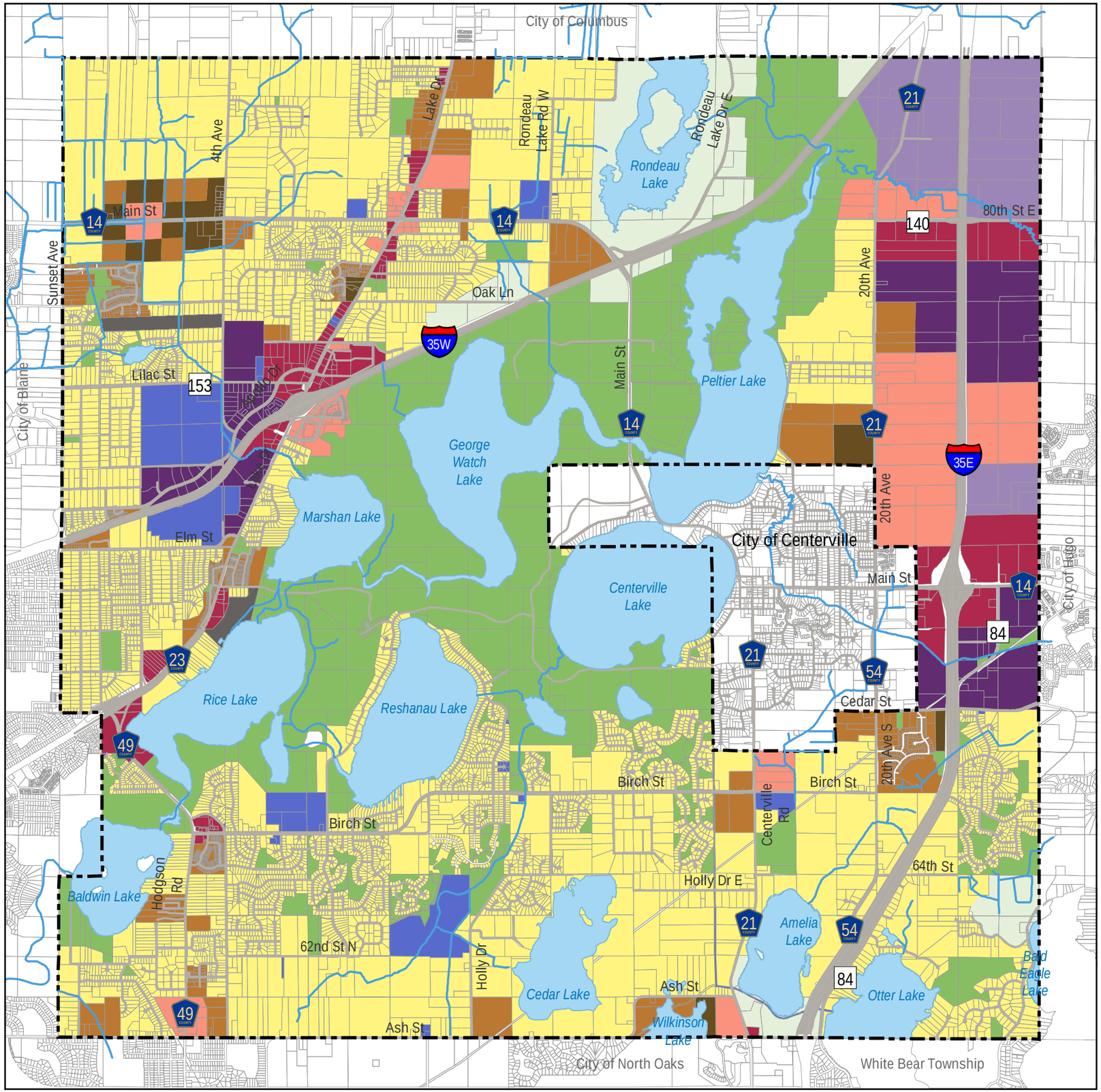
In Chapter 2 of the Lino Lakes 2040 Comprehensive Plan, a key component of developing the future land use plan was analysis of a wide variety of natural resource information. This included the location of high priority wetlands and other natural resource areas, drainage patterns, and soil suitability information, to identify environmentally sensitive areas and areas most suitable for development. This natural resource information was used to guide decisions regarding future land uses and intensities in Lino Lakes. Based on the development suitability information, a full build-out future land use plan was developed (**Figure 2-15**). The Metropolitan Council requires that communities plan for growth up to 2040 in their current comprehensive plans. Areas that will not be developed until after 2040 are designated on the 2040 future land use map as Urban Reserve. Although the 2040 Future Land Use Plan (**Figure 2-16**) will serve as the City's official Future Land Use Plan to regulate future development, the full build-out plan is also provided for reference to guide future land use decisions regarding 2040 Urban Reserve areas.

The City's goals and strategies relating to natural resources were also considered throughout the development of the plan. Providing for higher density uses on some sites with scenic natural amenities such as wetland areas or along the shores of Peltier Lake also promotes accessibility to key community features and natural amenities, which is another community goal, for residents of higher density housing. Identifying higher density options in these areas also addresses the community's goal and related strategies to sustain Lino Lakes' natural resources by promoting more flexible development in these areas. Accommodating higher density in these areas provides for more site plan flexibility, as development can be concentrated on areas of the site more suitable for development while environmental features are preserved as open space.

As Lino Lakes develops, protection of its valuable natural resources will continue to play an important role in guiding growth and shaping future development. Growth and economic development objectives should be balanced with managing natural resource systems. Natural resource protection strategies are also an essential component of a growth management plan to ensure that the community's resources are preserved. The City has several tools to protect natural areas while also managing future growth. These tools are further outlined in Chapter 2 of the Lino Lakes 2040 Comprehensive Plan and additional information on future land uses is available in Chapter 3 of the City of Lino Lakes 2040 Comprehensive Plan.

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-15
Full Build Out Land Use



Legend

- Permanent Rural
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Mixed Use
- Commercial
- Business Campus
- Industrial
- Civic and Institutional
- Parks and Open Space
- Private Airfield
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

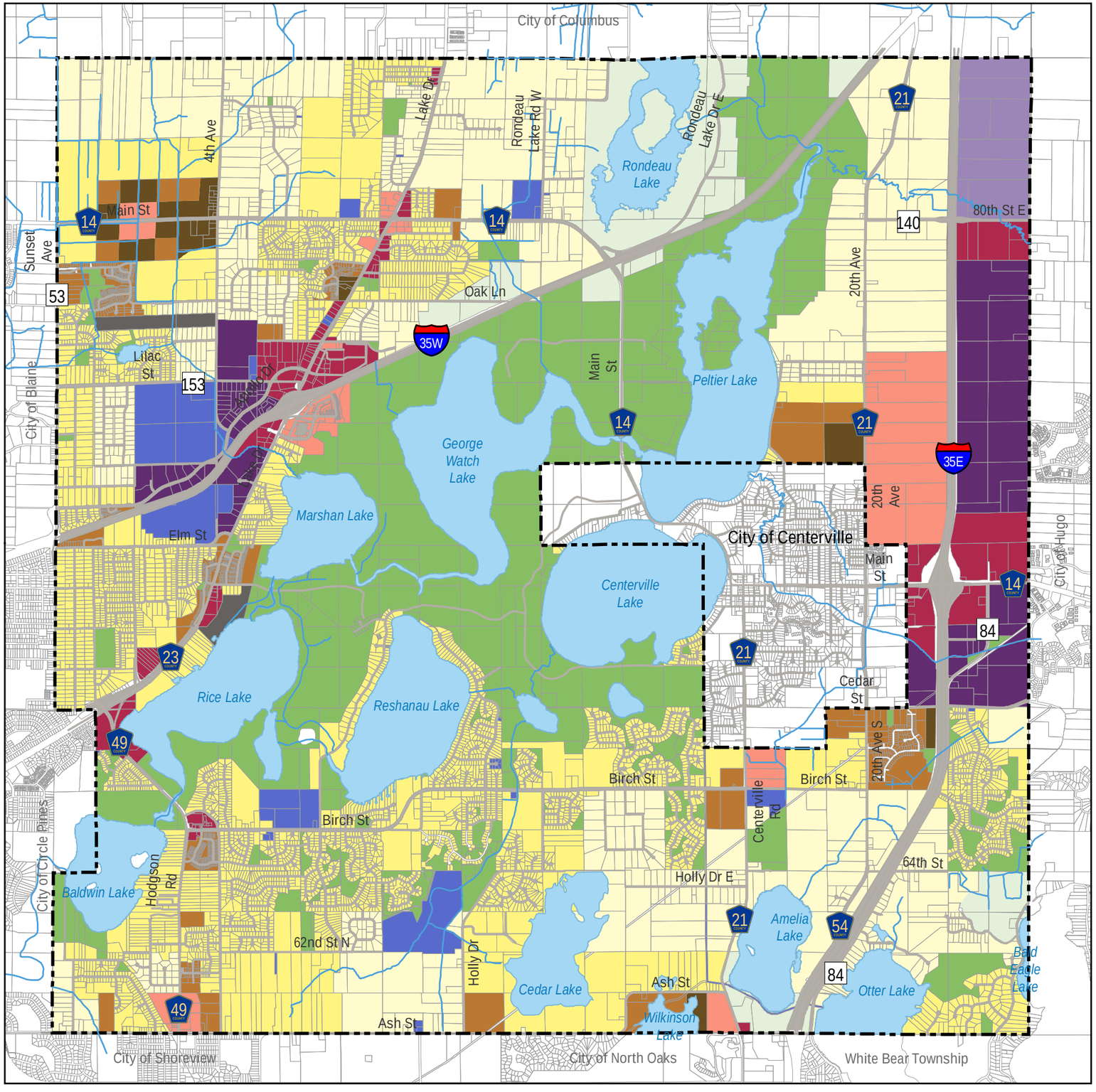
3,500 1,750 0 3,500 Feet

DRAFT Mar13-18
for review only

Date: 3/8/2018

CITY OF LINO LAKES 2040 COMP PLAN

Figure 2-16
2040 Future Land Use



Legend

- Permanent Rural
- Urban Reserve
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Mixed Use
- Commercial
- Business Campus
- Industrial
- Civic and Institutional
- Parks and Open Space
- Private Airfield
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

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Date: 12/12/2017
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3. ASSESSMENT OF WATER RESOURCE-RELATED PROBLEMS AND ISSUES

Issues, goals and policies were developed for this Plan through a process of compiling issues and goals identified in plans and studies previously completed by the City and other local agencies. Primary sources of information were the previous Surface Water Management Plan, the City's Comprehensive Plan, Resource Management Plans, and Watershed Management Plans of the Rice Creek Watershed District and Vadnais Lake Area Watershed Management Organization. The compiled goals and policies were refined by city staff and consultants for review by the City of Lino Lakes Environmental Board (whose purpose is to advise the city council in the use and management of its natural resources). The primary issues facing the City of Lino Lakes are:

1. Challenges in meeting stormwater volume reduction goals due to poor soils in the south and east regions of the City
2. Flood control issues in the Chain of Lakes
3. Antiquated public ditch systems without capacity for future development and stormwater runoff

3.1 Issues

A detailed list of the City-wide and RMU-specific water resources issues facing the City of Lino Lakes is provided in **Appendix B**, and summarized below.

Water Rate and Quantity Issues

Within the City of Lino Lakes, streams, lakes, and wetlands have been subjected to increased surface water runoff rates and volumes. Increased discharge rates and volumes have caused serious down-cutting and stream bank erosion in some areas. Increased runoff rates and volumes also contribute to flooding concerns and water quality concerns.

These issues are likely to intensify in the future. The Metropolitan Council prepared and adopted a regional growth strategy that anticipates further urbanization of the City. In addition, transportation improvements in or near the City will facilitate and precipitate urbanization. The City of Lino Lakes is planning for development of 1,400 acres east of Peltier Lake, North of Main Street. Furthermore, the City of Hugo is planning for development of a 215-acre area; both areas are currently being drained by Anoka County Ditch 55 (ACD 55). Currently, precipitation events larger than 0.25-inch results in surface water ponding and surface water runoff within the ACD 55 drainage area (Houston Engineering, 2013b). Without an alternative outlet or increased capacity, the development may be limited within the ACD 55 drainage area. This may exacerbate current flooding up stream in the ACD 55 system since ACD 55 restricts downstream flows and can only accommodate a small amount of flow. Sediment loads and, with it, pollutants and contaminants would also increase. Flow from the 215-acre area within the City of Hugo may be up to 62 cfs during the 100-year 24-hour storm. Additionally, 54 cubic feet per second (cfs) will be generated from the 534-acre area within Lino Lakes that is currently served by ACD 55. The ACD 55 infrastructure currently reaches capacity at 1-2 cfs. As a result, the City of Lino Lakes is contemplating a new conveyance system and outlet structure to Peltier Lake from the 1,400-acre development area, which would be subject to review and approval by the RCWD. This may require the development of alternative standards (stormwater rules) to demonstrate no adverse impacts through use of RCWD Comprehensive Stormwater Management Plan (CSMP) provisions.

Water Quality Issues

Current data indicate that water bodies located within the City have water quality issues. Several City lakes, such as Bald Eagle, Peltier, George Watch, Marshan and Centerville, Reshanau, Baldwin and Rice Lakes are included in the MPCA's impaired waters list. In addition, both Clearwater and Hardwood Creeks are also included on the 303(d) TMDL list due to biotic impairments. A TMDL was recently completed for the Upper Mississippi River to address the water quality standard for *E. coli*.

Runoff carrying nutrient-rich sediment, road salts, and hydrocarbon-based contaminants is detrimental to the water quality of the City's lakes, streams, rivers, and wetlands. Current water quality conditions present a potential stress to the diversity and population of fish and aquatic invertebrates and impact human uses of the resources. Improvement of these waters will require a watershed wide solution because in many cases much of the drainage area originates upstream of the City. Additionally, it has been found that internal loading sources of phosphorus derived from the lake bed sediments in Peltier Lake are affecting the water quality of downstream water bodies.

Wetland Management Issues

Benefits attributed to wetlands include floodwater storage and retention, nutrient assimilation, sediment entrapment, ground water recharge, low flow augmentation, shoreland anchoring and erosion control, aesthetics, recreation, and education. Accordingly, the loss of high priority wetland acres, function and value (**Figure 2-6**) will have a direct negative effect on the City and its water resources.

Floodplain Management Issues

Given the physical characteristics, high water table, and number of water bodies and flood prone areas, floodplain management is an important consideration to minimize future flooding events. In addition, a number of areas of current flooding concern have been identified by the City Public Works Department and RCWD. Future flooding could also be a concern if development is not conducted in a manner that reduces runoff rates and volumes and if changes in rainfall and snowmelt patterns overwhelm existing infrastructure.

Public Ditch System Issues

Several of the major drainageways in the City are public ditch systems managed by the Rice Creek Watershed District. Some of the public drainage systems are located within completely urbanized areas, have been totally or partially replaced by storm sewer pipe, and no longer serve agricultural land or provide agricultural benefits. These systems function as the outlet for storm water runoff. Other public drainage systems are comprised nearly entirely of undeveloped/agricultural areas that are primarily forecasted for urban development. Public ditch systems need to be managed to provide the drainage services suited to the land contributing to the system.

Groundwater Management Issues

The City of Lino Lakes relies solely on groundwater as its water supply source. The Prairie du Chien- Jordan aquifer serves as the City's municipal water source. In addition, there are numerous private wells throughout the City. There is a growing concern that water supplies may be depleting and as additional municipal wells are added in the region, this may affect private residential wells, which are often shallower. Depleting groundwater will affect not only public and private drinking water supplies, but also resources that may depend on groundwater, such as wetlands, lakes and streams. The DNR established the Northeast Metro Groundwater Management District in 2012 to regionally manage the area's aquifers.

Natural Resources Issues

Lino Lakes is rich in unique and rare natural resources. These resources are most often hydrologically dependent on natural water systems. Reduced quality and variances of water levels stemming from land use changes may have critical impacts to the sustainability of these resources. Preserving and enhancing quality natural resources within the City can have a positive effect on surface and ground water. Extensive development or misuse of the natural areas within the City can have deleterious effects on water resources.

Erosion and Sediment Control Issues

Erosion prevention and sediment control is an important aspect in the effort to improve water quality and protect and improve water and natural resources. Erosion is caused by runoff over disturbed soils such as on a construction site or along streambanks. This erosion can result in the transport of sediment into water and natural resources. Sediment deposits and sediment transport can decrease water quality and increase maintenance efforts.

Regulations, Permitting and Reporting Issues

The City is regulated under a number of local, state, and/or federal programs that require the implementation of ordinances, permitting, and/or reporting. In addition, the City implements ordinances and permitting to attain the goals outlined in this Plan.

Monitoring, Maintenance and Inspection Issues

In order to protect its capital investments and provide an effective water management system, the City of Lino Lakes needs to conduct monitoring, maintenance and inspection of City infrastructure in a timely and cost-effective manner. Infrastructure needs to be monitored and maintained regularly to prevent unnecessary reconstruction projects. This can only be accomplished if an effective inspection and regular maintenance program is in place. A monitoring program verifies the effectiveness of the storm water infrastructure.

Public Participation, Information and Education Issues

City residents, businesses and property owners need to have a clear understanding of basic stormwater management, water quality, and natural resource protection concepts, policies and regulations to support and implement stormwater management and natural resource protection efforts.

Financing Issues

The City needs to ensure that funding is available to implement the policies and actions identified in this plan and to respond to future needs of development, operation and maintenance, and repairs. In order to attain the goals identified in this plan, the City will need to provide funding and staffing resources adequate to address the goals of the plan. Current funding includes trunk stormwater improvement fees and the general fund; however, other funding options may need to be considered.

3.2 Goals and Policies

Water Rate and Quantity Goals & Policies

Goal 1	**Use the natural characteristics of the City's watersheds in combination with development standards and projects, to reduce present and future runoff rates and volumes (see also Natural Resources and Wetlands goals and policies).**
Policy 1A	Continue to enforce standards for storm water runoff quantity from new and re- developments consistent with RCWD, VLAWMO and NPDES Phase II requirements.
Policy 1B	Implement volume control practices to address areas of identified rate and volume concern.
Policy 1C	Support implementation of RCWD comprehensive stormwater management plans as an alternative means of meeting water quality treatment standards.
Policy 1D	Recognize the potential uncertainty associated with managing water resources and understand the implications of emerging issues including climate change, and use Adaptive Management when appropriate.
Policy 1E	Promote "Better Site Design" development techniques in developing and redeveloping areas to minimize runoff volumes.
Policy 1F	Promote the use of regional Best Management Practices where appropriate to reduce the rate and volume of runoff.
Policy 1G	Encourage groundwater recharge, when and where appropriate

Water Quality Goals & Policies

Goal 2.1	**Protect and improve water quality and the scenic and ecologic values of City lakes, wetlands and other aquatic assets (see also Natural Resources and Wetlands goals and policies).**
Policy 2.1A	Develop specific management plans for each Resource Management Unit
Policy 2.1B	Preserve and improve the recreational resources associated with water by improving water quality.
Policy 2.1C	Continue to enforce City water standards for storm water runoff quality from new and re-developments
Policy 2.1D	Incorporate TMDL limits, when determined, into the City's Surface Water Management requirements to reduce degradation and improve the quality of the City's and region's lakes, waterways and other aquatic resources.
Policy 2.1E	Manage city-owned facilities subject to Municipal Separate Storm Sewer System (MS4) program requirements consistent with permit conditions.
Policy 2.1F	Continue to enforce a program to detect and eliminate illicit discharges in accordance with the City's MS4 requirements.
Policy 2.1G	Manage septic systems in conformance with state standards to protect the quality of water and natural resources.
Policy 2.1H	Educate residents on the importance of cleaning up after their pets to reduce pollutants entering the stormwater system.
Goal 2.2	**Initiate and continue collaborations to address, restore, and preserve the water quality of the region's lakes, wetlands and other aquatic assets.**
Policy 2.2A	Work with and partner with the RCWD, VLAWMO and adjacent local governments to protect high quality resources.
Policy 2.2B	Collaborate with adjacent jurisdictions and agencies to meet TMDL goals and remove impaired water bodies from the impaired waters list.
Policy 2.2C	Facilitate data sharing among public entities that have jurisdiction or facilities within the City.
Policy 2.2D	Initiate Salt Application Reduction Program

Wetland Management Goals & Policies

Goal 3	**Maintain and enhance, where possible, the functions and services of existing wetlands and associated habitats with the City.**
Policy 3A	Continue to support the administration of the Wetland Conservation Act (WCA) requirements within the City by the RCWD and VLAWMO.
Policy 3B	Avoid impacts to upland natural communities that are critical to wetland wildlife habitat function and incorporate these into the wetland preservation corridors/buffer zones.
Policy 3C	Integrate parcel- or project-based wetland replacement with watershed-based restoration and enhancement locations
Policy 3D	Manage wetland resources using the flexibility afforded by state and federal rules, through the implementation of the Resource Management Plan and Special Area Management Plan.
Policy 3E	Consider providing incentives to private landowners to avoid wetland impact, minimize wetland impact, and restore wetlands.
Policy 3F	Require wetland functional assessments, based on accepted methodology, on new development projects to ensure wetland function and services are preserved to the extent possible.
Policy 3G	Consider creation of wetland banks to provide local replacement options

Floodplain Management Goals & Policies

Goal 4.1	**Provide adequate storage and conveyance of runoff to protect the public safety and minimize property damage.**
Policy 4.1A	Preserve and manage the storage associated with the 100-year floodplain along and within water-bodies to minimize the frequency and severity of flooding caused by high water.
Policy 4.1B	Use the natural characteristics of the City's watersheds (e.g., pond, swales, wetlands) in combination with development standards and projects, to reduce present and future flood damage and enhance the quality of surface and ground water.
Policy 4.1C	Require that adequate drainage facilities and easements are provided with land development activities.
Policy 4.1D	Continue to enforce floodplain regulations to ensure that new structures are adequately elevated above identified flood elevations.
Policy 4.1E	Update the Floodplain Overlay Ordinance as required by FEMA and the Minnesota DNR, or as needed, to ensure adequate protection for structures and eligibility for flood insurance programs.
Policy 4.1F	Support efforts to restore and reestablish floodplain basins to improve their natural function.
Policy 4.1G	Consider joining FEMA's Community Rating System to provide residents with a discount on flood insurance policies
Policy 4.1H	Review approximate floodplain boundaries and consider establishing a base flood elevation

Public Ditch System Goals & Policies

Goal 5.1	**Ensure the management and operation of drainage systems and use of waterways in a manner which recognizes the origin of the system (e.g., constructed vs. natural), the interconnectedness of resources, and present and future conveyance needs, while considering legally established rights.**
Policy 5.1A	Work with the RCWD to facilitate effective management of the public ditch system, as needed, to support the recognized functions of these systems.
Policy 5.1B	Work with the RCWD to address the system capacity limitations of ACD 55 and ACD 72 and ACD 10-22-32

Groundwater Management Goals & Policies

Goal 6.1	**Incorporate ground water considerations into the decision-making process through recognizing the interconnectedness of surface water and groundwater supply and groundwater-dependent natural resources.**
Policy 6.1A	Preserve ground water recharge areas in cooperation with Anoka County.
Policy 6.1B	Promote infiltration of stormwater to result in groundwater recharge where it is feasible and does not pose a threat to groundwater quality.
Policy 6.1C	Continue to implement the City's Wellhead Protection Plan.
Policy 6.1D	Participate in the Anoka County Wellhead Protection Group in implementing joint projects that benefit the City of Lino Lakes.
Policy 6.1E	Continue to initiate water conservation programs through promoting water reuse and reducing water consumption

Natural Resources Goals & Policies

Goal 7.1	**Identify, protect and preserve the desirable natural areas and ecological and aquatic resources of the community.**
Policy 7.1A	Pursue a well-defined natural resource restoration and management plan consistent with the RCWD/Lino Lakes Resource Management Plan (RMP).
Policy 7.1B	Maintain the partnership of Lino Lakes and Rice Creek Watershed District and other groups such as Anoka County to maintain, restore, and manage the aquatic, aquatic dependent (such as the Blue Heron Rookery on Peltier Lake) and upland areas of the City.
Policy 7.1C	Require natural space buffers, where appropriate, around wetlands to preserve their function and value.
Policy 7.1D	Apply the Resource Management Unit recommendations from the RMP to meet RMP goals for aquatic resource protection and management.
Goal 7.2	**Ensure that well-planned, quality residential, commercial, industrial and institutional development accommodates the City's projected growth needs and occurs in a manner that also conserves and enhances the City's natural resources and amenities.**
Policy 7.2A	Encourage developers, where appropriate, to use Open Space Design/Conservation Development Model to implement the Resource Management System Plan.
Policy 7.2B	Continue to use the Alternative Urban Areawide Review (AUAR) process to assess the impact of development on the City's natural resources and infrastructure.
Goal 7.3	**Capitalize on opportunities to enhance water quality, reduce runoff volume and flood damage, and enhance ecological resources by using open space and greenways.**
Policy 7.3A	Encourage the use of open space in the design of City projects when multiple benefits are realized.
Policy 7.3B	Collaborate with others responsible for managing open space to enhance their ongoing recreational programs, when these programs are related to the water and resource management effort and are consistent with the City's open space priorities.
Policy 7.3C	Seek opportunities to enhance habitat function and integrity, to benefit water resources and eco-systems.

Erosion and Sediment Control Goals & Policies

Goal 8.1	**Prevent erosion and minimize the conveyance of sediment into surface water systems through enforcement of the City's Storm Water Pollution Prevention Plan (SWPPP).**
Policy 8.1A	Enforcement of City's Storm Water Pollution Prevention Plan (SWPPP): ▪ Require erosion control plans for all land disturbance activities in accordance with the City's stormwater management ordinance. ▪ Continue to enforce the Illicit Discharge and Detection Elimination (IDDE) Ordinance ▪ Coordinate construction site inspections and enforcement with watershed management organization inspection staff ▪ Implement and perform good housekeeping measures to minimize sediment entering the drainage system

Regulations, Permitting and Reporting Goals & Policies

Goal 9.1	**Address regulatory requirements of local, state and federal programs through updated ordinances, permitting, and ongoing reporting.**
Policy 9.1A	Evaluate City's existing ordinances and programs to facilitate implementation of the Resource Management System Plan.
Policy 9.1B	Coordinate with the Rice Creek Watershed District and the U.S. Army Corps of Engineers to manage local wetland resources.
Policy 9.1C	Work with the Rice Creek Watershed District to implement the Resource Management Plan.
Policy 9.1D	Implement programs, implement structural solutions, and complete reporting as needed to meet MPCA's requirements for MS4s.
Policy 9.1E	Support the implementation of the SAMP by the U.S. Army Corps of Engineers.

Monitoring, Maintenance and Inspection Goals & Policies

Goal 10.1	**Maintain the function and effectiveness of stormwater management structures through inspection, monitoring and maintenance.**
Policy 10.1A	Implement the City's plan for the regular inspection and maintenance of public water resource infrastructure consistent with the requirements of the NPDES MS4 permit.
Policy 10.1B	Require Operation and Maintenance agreements for the inspection and maintenance of privately constructed water resource infrastructure.
Policy 10.1C	Implement and refine a training program to prevent or reduce pollutant runoff resulting from City operations.
Policy 10.1D	Prepare an annual report in accordance with the NPDES MS4 permit and share results with the public, City Council and Boards.
Policy 10.1E	Conduct monitoring to evaluate the effectiveness of the City's stormwater management actions on the quality of water resources.

Public Participation, Information and Education Goals & Policies

Goal 11.1	**Inform and educate the public concerning urban stormwater management and the problems pollutants cause if allowed to enter our water resources.**
Policy 11.1A	Identify and alert residents of potential ecological challenges and threats.
Policy 11.1B	Plan and initiate cooperative educational efforts with the state and other local government entities for resident education.
Goal 11.2	**Offer programs, educational opportunities and information that facilitate an understanding of water resource issues in the City of Lino lakes.**
Policy 11.2A	Actively develop and implement a community education program relating to preserving and improving water quality consistent with the City's MS4 permit requirements and/or coordinate with regional education efforts.
Policy 11.2B	Provide infrastructure management information for City-owned facilities to educate the public about how water resources are managed, the programs and policies and projects of the City, and to encourage public involvement
Policy 11.2C	Utilize and engage citizens to promote sustainable stewardship of lakes.
Policy 11.2D	Continue to support and participate in the Rice Creek Watershed District's Stream Health Evaluation Program (SHEP)

Financing Goals & Policies

Goal 12.1	**Ensure that the costs of the surface water system are equitably distributed and sufficiently funded to cover the liabilities.**
Policy 12.1A	Update and apply area based charges so that the surface water related costs of development can be fairly borne by development.
Policy 12.1B	Consider funding options that will equitably distribute the costs of managing and implementing the City's surface water management plan, such as a stormwater utility or district- based fees.
Goal 12.2	**Leverage partnerships to cost-effectively manage the City's surface water and natural resource systems and attain the goals of this plan.**
Policy 12.2A	Pursue grants, donations, and in-kind contributions to help fund stormwater projects.
Policy 12.2B	The City will coordinate local stormwater management issues with the member watersheds and neighboring cities in order to leverage the watershed's work and thus reducing City expenditures.

4. GOALS AND ACCOMPLISHMENTS

Since the last Local Water Management Plan revision, the City has taken great steps to make headway on meeting their goals. The following is a summary of the progress being made so far:

- Establishment of the Wollen Park Wetland Bank
- Development of TMDLs for the Lino Lakes Chain of Lakes and the Upper Mississippi River
- Development of the Northeast Lino Lakes Comprehensive Stormwater Management Plan
- Updates and revisions to the City's Stormwater, Erosion Control and Floodplain Ordinances
- Compliance with the City's MS4 permit program and required annual updates
- Application for numerous grants to help fund water resources projects within the City
- Adopted Greenway System Plan
- Updated ordinances to include Better Site Design practices

5. LOCAL IMPLEMENTATION PROGRAM

5.1 Implementation Activities

The implementation activities identified in this Section of the Plan were taken from previously conducted planning and/or resource management documents or they are new activities developed as part of the planning process.

The actions listed in **Table 5-22** represent the ideal list of implementation activities with full funding, which is currently beyond the City's resources. As a means of prioritizing, and aligning the efforts with a more attainable funding level, or until additional funding becomes available, the activities identified in **Tables 5-23** represent a synthesized and focused list of actions for city implementation. **Appendix D** provides a list of the proposed city-wide and RMU-specific actions in the plan that are a basis of the implementation cost table shown in **Table 5-23**. Implementation activities are categorized as follows:

- City Wide Actions - Includes implementation activities that apply on a broader scale, such as annual maintenance and MS4 compliance
- RMU Specific Actions – Includes implementation activities that have been identified for the three highest priority RMUs: Reshanau RMU, Marshan RMU and Clearwater Creek RMU
- Miscellaneous RMU Actions - Includes implementation activities that have been identified for the remaining RMUs

Table 5-22. City-Wide Implementation Plan

Action No.	Actions identified by Issue Category	Additional Issue(s) Addressed	Goals Addressed	Policies Addressed
	WATER RATE & QUANTITY			
1	Establish and adopt Better Site Design (BSD) standards for new development, and provide guidance for staff, City Boards, and City Council, including: • Encourage use of stormwater treatment trains; • Protect high priority wetlands, their biological condition, and their function as high quality habitat; • Enhance groundwater hydrology and protect groundwater-dependent natural resources; • Provide natural flood reduction; • Integrate water quality improvement components in the landscape; and • Revise maximum allowable impervious surface requirements for low- and medium-density residential districts. • Incorporate surface water reuse options into new developments and public facilities.	Water Quantity	3.1.1	3.1.1E
		Water Quality	3.2.1	3.2.1A 3.2.1C
		Natural Resources Wetland Management	3.7.2 3.7.4 3.3.1	3.7.2B 3.7.4A 3.3.1C
		Floodplain Management	3.4.1	3.4.1B
	WATER QUALITY			
2	Implement water quality improvements via the Subwatershed Plans for each RMU specific to the waterbodies of the area and upcoming regulations (ex. TMDLs).	Regulations	3.2.1	3.2.1B 3.2.1D
	Initiate Salt Application Reduction Program	Permitting and Reporting	2.2.	2.2.D

Action No.	Actions identified by Issue Category	Additional Issue(s) Addressed	Goals Addressed	Policies Addressed
	WETLAND MANAGEMENT			
3	Implement Wetland Banking Program	NA	3.3.1	3.3.1A
4	Conduct annual meeting with the RCWD to review wetland mitigation permits to ensure wetland functions are being preserved.	NA	3.3.1	3.3.1E
5	Coordinate with MnDOT and County transportation officials on projects that propose to disturb wetlands within their right-of-way by holding annual meeting to discuss future road plans and wetland mitigation banking.	NA	3.3.1	3.3.1A
6	Work with RCWD and VLAWMO to establish watershed-based approaches to maintaining or restoring wetland functions.	NA	3.3.1	3.3.1D
	FLOODPLAIN MANAGEMENT			
7	Review existing watershed models and work with the RCWD and VLAWMO to address flow constraints in the system.	NA	3.4.1	3.4.1D
	PUBLIC DITCH SYSTEM			
8	Work with the Rice Creek Watershed District on the ditch abandonment process for public subsurface (drain tile) systems and explore partial abandonment for surface (ditch) systems, in cases where the public drainage system requires redesign to implement the multi-functional Greenway System.	NA	3.5.1	3.5.1A
9	Support RCWD's implementation of ditch activities and Resource Management Plans by providing input where it impacts the city's drainage system and development plans by encouraging: • Integrating management of ditch systems and adjacent wetland and upland systems; • Maintaining ditch systems being used for agricultural benefit; Using branch maintenance in rural areas, retrofits in urbanizing areas and master planned communities with greenways and open space to reduce downstream flooding and retain and reuse water in the local catchments; • Minimizing future ditch maintenance costs by developing a self-sustaining design; • Work with private landowners to retrofit/implement multi-functional Greenway System, for those parcels that are not part of a Master Plan or are already developed.	NA	3.5.1	3.5.1A
	GROUNDWATER MANAGEMENT			
10	Implement the wellhead protection plan to protect the groundwater source from contamination.	NA	3.6.1	3.6.1C
11	Continue to implement the City's Water Conservation Management Plan	NA	3.6.1	3.6.1A
	NATURAL RESOURCES			
12	Partner with RCWD, VLAWMO and MnDNR to establish program to educate residents on the means to identify and eradicate invasive species.	NA	3.7.1	3.7.1A
13	Continue to manage and protect heron rookery and other important plant and animal communities.	NA	3.7.1	3.7.1B
14	Develop, distribute and present public with information regarding the importance of shoreland buffers.	NA	3.7.3	3.7.3C
	REGULATIONS, PERMITTING AND REPORTING			
15	Implement Northeast Lino Lakes Comprehensive Stormwater Management Plan.	Water Rate & Quantity	3.1.1	3.1.1A
16	Implement Greenway System Plan through development of subwatershed management plans. The Plan will establish a clear vision of the multi-functional Greenway System for City Staff and developers and will be used as a tool early in the land development process.	Water Rate & Quantity	3.1.1	3.1.1A
17	Complete subwatershed management plans in order of priority: 1. Peltier RMU 2. Clearwater Creek RMU 3. Marshan RMU 4. Reshanau RMU Develop subwatershed management plans for the remaining RMUs in the following order: 1. Wilkinson RMU 2. Amelia RMU 3. Hardwood Creek RMU	Water Quality	3.2.1	3.2.1D
		Wetland Management	3.3.1	3.3.1D
		Floodplain Management	3.4.1	3.4.1B
		Natural Resources	3.7.1	3.7.1A

Action No.	Actions identified by Issue Category	Additional Issue(s) Addressed	Goals Addressed	Policies Addressed
17	4. Rice Lake RMU If need arises and resources allow, develop subwatershed plans for the following RMUs: ▪ Rondeau RMU ▪ Upper Rice Creek RMU ▪ Centerville RMU ▪ Sherman RMU ▪ Baldwin RMU ▪ Middle Rice Creek RMU	Regulations, Permitting & Reporting	3.9.1	3.9.1A
18	Evaluate the need to modify existing ordinances to ensure implementation of all components of the multi-functional Greenway System	Water Rate & Quantity	3.1.1 3.9.2	3.1.1A 3.9.2A
19	Incorporate neighborhood stormwater planning and education into street reconstruction program.	Water Rate & Quantity	3.1.1	3.1.1E
20	Evaluate Revisions to Road Design Standards including: • Reducing minimum pavement widths • Ribbon curbs and curb cuts, with roadside swales, infiltration, and biofiltration • Use of pervious pavements	Water Rate & Quantity	3.9.2 3.1.1	3.9.2A 3.1.1.A
21	Continue to implement the RMP: • Create a wetland bank to provide replacement opportunities for development or roadway projects.	Water Rate & Quantity Wetland Management	3.9.2 3.1.1 3.3.1	3.9.2C 3.1.1C 3.3.1C 3.3.1D 3.3.1E
22	Continue to participate in pre-permit application meetings with the RCWD and Army Corps of Engineers that support the collaborative permitting process implemented through RCWD Rule and the Corps' Programmatic General Permit that implements the Special Area Management Plan.	Water Quality	3.9.2 3.2.2	3.9.2B 3.2.2C
	MONITORING, MAINTENANCE AND INSPECTION			
23	Work with RCWD and VLAWMO to develop a long-term monitoring program to accompany RMP implementation and to evaluate quantitatively the strategy's long-term environmental and cost benefits.	NA	3.10.1	3.10.1E
	PUBLIC PARTICIPATION, INFORMATION & EDUCATION			
24	Participate with other public agencies and organizations on education and outreach efforts.	NA	3.11	3.11.1A 3.11.1B 3.11.1C 3.11.2B 3.11.2C 3.11.2D
	FINANCING			
25	Pursue grants through the RCWD's Urban Stormwater Remediation Program to assist in the funding of projects that will reduce the impact of existing development on local water resources.	NA	3.12.2	3.12.2A
26	Pursue funding support from VLAWMO for projects in the Amelia Lake and Wilkinson Lake subwatersheds.	NA	3.12.1	3.12.2B
27	Review and evaluate funding sources for surface water management including ad valorem taxes, development charges, grants and user fees.	NA	3.12.1	3.12.1A 3.12.1B
28	Update and continue to implement Trunk Surface Water Management Fee System.	NA	3.12.1	3.12.2A
29	Pursue funding through Federal and State grant opportunities	NA	3.12.2	3.12.2A

5.2 Implementation Costs

The City will use funds generated from its General Fund and Surface Water Management Charge as the primary funding mechanisms for its implementation program including maintenance, repairs, capital projects, and studies. Additionally, for applicable projects, the City will apply for grant funding through state, federal and watershed opportunities as they become available. Priority actions in the RMU-specific implementation plan as defined in **Appendix D** are listed in **Table 5-23**. The total estimated cost to implement this plan, including City-wide and all RMU Subwatershed Areas, is $5,597,000 over 10 years. These costs vary based on the year. It should be noted, that some of the costs should be recovered through surface water management impact fees collected in conjunction with development.

The majority of the City-wide costs are related to maintenance of the existing system and satisfying the programmatic requirements of the City's NPDES permit. Phase 1, 2, and 3 of the Northeast Lino Lakes Comprehensive Stormwater Plan make up a majority of the infrastructure costs in relation to the high priority Peltier RMU. It is further assumed that once the more detailed RMU Subwatershed Plans are completed, more of the infrastructure costs will be defined so it can be included in developer fees for each area.

TABLE 5-23

STORMWATER MANAGEMENT IMPLEMENTATION PLAN

No.	Project Description	Issue Category	MS4 Permit Requirement	Annual Requirement	Projects, Programs, & Studies	Resource Management Unit	10 Year Cost Estimate[1]	Funding Sources	Proposed Cost By Year[1,2] 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
1	MS4 Program Management to Meeting NPDES Requirements - Continue with the review and implementation of the updated SWPPP that was developed in 2013. Utilize the existing recordkeeping mechanisms to maintain organized and easy to access records of SWPPP activities to comply with permit requirements, aide in annual reporting writing, and assist with possible future MPCA audits. Program management & review includes, but not limited to: • Tasks for staff members to complete as part of the program implementation. • Documentation requirements needed quarterly to ensure ongoing permit compliance and aide annual reporting to the Minnesota Pollution Control Agency (MPCA). • Any updates from the MPCA and Rice Creek Watershed District that may offer benefits or impacts to the City's MS4 Permit activities.	All	✓	✓	✓	All	$30,000	General Fund	$5,000	$2,500	$2,500	$2,500	$2,500	$5,000	$2,500	$2,500	$2,500	$2,500	Policy 1A
2	Inspect MS4 Outfalls and Ponds - Continue to annually inspect all MS4 outfalls and inspect all City-owned constructed stormwater ponds ensuring 100% of the assets are visualling inspected once within the 5-year MS4 permit cycle. Utilize recordkeeping & documentation practices established within the City's MS4 SWPPP Program.	Water Quantity, Water Quality	✓	✓		All	$40,000	General Fund	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	Policy 1A
3	Structural Stormwater BMP Inspections - Continue to inspect 100% of all structural stormwater BMPs each year of the MS4 permit cycle. Utilize recordkeeping & documentation practices established within the City's MS4 SWPPP Program.	Water Quantity, Water Quality	✓	✓		All	$25,000	General Fund	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	Policy 1A
4	Pond Surveys - The City will annually complete pond surveys to schedule and prioritize the necessary maintenance projects. This effort will be assisted by the SWAMP Application.	Water Quantity, Water Quality	✓			All	$100,000	General Fund	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	Policy 1A, 2.1B, 2.1E.
5	Annual Pond and Storm System Cleanout - The City will perform yearly cleanout of ponds and structural stormwater BMPs identified for maintenance with the SWAMP program and MS4 inspections.	Water Quantity, Water Quality	✓		✓	All	$1,250,000	General Fund	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	$125,000	Policy 1A, 2.1B, 2.1E.
6	Street Sweeping - The City will continue to conduct street sweeping operations of all public streets twice annually (record the sweeping route, volume of material removed, and date per occurrence). Review and revise (as needed) street sweeping operations (including schedule, equipment, and disposal), stormwater quality priority areas, and routes annually through the end of the MS4 permit cycle.	Water Quality	✓	✓		All	$450,000	General Fund	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	Policy 2.1E

No.	Project Description	Issue Category	MS4 Permit Requirement	Annual Requirement	Projects, Programs, & Studies	Resource Management Unit	10 Year Cost Estimate[1]	Funding Sources	Proposed Cost By Year[1,2]										Comments
									2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
7	Stockpiles, Storage and Material Handling Area Inspections - Conduct quarterly inspections of stockpiles, and storage and material handling areas as inventoried in the City SWPPP Program (Part III.D.6.a), to determine maintenance needs and proper function of BMPs. Ensure the inspections and resulting maintenance items utilize the recordkeeping & documentations format developed within the SWPPP Program. Update the City's Facility Inventory as needed when additional locations gain the potential to contribute to stormwater pollution.	Water Quality	✓	✓		All	$10,000	General Fund	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	Policy 2.1E
8	Salt Application Reduction Program - The Public Works Department has reduced overall salt application and will implement prewetting of salt application to specific roadways when 2" or less snow fall is anticipated. City Staff will calibrate ice and snow control applicators at the beginning of the winter season to reduce the amount of chemicals ordered and applied. The City will implement this program throughout the MS4 permit cycle.	Water Quality	✓	✓		All	$5,000	General Fund	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	Policy 2.1E
9	Employee Training - Host a 1-hour training session for field staff, which will include information on illicit discharge detection and elimination, construction site best management practices, and good housekeeping practices. In addition, provide materials from the training for make-up sessions or seasonal employees commensurate with the requirements of the MS4 Permit.	All	✓	✓		All	$10,000	General Fund	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	Policy 2.1C
10	Stormwater Asset Management Program (SWAMP) - Program to track TSS and TP treatment effectiveness in stormwater BMPs, store inspection results, prioritize maintenance activities, and document test results and cleanout.	Water Quality, Water Quantity	✓	✓		All	$47,000	General Fund, Surface Water Management Charge	$20,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	Policy 1A, 2.1B, 2.1E.
11	Water quality monitoring at Lamotte neighborhood biofiltration basin BMP	Water Quality			✓	Centerville	$45,000	General Fund		$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	Policy 2.1E
11	Irrigation Control and Retrofits: Install updated irrigation controls for City Parks and green spaces that utilize smart controllers and improve water conservation.	All			✓	All	$50,000	General Fund		$10,000	$10,000	$10,000	$10,000	$10,000					Policy 1E
12	Establish and adopt Better Site Design (BSD) Document: to be used for new development, and to provide guidance for staff, City Boards, and City Council	All			✓	All	$15,000	General Fund		$10,000					$5,000				Policy 1E

No.	Project Description	Issue Category	MS4 Permit Requirement	Annual Requirement	Projects, Programs, & Studies	Resource Management Unit	10 Year Cost Estimate[1]	Funding Sources	Proposed Cost By Year[1,2]										Comments
									2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
13	Northeast Lino Lakes Comprehensive Stormwater Management Plan Phase 1: Replace existing culvert outlet at Peltier Lake Drive, construct outlet channel from Peltier Lake Drive to 20th Avenue, and construct outlet control structures with gates within proposed development to minimize risk of adversely impacting flood levels on Peltier Lake. Implement public greenway corridor with additional water quality features along the outlet channel including: iron enhanced filtration, biofiltration, and wetland habitat.	Water Quantity			✓	Peltier	$2,750,000	General Fund, Surface Water Management Charge, Grants		$2,750,000										Northeast Lino Lakes Comprehensive Stormwater Management Plan Phase I
14	Northeast Lino Lakes Comprehensive Stormwater Management Plan Phase 2: Install culvert crossing under I-35E	Water Quantity			✓	Peltier	$750,000	General Fund, Surface Water Management Charge, Grants				$750,000							Northeast Lino Lakes Comprehensive Stormwater Management Plan Phase II
15	Northeast Lino Lakes Comprehensive Stormwater Management Plan Phase 3:Otter Lake Road Storm Sewer Extension	Water Quantity			✓	Peltier	$650,000	General Fund, Surface Water Management Charge, Grants						$650,000					Northeast Lino Lakes Comprehensive Stormwater Management Plan Phase III
16	Complete Subwatershed Management Plan for Clearwater Creek RMU	All			✓	Clearwater Creek	$50,000	General Fund, Surface Water Management Charge, Grants			$50,000								Policy 2.1A
17	Restore drained wetlands along abandoned ditch 47: provide wetland mitigation credit for use in a bank and to establish a greenway corridor valuable for open space, water quality, and flood control.	Water Quality, Wetland Management			✓	Clearwater Creek	$150,000	General Fund, Grants							$150,000				Policy 3C
18	Complete Subwatershed Management Plan for Marshan RMU	All			✓	Marshan	$50,000	General Fund, Surface Water Management Charge				$50,000							Policy 2.1A
19	Feasibility Study for flood reduction on ACD 10-22-32	Floodplain Management, Water Quality			✓	Marshan	$80,000	General Fund, Grants					$80,000						Policy 4.1F, Lino Lakes Chain of Lakes Nutrient TMDL, Appendix D Issue M-1
20	Implement flood reduction efforts determined in ACD 10-22-32 flood reduction feasibility study	Floodplain Management, Water Quality			✓	Marshan	$150,000	General Fund, Grants						$150,000					Policy 4.1F, Lino Lakes Chain of Lakes Nutrient TMDL, Appendix D Issue M-1
21	Feasibility Study for volume reduction in key watersheds: including MAR-0059, MAR-108, MAR-110	Floodplain Management, Water Quality			✓	Marshan	$30,000	General Fund, Grants							$30,000				Policy 4.1F, Lino Lakes Chain of Lakes Nutrient TMDL
22	Complete Subwatershed Management Plan for Reshanau RMU	All			✓	Reshanau	$50,000	General Fund, Surface Water Management Charge					$50,000						Policy 2.1A
23	ACD 25 Wetland Restoration: Work with RCWD to develop a restoration plan for partially drained wetlands of the ACD 25 system to attain wetland restoration credit	Water Quality, Wetland Management			✓	Reshanau	$265,000	General Fund, Grants						$265,000					Policy 3C, Lino Lakes Chain of Lakes Nutrient TMDL, Appendix D Issue RE-4
24	Develop Wards Lake and Cedar Lake Management Plan - to include outlet control structure (currently controlled by ditched outlets) and vegetation management	Water Quantity, Water Quality			✓	Reshanau	$80,000	General Fund, Grants							$80,000				Policy 1A, 2.1B, Lino Lakes Chain of Lakes Nutrient TMDL, Appendix D Issue CD-1 and WA-1,
25	Fish Barrier: Work with RCWD to install a fish barrier at the inlet to Reshanau Lake to help prevent rough fish such as carp and bullhead from entering Reshanau Lake	Water Quantity, Water Quality			✓	Reshanau	$30,000	General Fund, Grants								$30,000			Policy 1A, 2.1B, Lino Lakes Chain of Lakes Nutrient TMDL

No.	Project Description	Issue Category	MS4 Permit Requirement	Annual Requirement	Projects, Programs, & Studies	Resource Management Unit	10 Year Cost Estimate[1]	Funding Sources	Proposed Cost By Year[1,2] 2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
26	Complete Subwatershed Management Plan for Wilkinson RMU	All			✓	Wilkinson	$50,000	General Fund, Surface Water Management Charge						$50,000					Policy 2.1A
27	Complete Subwatershed Management Plan for Amelia RMU	All			✓	Amelia Lake	$50,000	General Fund, Surface Water Management Charge							$50,000				Policy 2.1A
28	Restore Wetland on private ditch entering Amelia Lake: Restore wetland on private ditch that enters the lake on the north side in catchments AME-004 and AME-005	Water Quality, Wetland Management			✓	Amelia Lake	$100,000	General Fund, Grants								$100,000			Policy 2.1B, Policy 3C, Appendix D Issue A-3
29	Complete Subwatershed Management Plan for Hardwod Creek RMU	All			✓	Hardwood Creek	$50,000	General Fund, Surface Water Management Charge								$50,000			Policy 2.1A
30	Feasibiliy Study on capacity of existing culvert crossings within Hardwood Creek RMU future conditions	Water Quantity			✓	Hardwood Creek	$20,000	General Fund, Grants									$20,000		Policy 1A, Appendix D Issue HW-1
31	Complete Subwatershed Management Plan for Rice Lake RMU	All			✓	Rice	$50,000	General Fund, Surface Water Management Charge									$50,000		Policy 2.1A
32	Develop Source Control Plan: in conjunction with new development areas north of CSAH 14, to prevent loading to wetlands along with source control retrofits in areas draining to groundwater wetlands.	Water Quality			✓	George Watch	$35,000	General Fund, Grants										$35,000	Policy 2.1B, Lino Lakes Chain of Lakes NutrientTMDL
	TOTAL						$5,597,000		$209,000	$2,967,000	$257,000	$1,007,000	$337,000	$1,322,000	$512,000	$377,000	$267,000	$232,000	

[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. For City completed activities, staff time is included in the cost. Some of the costs outlined above may be included in other operational costs budgeted by the City.

[2] 10 Year cost projections are based upon 2 MS4 Permit Cycles with year 1 program updates occurring again in 2018/2019

6. FINANCIAL CONSIDERATIONS

Plan implementation tasks are presented in two ways. First are city-wide costs for stormwater related activities that would apply city-wide and are not specific to a certain subwatershed. Those costs are further divided into the twelve Issue Categories identified during the planning process and reflected in the City's Local Water Management Plan. For cost estimating, the 12 categories are listed separately, but in the implementation of those activities from a practical stand point, there will be some activities that can be coordinated to facilitate ease of implementation. There has been an effort NOT to duplicate or create redundant funding in these costs estimates, so some efficiency of implementation is included in the costs.

Secondly, implementation costs are also provided based on the subwatershed. The City contains fifteen subwatersheds of various sizes and complexity and therefore the needs of each will be unique. The management at the subwatershed level is to reinforce the City's Comprehensive Plan approach of developing Resource Management Unit level planning and management at that subwatershed scale. The top three priority subwatersheds have the costs provided with more detail due to their higher likelihood of experiencing growth and development. All the subwatershed/RMUs will require a more detailed RMU Plan be developed for them to better detail the trunk infrastructure costs needed. Those RMU Plan costs are included in the **Table 5-24** for approximately half of the RMUs based on the expected need for the plans and local issues arising (development, TMDLs, etc).

Many of the items fall under past activities that have been typically included in the City's budget for stormwater infrastructure. The City currently has a Surface Water Management Charge that is updated annually based on the Engineering News Record (ENR) Index for new development to cover the cost of administration, planning, and trunk/regional infrastructure. It is recommended that this fee, updated with the new cost information, will be used to fund the Subwatershed/RMU Plans. The costs identified in the RMU studies would then be used to update the fee schedule in future years. With each RMU identified individually, the City will have the opportunity to decide if they would like the fee schedules different for the various RMUs or combined for a city-wide average.

The remainder of the stormwater funding comes from the general fund of the City which also covers some of the stormwater planning and implementation needs. While this is common practice in many communities such as Lino Lakes, the more the specialized, user-fee type funds can be used, typically the more stable and adequate the funding is. Other sources of funding and revenue are also worth considering. The creation of a wetland bank as shown in the implementation plan, with time can be self- funded since there is a need for wetland bank credits. Grant opportunities at the state and local (ex. watershed) level can and should be leveraged to relieve local funding pressures and in some cases, accelerate implementation.

7. REFERENCES

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Appendix A – MS4 SWPPP Application for Reauthorizatoin

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 Lino Lakes *County: Anoka
(city, county, municipality, government agency or other entity)

*Mailing address: 600 Town Center Parkway

*City: Lino Lakes *State: MN *Zip code: 55014

*Phone (including area code): 651-982-2400 *E-mail: tim.payne@ci.lino-lakes.mn.us

MS4 General contact (with Stormwater Pollution Prevention Program [SWPPP] implementation responsibility)

*Last name: Payne *First name: Tim
(department head, MS4 coordinator, consultant, etc.)

*Title: Streets / Stormwater Supervisor

*Mailing address: 600 Town Center Parkway

*City: Lino Lakes *State: MN *Zip code: 55014

*Phone (including area code): 651-982-2455 *E-mail: tim.payne@ci.lino-lakes.mn.us

Preparer information (complete if SWPPP application is prepared by a party other than MS4 General contact)

Last name: Peters First name: Jeff
(department head, MS4 coordinator, consultant, etc.)

Title: WSB & Associates

Mailing address: 701 Xenia Ave South Suite 300

City: Minneapolis State: MN Zip code: 55416

Phone (including area code): (763) 287-7150 E-mail: jpeters@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: Michael Grochala
(This document has been electronically signed)

Title: Community Development Director Date (mm/dd/yyyy): 12/30/13

Mailing address: 600 Town Center Parkway

City: Lino Lakes State: MN Zip code: 55014

Phone (including area code): 651-982-2427 E-mail: michael.grochala@ci.lino-lakes.mn.us

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

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 regularly partners with Rice Creek Watershed district on educational events and projects with they are mutually beneficial to both organizations. Rice Creek Watershed District also performs plan reviews for projects that require their permits.

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:

   City Code: Chapter 405: Regulation of Discharges into the storm sewer system.

   Direct link:

   http://www.amlegal.com/nxt/gateway.dll/Minnesota/linolakes_mn/400waterandsewer/

   chapter405regulationofdischargesintothes?f=templates$fn=default.htm$3.0$vid=amlegal

   :linolakes_mn$anc=JD_Chapter405

   ☐ 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 of Lino Lakes will review its current ordinace to insure that it is meeting the requirements of the MS4 permit

within 12 months of permit coverage being granted.

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 1011: Stormwater and erosion and sediment control

   Direct link:

   http://www.amlegal.com/nxt/gateway.dll/Minnesota/linolakes_mn/1000landusage/chapter1011

   stormwateranderosionandsedime?f=templates$fn=default.htm$3.0$vid=amlegal:linolakes_mn$anc=JD_Chapter1011

   ☐ 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 mechnaism will be review and updated to be at least as strigent as the MPCA CSW permit. This effort will completed within 12 months of the date permit coverage is extended.

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.3. - City will evaluate all mechanisms to enforce dewatering activities and update as necessary within 12 months of reissuance of permit coverage.

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: Developers Agreements

   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: 1000: Land Usage, Chapter 1011: Stormwater and erosion and sediment control, Section 1101.09 Stormwater management requirements.

   Direct link:

   http://www.amlegal.com/nxt/gateway.dll/Minnesota/linolakes_mn/1000landusage/chapter1011stormwateranderosion

   andsedime?f=templates$fn=default.htm$3.0$vid=amlegal:linolakes_mn$anc=JD_1011.09

   ☐ 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, B.2.b. Amend current post-construction stormwater ordinance and City Design Standards, which includes goals for reducing post-development TSS and TP loading on an annual basis, to include volume-control and be more consistent with permit language for new and redevelopment sites. The City Engineer will draft these amendments 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 and City Design Standards or agreement language, to include prohibiting the use of infiltration techniques for post-construction stormwater management as described in the Permit (PartIII.D.5.a(3)(a).1). The ordinance will be amended on the same schedule as the items in B.2.a and B.2.b.

B.3.a.2: The City will amend the ordinance and City Design Standards 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 the items above.

B.3.a.3: The City will amend the ordinance and City Design Standards to include the exceptions for linear projects as described in the Permit (PartIII.D.5.a(3)(b)). This will occur on the same schedule as the items above.

B.4.a.: The City will amend the ordinance and City Design Standards 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 the items above.

B.4.b.: The City will amend the ordinance and City Design Standards 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 the items above.

B.4.c.: The City will amend the ordinance and City Design Standards to include the restriction 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 the items above.

B.4.d.: The City will amend the ordinance and City Design Standards 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 the items above.

B.4.f.: The City will amend the ordinance and City Design Standards 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 the items above.

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:

B. Describe your ERPs:

http://www.amlegal.com/nxt/gateway.dll/Minnesota/linolakes_mn/1000landusage/chapter1011stormwaterand

erosionandsedime?f=templates$fn=default.htm$3.0$vid=amlegal:linolakes_mn$anc=JD_1011.13

The City Code includes the following enforcement mechanisms:

- Notice of Violation

- Permit suspension

- Construction stop order

- Permit Revocation

- Remedial Corrective Action

- Action Against Financial Security

- Misdemeanor Violation

- Cumulative Enforcement

IV. Storm Sewer System Map and Inventory: (Part II.D.4.)

A. Describe how you manage your storm sewer system map and inventory:

New developments are required to provide electronic as-built data in accordance with the GIS Information Requirements located in the City Design Standard. The City GIS specialist updates and maintains all of the City's 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:

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:

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 is comprised of a mix of commercial business districts, new development and established residential developments. Therefore the educational focus rotates through residential issues, construction activities, and illicit discharges around commercial business districts. Newsletter distributed to residents includes stormwater section discussing proper practices for activities such as fall yard practices and winter deicing.

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
Education Activity Implementation Plan	*Complete outline of education activity implementation program and implementation schedule for the upcoming permit cycle.*
Meeting with Building Contractors, Developers, and Excavators	*Hold meetings as needed to inform these professionals of stormwater related issues as appropriate.*
Meetings with Educational Professionals	*Work with Rice Creek Watershed District, and Environmental Commission Group to make effective use of stormwater education programs as appropriate.*
City Staff Meetings	*Provide a presentation at City Department meetings to generate Staff awareness of SWPPP regulations and to develop projects with appropriate BMPs applied.*
Newsletter	*Published stormwater pollution prevention related article in the Annual Newsletter to spread awareness of stormwater related issues.*

BMP categories to be implemented	Measurable goals and timeframes
Citizen Survey	*Send out a written survey in a random sample of mailings. They survey will gauge each selected household's practices related to the topic that will be featured in the following fall's brochure. This will help the City understand what topics are important to the City. Implementation to be within the next 5 year permit cycle.*
Presentations to City Council	*Report on yearly NPDES regulations and activities in Annual Report, urban storm water impacts to water bodies, current SWPPP status during an annual presentation each year of permit cycle. Additionally provide a specific review of SWPPP when considering zoning request.*

3. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Community Development Director / Environmental Coordinator

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.

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
Follow applicable public notice requirement	*Provide public notice of meeting to provide input on the SWPPP in accordance with City public hearing notification requirements.*
Annual Meeting	*Hold annual public meeting combined with City Council Meeting or other public participation/involvement event to solicit public input on the SWPPP*

BMP categories to be implemented	Measurable goals and timeframes

Community Reporting Options and Documentation Procedures	*IT department will provide a link on City webpage to report Illicit Discharges. This will allow the city to document number of reports received from City Webpage and responses to citizen reports of illicit discharges. During the next 5 year permit cycle.*

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:

   Community Development Director / Environmental Coordinator / Streets Supervisor / City Engineer

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 illicit discharges and connections. City Staff and public works employees are trained to look for any signs of an illicit discharge while on the job. City ordinance describes actions the City can take after an illicit discharge has been identified.

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.e., The City will incorporate procedures into the IDDE program for a timely response to known, suspected, and reported illicit discharges as described in the permit (Part III.D.3.g). 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 Mapping	*The City GIS storm sewer system map is updated as needed to reflect changes made to system features such as ponds, streams, lakes, wetlands, structural pollution control device, pipes, and outfalls. The existing City GIS Map will be updated as required by Part III.C.1 within 12 months following the date permit coverage is extended.*
Illicit Discharge Detection and Elimination (IDDE) and Enforcement Ordinance	*The City developed an ordinance to prohibit non-stormwater discharge into the stormwater system. The City will review the ordinance yearly to ensure that it continues to meet the needs of the City and legal requirements.*
Illicit Discharge Detection and Elimination (IDDE) Program	*Program to detect and eliminate illegal and/or improper connections to storm sewer drainage system and receiving waters by maintaining a list of existing illicit connection test performed to date within the City.* *Maintain a list of illicit connections test performed to date within the City. Identify and prioritize future illicit connection assessment sites, and conduct field testing of existing storm sewer system lines* *After detection of illicit discharge the City will utilize proper enforcement procedures and enforce the provisions of the City ordinance pertaining to illegal discharges.*
Public & Employee IDDE Information Program	*Conduct educational seminar and distribute of educational material annually to educate the Public and City Employees about the hazards associated with illicit discharges.*
Identification of Non Stormwater Discharges & Flows	*City employees are trained how to identify illicit discharges and what corrective measures should be taken for those discharges identified as being significant contributors of pollutants.*

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.*
Illicit Discharge Inspections	*Annually inspect locations identified as high-priority outfalls and around high-risk establishments (fast food restaurants, dumpster, car washes, mechanics, and oil changes.)*
Illicit Discharge Investigation	*As needed 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:

   Community Development Director / Environmental Coordinator

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.

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 ☒ Yes ☐ No

construction activity?

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 disturbed, and owner/operator information? ☒ Yes ☐ No

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., 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., 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**
Construction Site Stormwater Runoff Ordinance	*Currently being updated and Modified.*
Construction Site Plan Review	*City Engineering Staff utilizes MPCA the construction and sediment control checklist from Appendix D of the Current SWPPP for review of NPDES Erosion Control Permits submitted to the department for review.*
Erosion Protection Maintenance Memo to Builders	*An erosion control handout, which explains how to properly install a silt fence and other erosion control BMPs is given to the application when a building permit is picked up.*

BMP categories to be implemented	**Measurable goals and timeframes**
Permit Update	*Update the City Grading, Building, and ROW permits and Construction Site Stormwater Runoff ordinance to meet the new permit requirements within 12 months following the date permit coverage is extended*
Prioritize Inspections	*Ensure at least 10% of inspections conducted annually are performed at deemed high priority inspection sites (e.g., near sensitive receiving waters, projects larger than 5 acres)*
Permit Application System	*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:

   Community Development Director / Environmental Coordinator

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 to require 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
Site Plan Review Program	*Rice Creek Watershed District provides engineering staff for review and approval of development proposals that meet Commission requirements. The developers plan must be approved by the WMO and a permit obtained by the City prior to construction. As part of the City permit process, the City ensures that storm water discharges will not adversely affect endangered species, threatened species, historic places, and archeological sites. Staff will continue to work with the Watershed Organizations and their requirements for development proposals throughout the permit cycle.*
Encourage the use of structural and non-structural BMPs during review of new and redevelopment projects	*Implement Stormwater retention/detention ponds as a BMP in areas where it is appropriate* *Developers are encouraged to use infiltration techniques when possible. City and Watershed rules require infiltration for specified events.* *Possible implantation of sand and organic filters into plan review process. This BMP will be review throughout the permit cycle.*

Stabilization Seeding	*The City requires all exposed ground areas to be landscaped with grass, shrubs, trees, or other living ornamental landscape materials. When observed, the City documents violations of seeding provisions and records types of enforcement actions taken.*
Outlet Structure Stabilization	*The City requires outlet structure stabilization within the standard specification for construction including but not limited to tie-rods, stabilization seeding, and class IV-V riprap. The City will continue to include this BMP during construction and document the number of structures stabilized.*
Land Development Ordinance	*Completed ordinance including illicit discharges, erosion and sediment control at construction sites, and post construction runoff from new development and redevelopment*

BMP categories to be implemented	**Measurable goals and timeframes**
Update ordinance to meet new permit requirements	*Complete Ordinance updates including illicit discharges, erosion and sediment control at construction sites, and post construction runoff from new development and redevelopment Within 12 months of extension of permit coverage.*
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:

   Street Supervisor / City Engineer

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. The City is evaluating the use of road salt for winter road maintenance activities to reduce chlorides entering our water resources. The City sweeps streets a minimum of twice per year. Maintenance staff is trained annually on various topics related to pollution prevention during maintenance activities.

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:

   Facilities inventory will be completed within 12 months of permit coverage being extended.

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**
Park and Open Space Training Program	*Training focused on fertilizer application, pesticide/herbicide application, and mowing discharge.*

Fleet and Building Maintenance Training Program	*Training focused on automotive maintenance program (automotive inspections and washing), spill cleanup training, hazardous materials training, building leak prevention and inspection training. Annual Training.*
Stormwater Systems Maintenance Training Program	*Training focused on parking lot and street cleaning, storm drain systems cleaning, road salt materials management, annual training*
Parking Lots & Street Cleaning	*Train employees and document number of times each street is swept annual. Goal is 2 times per year.*
Storm Drain Cleaning System	*Document Number of Sumps cleaned per year. Goal is 100% of the City sumps per year.*
Road Salt Materials Management Program	*Document amount of salt applied each year and train employees in road salt management and application rates annually.*
Storm Sewer Inspection Program	*Conduct one inspection of all City-owned ponds and outfalls prior to expiration date of this permit* *Annual inspection of 100% of structural pollution control devices*
Evaluate Inspection Frequency	*Evaluate inspection records and determine if inspection frequency needs to increase or decrease.*

BMP categories to be implemented	**Measurable goals and timeframes**
Structural Stormwater BMP Maintenance Program	*Based on storm sewer inspection findings determine if repair, replacement, or maintenance measures are necessary to ensure structures proper function and treatment effectiveness. Document annually number or structures repaired or scheduled for maintenance.*
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.*
Maintenance Yard Inspections	*Once monthly and after < 1"rain events, perform maintenance yard inspections utilizing a checklist for the inspection. Develop checklist format that allows staff to compare results to previous inspections*
Facility Inventory	*Update facilities inventory to include potential pollutants as each site. Create a map of all identified facilities.*
Pond Assessment Procedures & Schedule	*In year 1, develop procedures for determining TSS and TP treatment effectiveness of city owned ponds use for treatment of stormwater. Implement schedule in year 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)- ☐ Yes ☒ No

(3)) for structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas?

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 developwitten 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:

Public Services Director / Street Supervisor / City Engineer

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

TMDL Wasteload Allocation Excel Spreadsheet PART II.D.6.a.-e.

Copy and paste from the Master List MS4 TMDL Spreadsheet for your MS4 to the space below.

Attach this completed form with your SWPPP Document at the time of submittal. At a ***minimum,*** *provide all of the information "*" items (TMDL Project Name, Type of WLA, Numeric WLA, Unit, Flow Condition, and Pollutant of Concern).*

Permittee name	Preferred ID	TMDL project name*	Waterbody ID	Type of WLA*	Numeric WLA*	Unit*	Percent reduction	Flow condition*	Waterbody name	Pollutant of concern*	Date approved
Lino Lakes City	MS400100	Bald Eagle Lake: Excess Nutrients TMDL	62-0002	Categorical	719	lbs/year	38%	N/A	Bald Eagle Lake	Phosphorus	6/11/2012
Lino Lakes City	MS400100	Golden Lake TMDL	02-0045	Categorical	0.38	lbs/day		N/A	Golden Lake	Phosphorus	9/30/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	413	lbs/day		High	Hardwood Creek, Hwy 61	TSS	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	100	lbs/day		Moist	Hardwood Creek, Hwy 61	TSS	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	38	lbs/day		Mid-Range	Hardwood Creek, Hwy 61	TSS	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	17	lbs/day		Dry	Hardwood Creek, Hwy 61	TSS	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	6	lbs/day		Low	Hardwood Creek, Hwy 61	TSS	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-595	Categorical	104	lbs/day		High	Hardwood Creek, Headwa	Biochemical Oxygen De	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-595	Categorical	25	lbs/day		Moist	Hardwood Creek, Headwa	Biochemical Oxygen De	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-595	Categorical	10	lbs/day		Mid-Range	Hardwood Creek, Headwa	Biochemical Oxygen De	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-595	Categorical	5	lbs/day		Dry	Hardwood Creek, Headwa	Biochemical Oxygen De	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-595	Categorical	2	lbs/day		Low	Hardwood Creek, Headwa	Biochemical Oxygen De	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	104	lbs/day		High	Hardwood Creek, Hwy 61	Biochemical Oxygen De	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	25	lbs/day		Moist	Hardwood Creek, Hwy 61	Biochemical Oxygen De	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	10	lbs/day		Mid-Range	Hardwood Creek, Hwy 61	Biochemical Oxygen De	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	5	lbs/day		Dry	Hardwood Creek, Hwy 61	Biochemical Oxygen De	6/18/2009
Lino Lakes City	MS400100	Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL	07010206-596	Categorical	2	lbs/day		Low	Hardwood Creek, Hwy 61	Biochemical Oxygen De	6/18/2009

Compliance Schedule PART II.D.6.f.-g.

Is your MS4 currently meeting its WLA for any approved TMDLs? **Go to:** Table 1 **Go to:** Strategies… **Go to:** Table 2

☐ ¡NO (Complete Table 1, Strategies for continued BMP implementation beyond the term of this permit, and Table 2 below)

☑ ¡YES (Provide the following information below)

If YES, indicate the WLAs (may be grouped by TMDL Project) you believe are reasonably being met. For each WLA, list the implemented BMPs and provide a narrative strategy for the long-term continuation of meeting each WLA. PART II.D.6.g.(1)-(2)

Bald Eagle Lake: Excess Nutrients TMDL - Categorical TMDL The city is currently:
1. The city provides stormwater education to employees and the public.
2. The city provides water resource education materials to contractors, builders, developers, and the general public.
3. The city performs inspections for the cities illicit discharge detection and ellmination program.
4. The city references and makes permitees comply with watershed requirements for post -construction BMP performance.
5. The city continues to monitor and maintain the existing stormwater ponds and other BMPs to sustain removal effectiveness.
6. The city has established maintenance agreements with private owners of permanent BMPs.
7. The city has an established street sweeping program. It sweeps streets at a minimum of two times per year.
8. The city annually inspects and cleans all structural pollution control devices.

Golden Lake TMDL - Categorical TMDL The city is currently:
1. The city provides stormwater education to employees and the public.
2. The city provides water resource education materials to contractors, builders, developers, and the general public.
3. The city performs inspections for the cities illicit discharge detection and ellmination program.
4. The city references and makes permitees comply with watershed requirements for post -construction BMP performance.
5. The city continues to monitor and maintain the existing stormwater ponds and other BMPs to sustain removal effectiveness.
6. The city has established maintenance agreements with private owners of permanent BMPs.
7. The city has an established street sweeping program. It sweeps streets at a minimum of two times per year.
8. The city annually inspects and cleans all structural pollution control devices.

Hardwood Creek Impaired Biota and Dissolved Oxygen TMDL -
1. The city provides stormwater education to employees and the public.
2. The city provides water resource education materials to contractors, builders, developers, and the general public.
3. The city performs inspections for the cities illicit discharge detection and ellmination program.
4. The city references and makes permitees comply with watershed requirements for post -construction BMP performance.
5. The city continues to monitor and maintain the existing stormwater ponds and other BMPs to sustain removal effectiveness.
6. The city has established maintenance agreements with private owners of permanent BMPs.
7. The city has an established street sweeping program. It sweeps streets at a minimum of two times per year.
8. The city annually inspects and cleans all structural pollution control devices.

Table 1
Fill in the following table with your Interim Milestones, BMP IDs, and Implementation Dates. Replace "TMDL Project Name & Pollutant" Columns with each TMDL Project Name and the

NOTE:
It is recommended to assign each Interim Milestone (BMP) a BMP ID. You will be required to report on the status of each Interim Milestone and include a BMP ID for all structural BMPs as part of the MS4 Annual Report (see Part III.E.), so including those ID numbers at the time of application may be useful in tracking implementation efforts. If a pond that will be included in the pond inventory (Part III.C.2.) is to be applied toward a WLA, use the same ID for both the pond inventory and TMDL tracking. Non-structural BMPs are not required to have an ID, but it may be useful to assign it an ID for internal MS4 recordkeeping.

MPCA recommends the Implementation Dates align with the submittal of MS4 Annual Reports. Dates selected may not reflect the actual date a BMP is implemented, but shall indicate a BMP will be implemented on that date or before for that reporting year.

Interim Milestone (Best Management Practice)	BMP ID	Implementation Date	TMDL Project Name & Pollutant1

Strategies for continued BMP implementation beyond the term of this permit. PART II.D.6.f.(3)

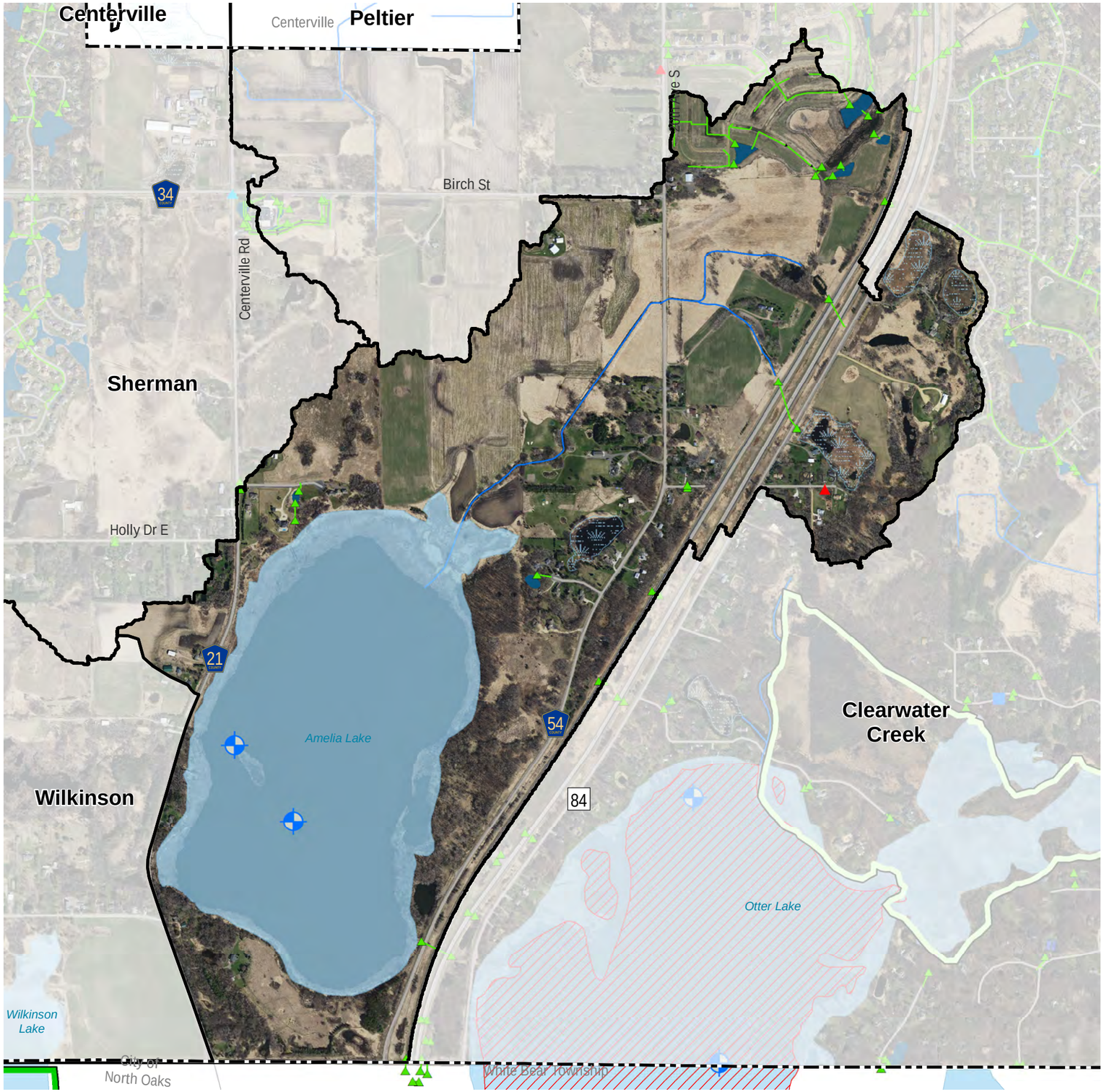
The City intends to explore opportunities to retrofit existing BMPs in the watersheds of each TMDL to maximize their pollutant removal capacity. All city construction projects will consider Green Infrastructure practices when feasible. Upon reevaluation of the TMDL waters on a ten-year monitoring cycle conducted by the state, the City will consider any necessary modifications to this approach.

Table 2
Target dates the applicable WLA(s) will be achieved. PART II.D.6.f.(4)

TMDL Project	Target Date to Achieve WLA

Appendix B – RMU Issues and Strategies

RMU: Amelia



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Riparian animal movement restricted
-Potential for excess nitrogen from agriculture activities in watershed
-Stormwater sensitive wetlands at risk

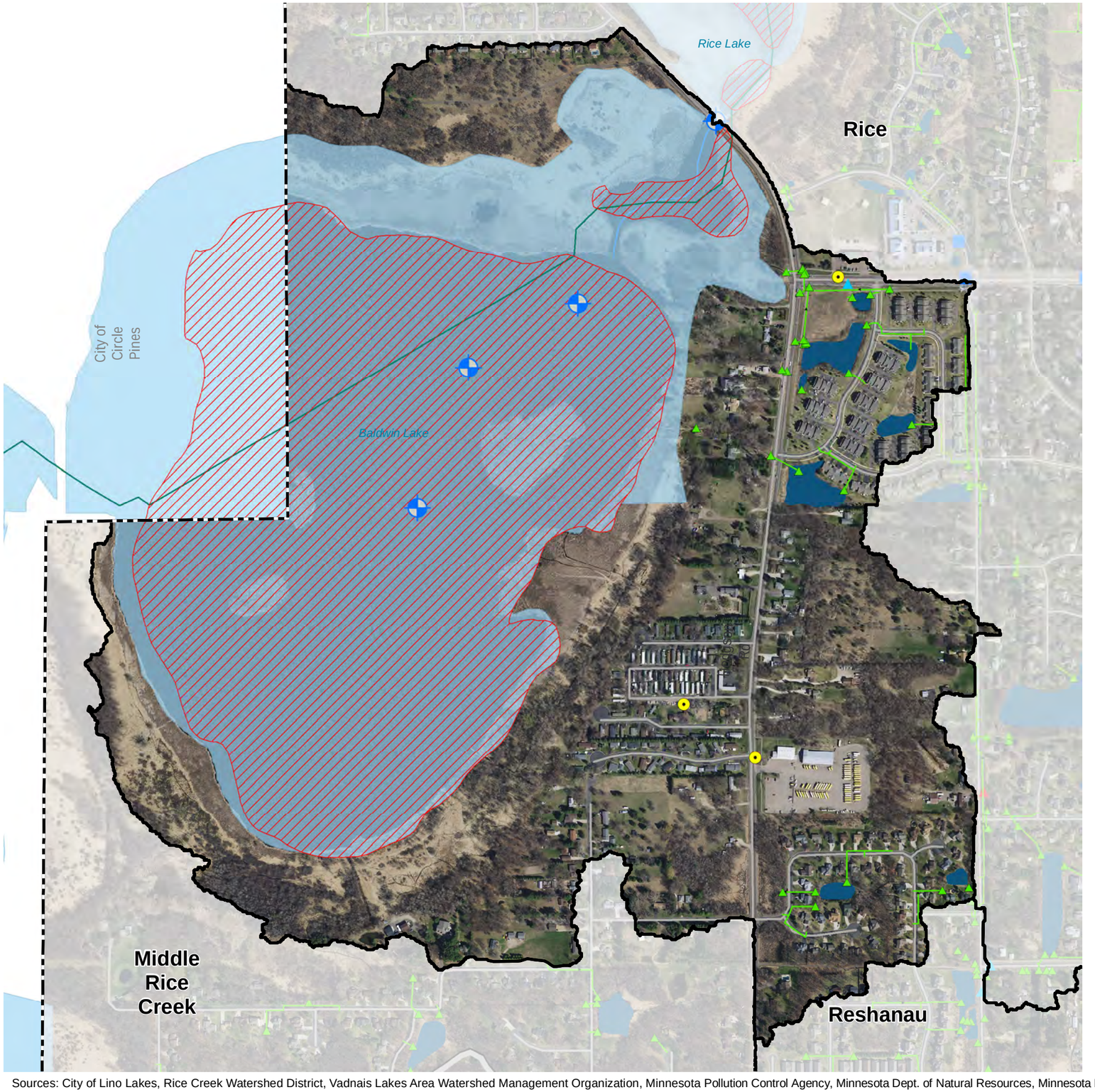
STRATEGIES:
-Collaborate with VLAWMO on future Sustainable Lake Management Plan
-Volume reduction retrofits
-Restore wetland on private ditch entering Amelia Lake

0 310 620 1,240 1,860 2,480 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Baldwin



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

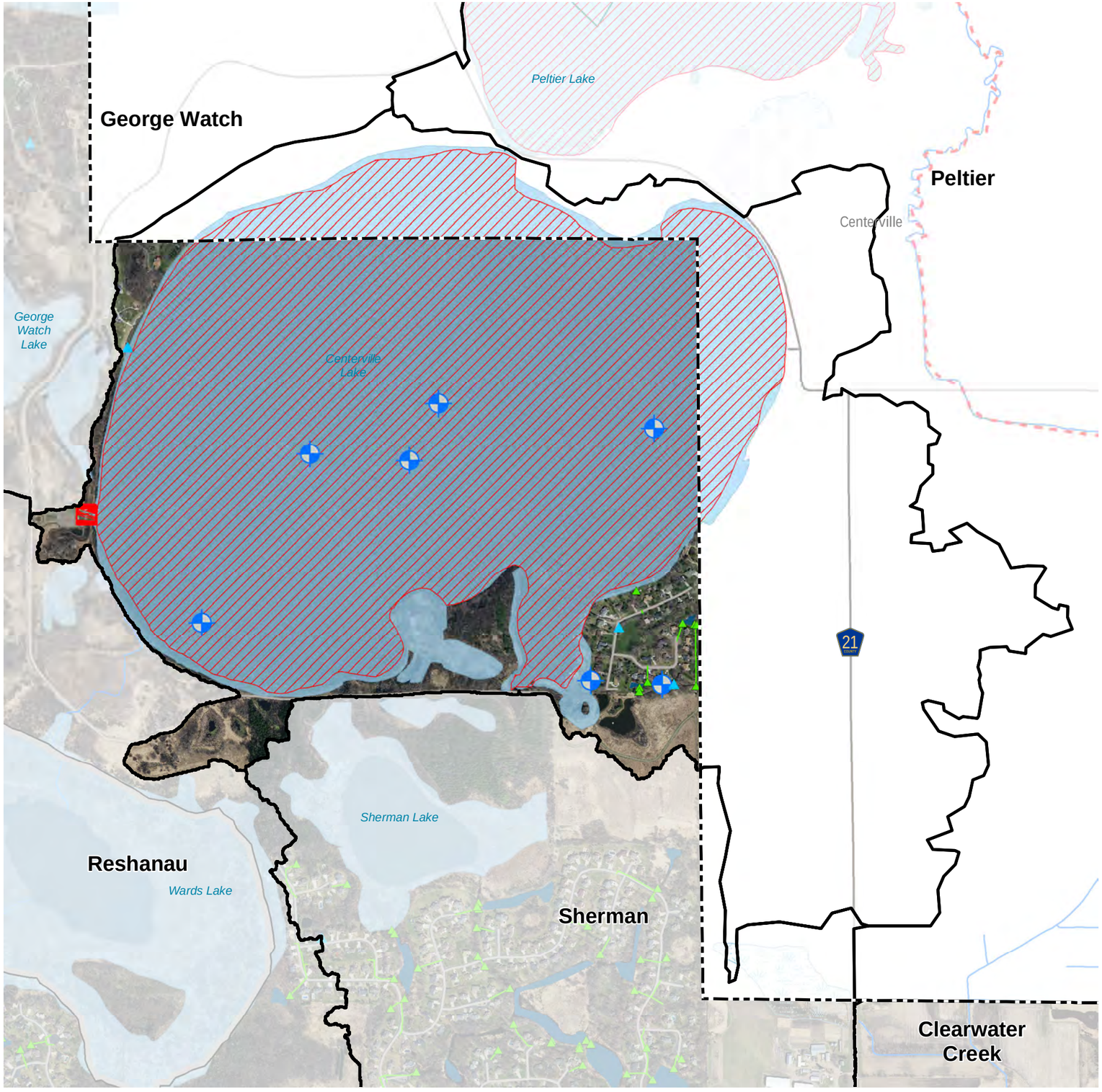
- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

0 195 390 780 1,170 1,560 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Centerville



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Total phosphorus levels exceed state standards

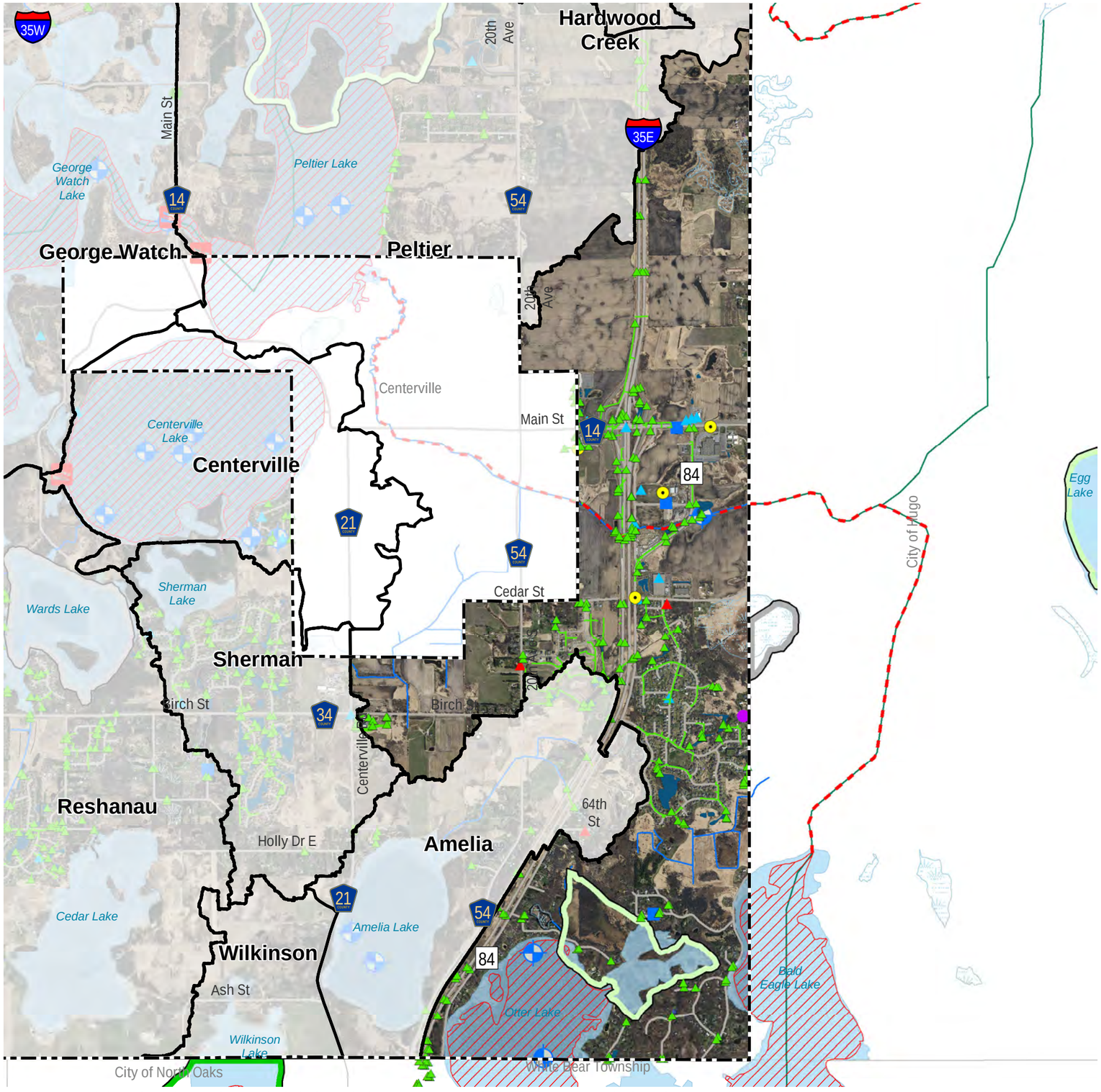
STRATEGIES:
-Collaborate with Centerville to reduce watershed TP loading entering Centerville
-Investigate load reduction retrofits in existing developed areas
-Evaluate effectiveness of LaMotte pond treatment

0 295 590 1,180 1,770 2,360
Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Clearwater Creek



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Impaired waterbody
-Incised channel and failing streambanks
-Volume Constraints in ACD Tile Lines

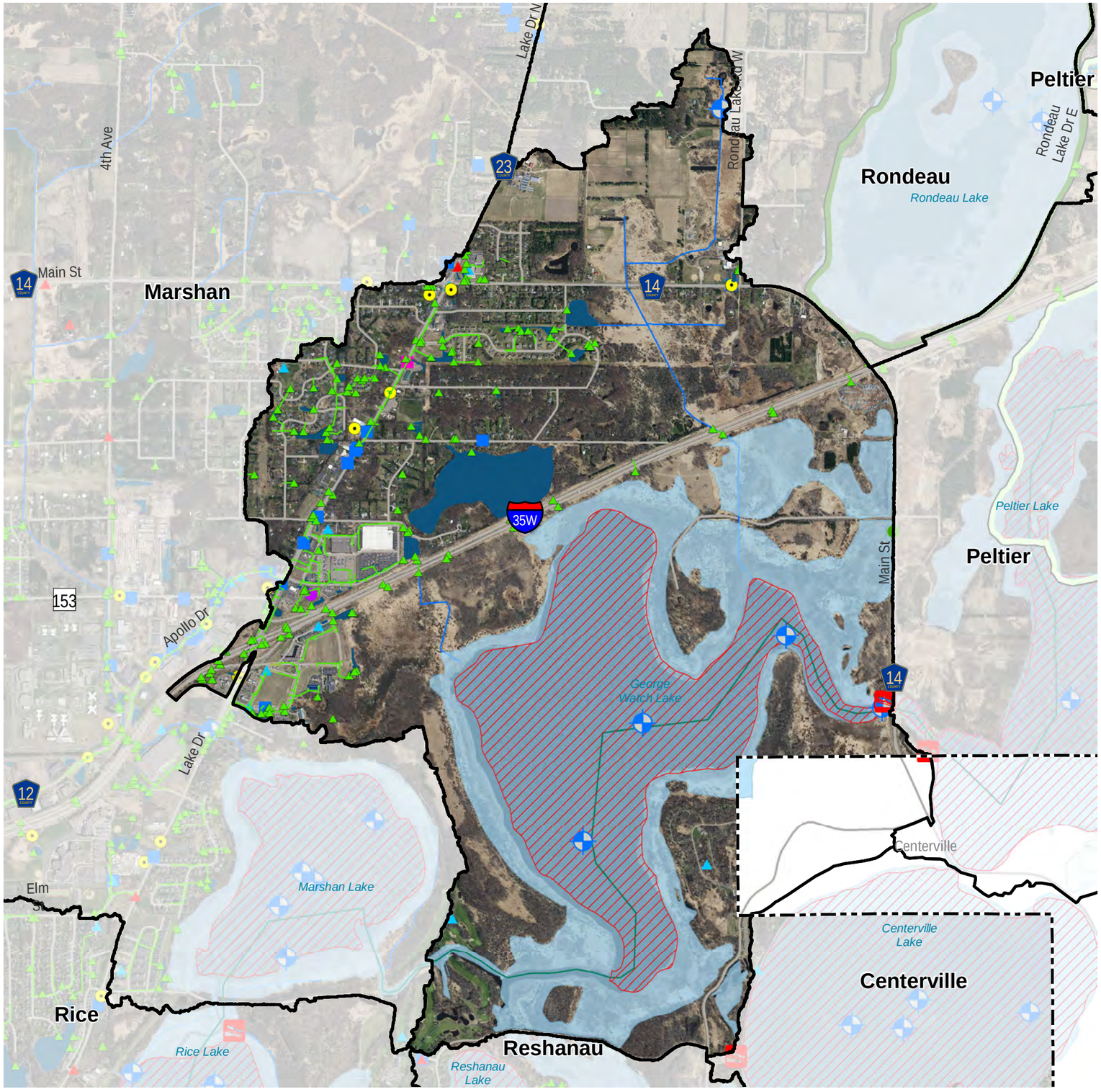
STRATEGIES:
-Implement CSMP for Area North of Main Street
-Restore wetlands along ACD 47 where feasible

0 750 1,500 3,000 4,500 6,000
Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: George Watch



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Threat to tamarack plant community from existing stormwater runoff
-High phosphorus loads from Peltier Lake affect George Watch
-Altered hydrology

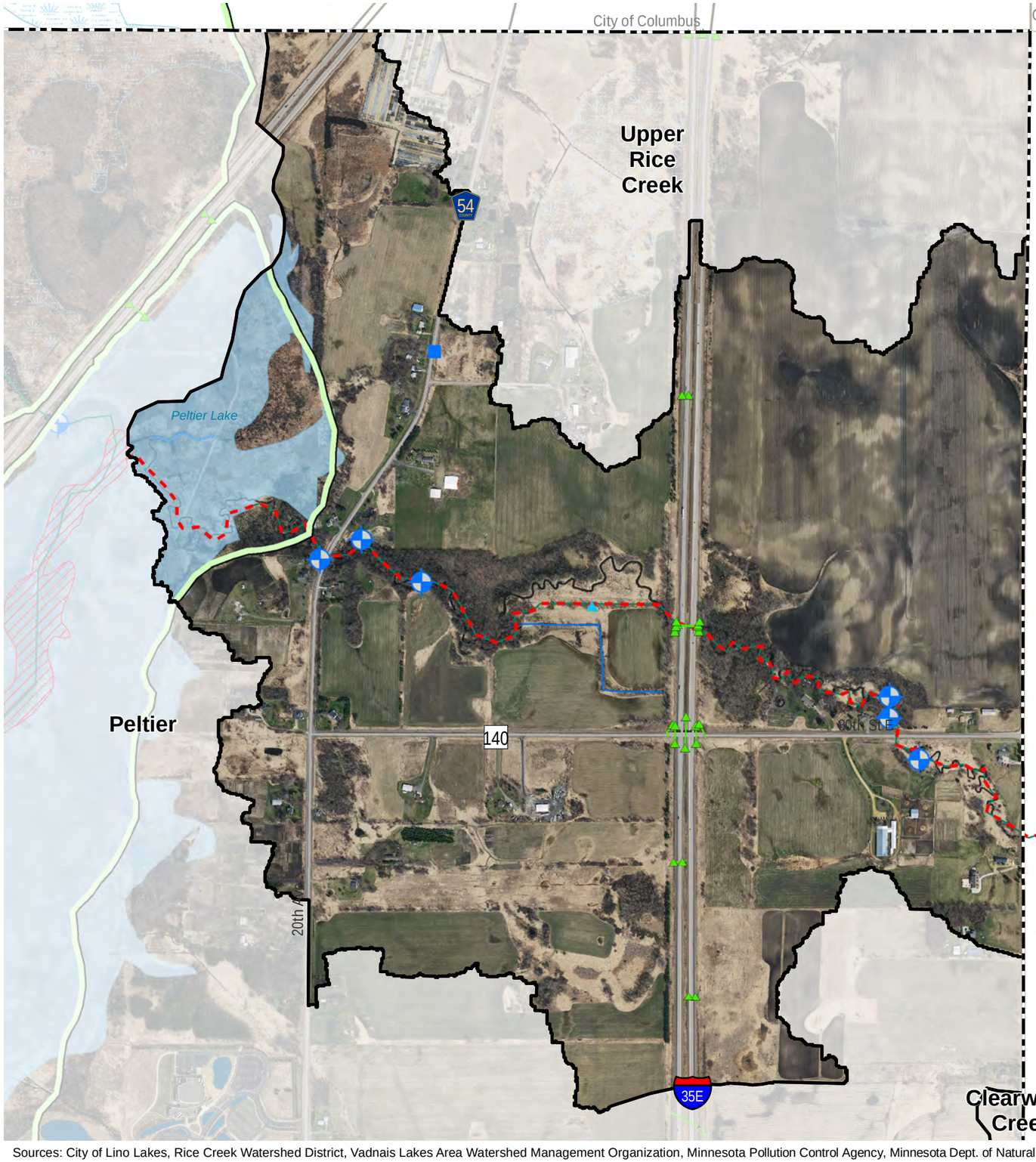
STRATEGIES:
-Eliminate surface water discharges to wetlands
-Investigate volume reduction retrofits in existing developed areas
-Detailed evaluation of infiltration feasibility
-Source control plan for areas north of CSAH 14 to prevent loading to wetlands
-Wetland restoration

0 550 1,100 2,200 3,300 4,400 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Hardwood Creek



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Impaired water
-Culvert crossings prevent aquatic species free passage

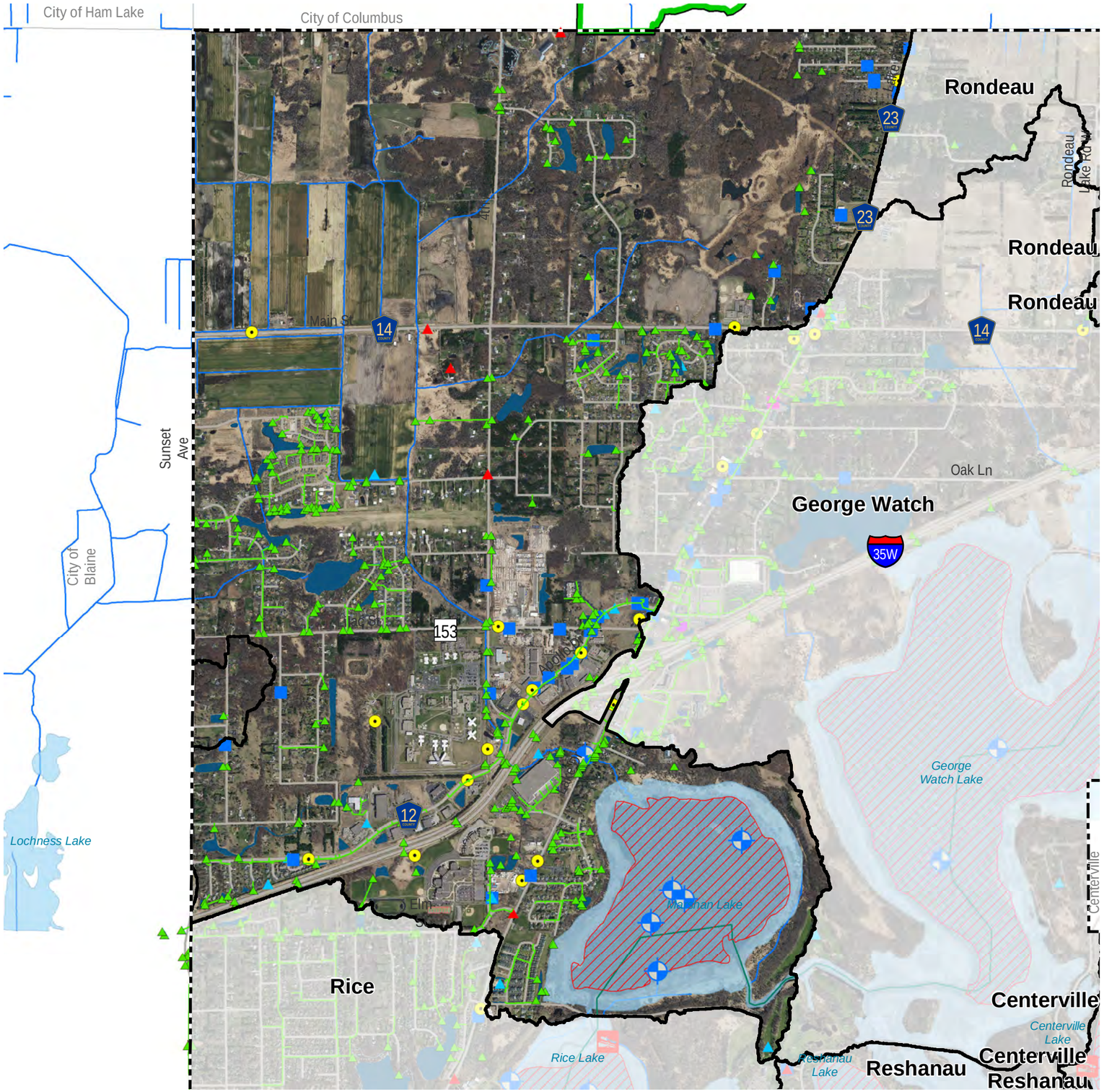
STRATEGIES:

0 265 530 1,060 1,590 2,120 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Marshan



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

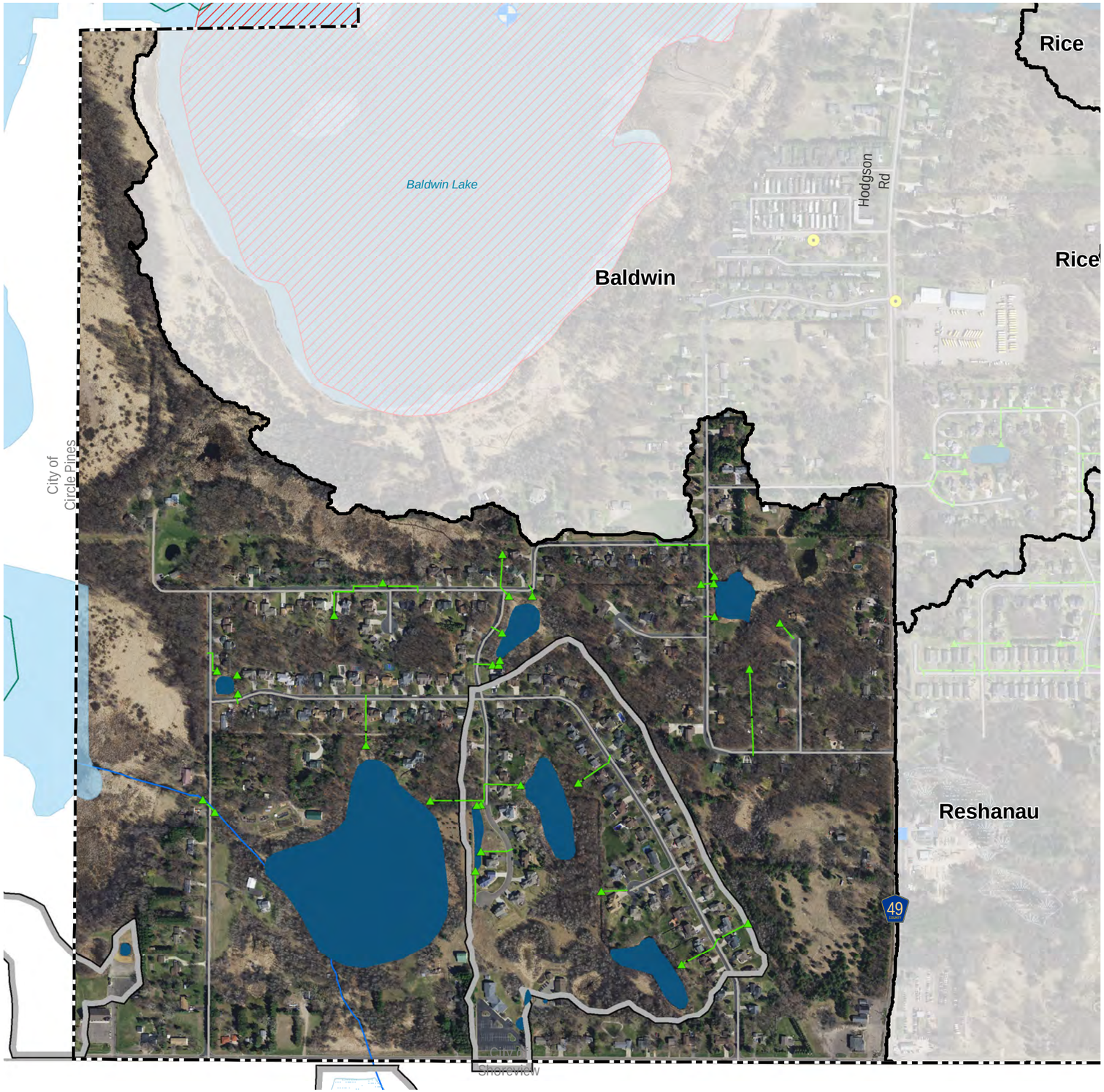
ISSUES:
-ACD 10-22-32 ineffective for future urban runoff volumes
-Fragmented habitat
-High phosphorus loads from Peltier Lake affect Marshan
-Unregulated stormwater volumes
STRATEGIES:
-Proposed master community plan for sod fields
-Evaluate restoration potential for system-wide nutrient load reduction to Marshan
-Investigate volume reduction retrofits in existing developed areas
-Wetland mitigation banking
-Connect fragmented habitats as part of Greenway System Plan
-Volume reduction retrofits

0 600 1,200 2,400 3,600 4,800 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Middle Rice Creek



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

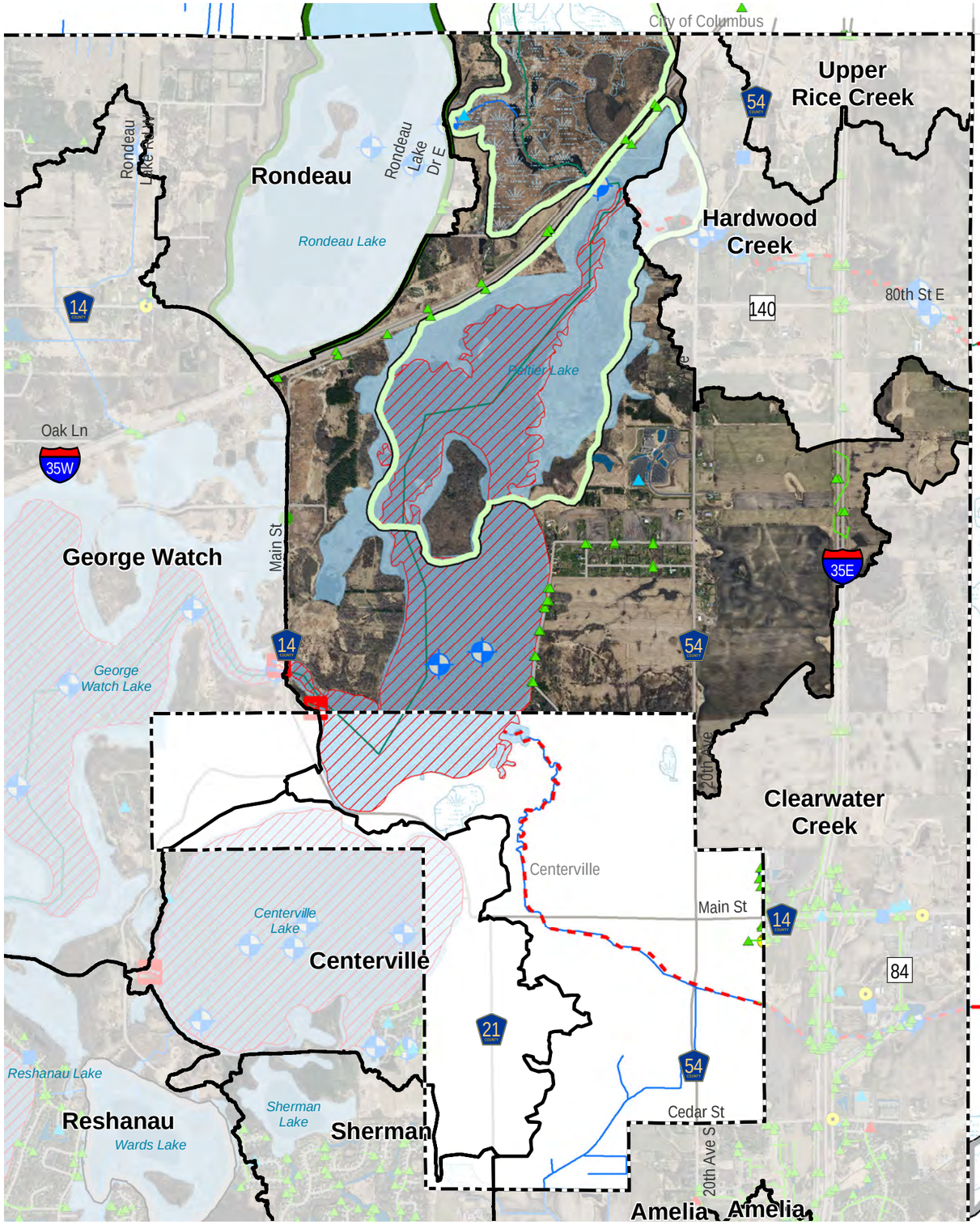
- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

0 170 340 680 1,020 1,360 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Peltier



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below

- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:

-Impaired water for excess nutrients and mercury in fish tissue
-Unregulated volume
-ACD 55 and ACD 72 tile system ineffective for traditional urban runoff volumes
-Internal phosphorus loading in lake
-Blue Heron rookery
-Incised channel on Clearwater Creek
-Highly sensitive wetlands
-Existing floodprone areas associated with ACD 55 and 72, and Clearwater Creek

STRATEGIES:

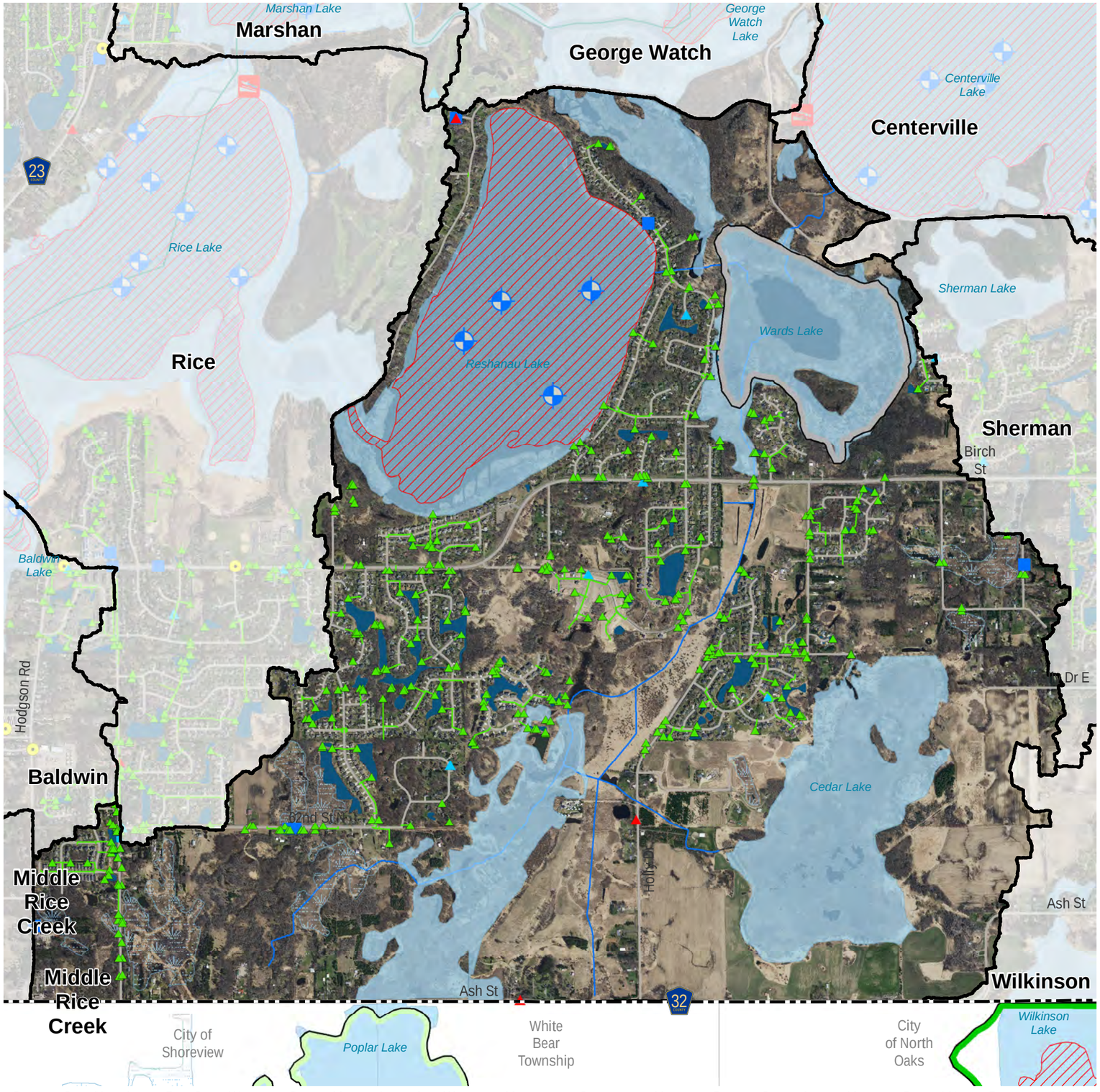
-Investigate load reduction retrofits in existing developed areas
-Wetland restoration and volume credits for future development
-Northeast Lino Lakes Comprehensive Stormwater Mangement Plan and Greenway

0 700 1,400 2,800 4,200 5,600 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Reshanau



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Impaired water for excess nutrients
-High quality forest in WMC
-Unregulated volume
-ACD 25 has altered wetland hydrology
-Partially drained wetlands
-Stormwater sensitive wetlands at risk from stormwater runoff from existing conditions

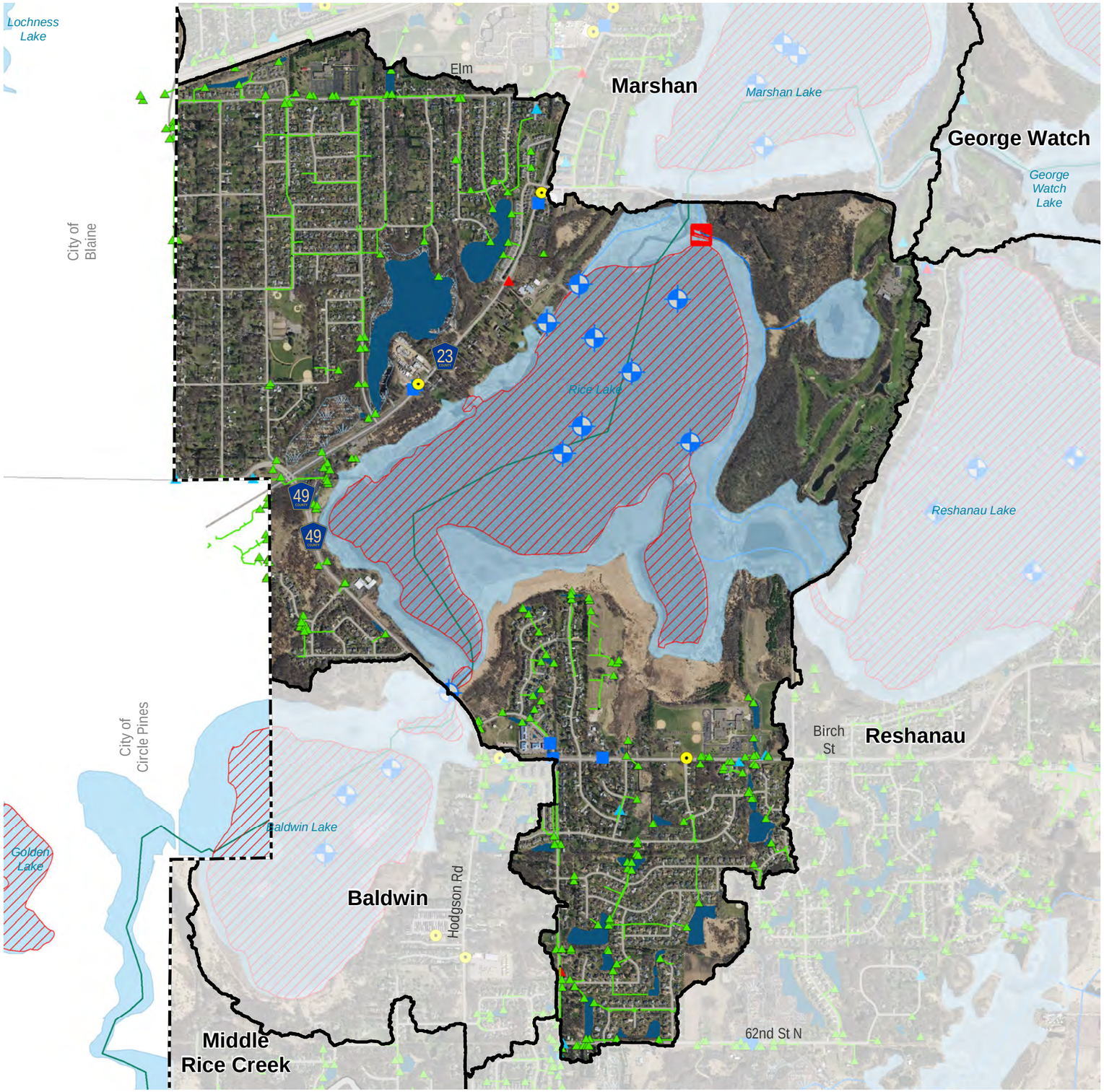
STRATEGIES:
-ACD 25 corridor is largely continuous has provides excellent opportunities for a greenway corridor
-Cedar Lake hydrologic and vegetative restoration
-ACD 25 wetland restoration
-Protect upland habitat area set asides
-Volume reduction retrofits
-Investigate load reduction retrofits in existing developed areas

0 500 1,000 2,000 3,000 4,000 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Rice



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Watershed is nearly fully developed urban land use
-Intercommunity flows from municipal storm sewer mains
-Stormwater ponds may be subject to flooding under future conditions
-Stormwater sensitive wetlands at risk from stormwater runoff from existing conditions
-Impaired water for excess nutrients
-Unregulated volume

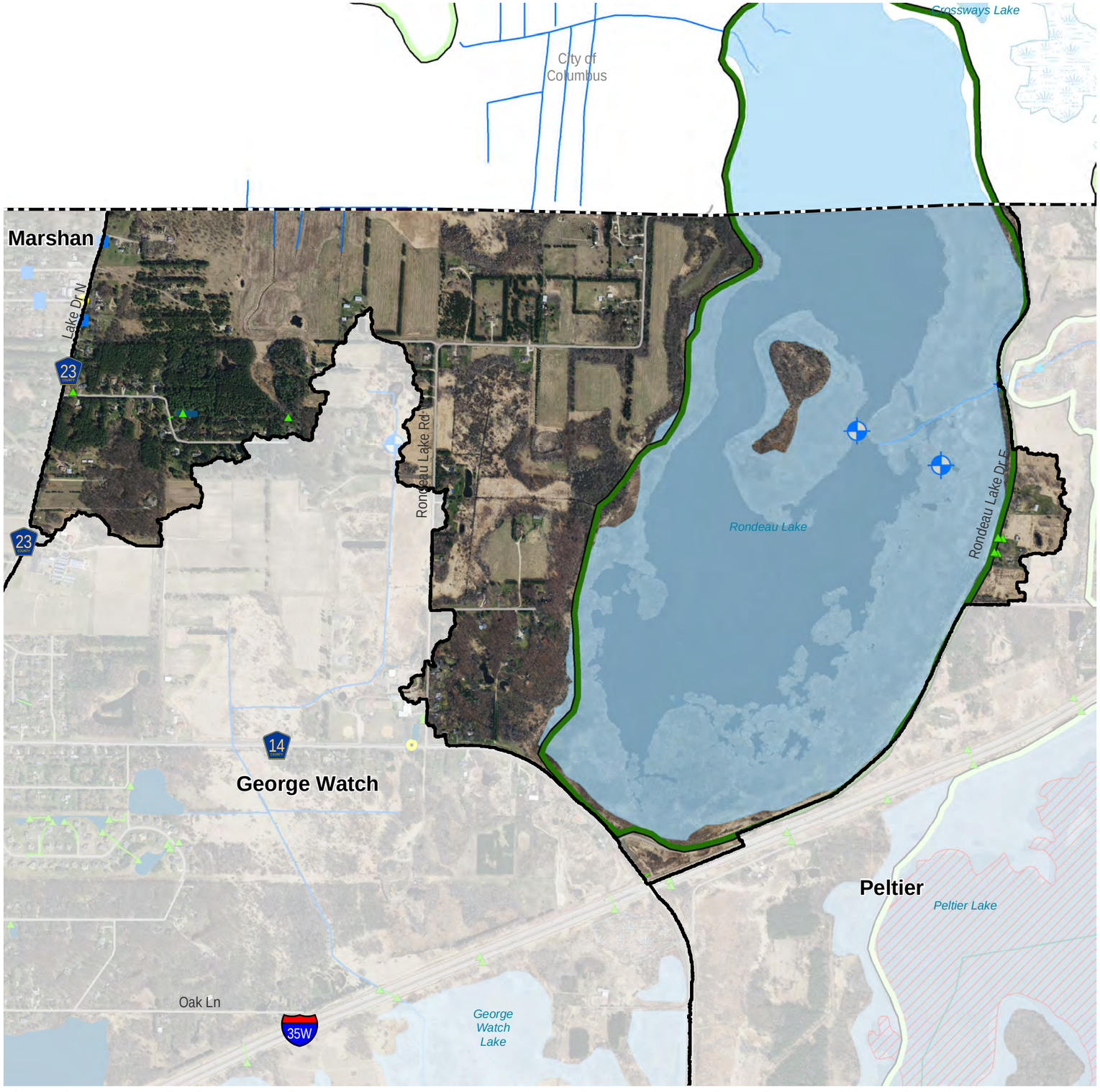
STRATEGIES:
-Implement green infrastructure urban retrofits
-Investigate stormwater volume reduction retrofits in existing developed areas
-Wetland restoration
-Detailed evaluation of infiltration feasibility
-Investigate load reduction retrofits in existing developed areas

0 475 950 1,900 2,850 3,800 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Rondeau



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Plant communities highly susceptible to urban stormwater
-Unregulated volume
-High quality wetlands at risk from stormwater runoff and future land development

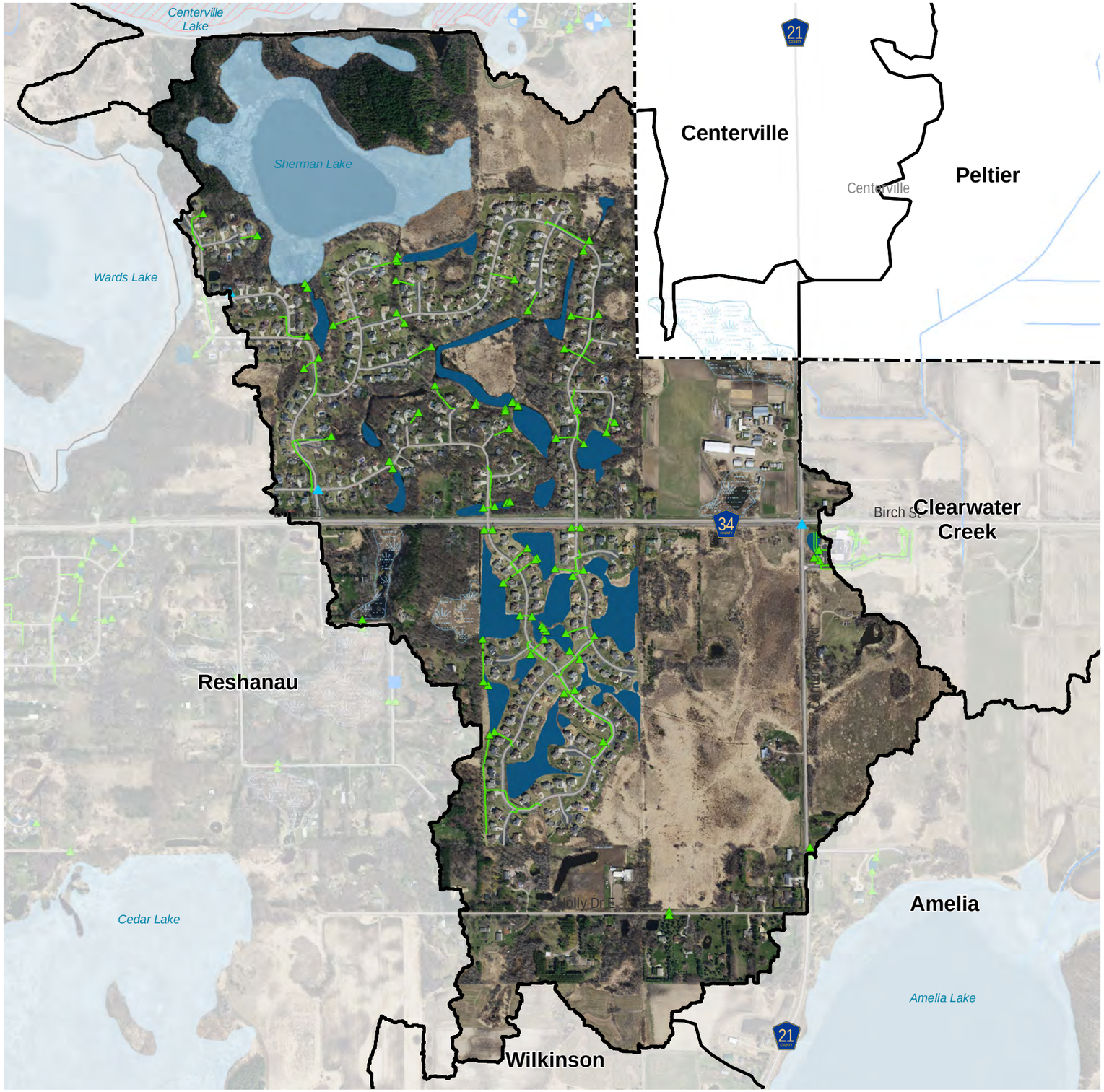
STRATEGIES:
-Assess potential for volume reduction retrofits in existing developed areas
-Develop long-term plan with the private duck club
-Watershed analysis of volume reduction BMP feasibility
-Avoid stormwater discharges to Rondeau from future land development
-Wetland protection and restoration

0 335 670 1,340 2,010 2,680
Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Sherman



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

- Outstanding
- High
- Moderate
- Below

- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Unregulated volume
-Stormwater sensitive wetlands at risk

STRATEGIES:
-Assess potential for volume reduction retrofits in existing developed areas

0 275 550 1,100 1,650 2,200
Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Upper Rice Creek

- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

- Air
- Investigation and Cleanup
- Water
- Hazardous Waste
- Solid Waste
- Tanks and Leaks
- Multiple Activities

MBS Sites of Biodiversity Significance

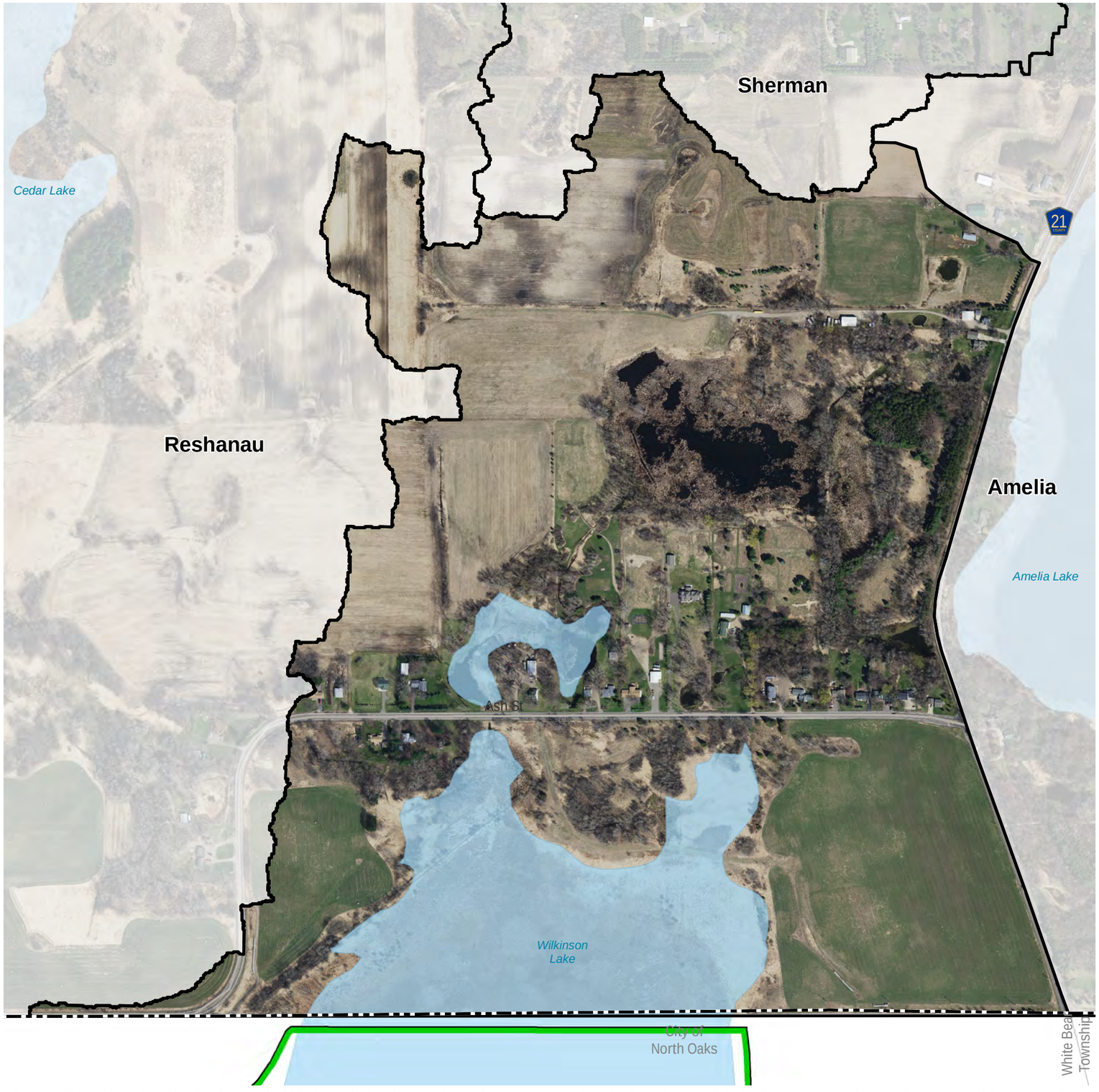
- Outstanding
- High
- Moderate
- Below
- RCWD Watercourses
- Anoka County or Private Ditches
- Boat Launches
- MPCA Surface Water Monitoring Locations
- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

0 160 320 640 960 1,280
Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

RMU: Wilkinson



- Storm Sewer
- Underground Storage Chambers
- Pervious Pavers
- Stormwater Detention Ponds

MPCA Environmental Sites

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MBS Sites of Biodiversity Significance

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- Impaired Lakes
- Impaired Streams
- DNR Public Waters
- DNR Public Wetlands
- Municipal Boundary
- Road Centerline

ISSUES:
-Total phosphorus levels exceed state standards
-Unregulated volumes
-Stormwater sensitive wetlands at risk
-Protect wildlife habitat and migratory refuge

STRATEGIES:
-Collaborate with VLAWMO to meet City reduction in TP per VLAWMO TMDL
-Require Better Site Design for new and redevelopment projects
-Assess potential for volume reduction retrofits in existing developed areas
-Incorporate habitat areas in Greenway System Plan

0 150 300 600 900 1,200 Feet

N

Sources: City of Lino Lakes, Rice Creek Watershed District, Vadnais Lakes Area Watershed Management Organization, Minnesota Pollution Control Agency, Minnesota Dept. of Natural Resources, Minnesota Biological Survey

Appendix C – City of Lino Lakes Ordinances

Chapter 1011: Stormwater, Erosion and Sediment Control

Chapter 1102: Shoreland Management Overlay

Chapter 1103: Floodplain Management

Print

CHAPTER 1011: STORMWATER, EROSION AND SEDIMENT CONTROL

Section

§ 1011.001 TITLE.

This chapter shall be known as the Lino Lakes Stormwater, Erosion and Sediment Control Chapter and will be referred to herein as this chapter.

(Ord. 09-15, passed 10-26-2015)

§ 1011.002 PURPOSE.

The general purpose of this chapter is to set forth regulatory requirements for land development and land disturbing activities aimed at minimizing threats to public health, safety, public and private property, and natural resources within the city from construction site erosion and post-construction stormwater runoff. Specific purposes are to establish performance standards that will:

(1) Protect life and property from dangers associated with flooding;

(2) Protect public and private property and the natural resources from damage resulting from runoff and construction site erosion;

(3) Ensure land development that minimizes the generation of stormwater runoff volumes and peak rates and maximizes pervious areas for stormwater treatment;

(4) Promote regional stormwater management by subwatershed;

(5) Provide a single, consistent set of performance standards that apply to all developments;

(6) Protect water quality from nutrients, heavy metals, bacteria, pathogens, debris, thermal stress, and other urban pollutants;

(7) Promote infiltration and groundwater recharge;

(8) Protect functional values of all types of natural water bodies (e.g., rivers, streams, wetlands, lakes, seasonal ponds); and

(9) Sustain or enhance biodiversity (native plant and animal habitat) and support riparian ecosystems.

(Ord. 09-15, passed 10-26-2015)

§ 1011.003 JURISDICTION.

The provisions of this chapter shall apply to all lands within the incorporated boundaries of Lino Lakes.

(Ord. 09-15, passed 10-26-2015)

§ 1011.004 STATUTORY AUTHORITY .

This chapter is adopted pursuant to the authorization and policies contained in M.S. Chs. 103B, 103F, and 462 and Minn. Rules Chs. 7050, 7090, and 8410. This chapter is intended to meet the current construction site erosion and sediment control and post-construction stormwater management regulatory requirements for construction activity and small construction activity as defined in the standards of the NPDES construction general permit, as amended.

(Ord. 09-15, passed 10-26-2015)

§ 1011.005 FINDINGS.

The city finds that uncontrolled stormwater runoff and construction site erosion from land development and land disturbing activity can have significant adverse impacts upon local and regional water resources diminishing the quality of public health, safety, public and private property, and natural resources of the city. Specifically, uncontrolled construction site erosion and stormwater runoff can:

(1) Threaten public health, safety, property, and general welfare by increasing runoff volumes, peak flood flows, and overburdening storm sewers, drainage ways, and other storm drainage systems;

(2) Diminish the capacity of lakes and streams to support fish, aquatic life, recreational and water supply uses by increasing pollutant loadings of total sediment, suspended solids, nutrients, heavy metals, bacteria, pathogens, and other urban pollutants;

(3) Degrade physical stream habitat by increasing stream bank erosion, increasing stream bed scour, diminishing groundwater recharge, diminishing stream base flows, and increasing stream temperatures;

(4) Undermine floodplain management efforts by increasing the incidence and levels of flooding;

(5) Alter wetland communities by changing wetland hydrology and increasing pollutant loading; and

(6) Generate airborne particulate concentrations that are health threatening or may cause other damage to property or the environment.

(Ord. 09-15, passed 10-26-2015)

§ 1011.006 DEFINITIONS.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the same meaning as they have in common usage and to give this chapter its most reasonable application. For the purpose of this chapter, the words MUST and SHALL are mandatory and not permissive. All distances, unless otherwise specified, shall be measured horizontally. As used in this chapter, the following words and terms shall have the meanings ascribed to them in this section.

100-YEAR FLOOD ELEVATION. The elevation of water resulting from the Critical Duration Flood Event.

BEST MANAGEMENT PRACTICES (BMP's). Measures taken to minimize negative effects on water resources and systems as documented in the Minnesota Construction Site Erosion and Sediment Control Planning Handbook (MBWSR, 1988), Protecting Water Quality in Urban Areas (MPCA, 2000) and the Minnesota Stormwater Manual (MPCA, 2014) as amended.

BETTER SITE DESIGN (BSD). An approach to managing runoff that seeks to attain post development hydrology which mimics the undeveloped condition in terms of volume, rate and timing of runoff. The goals of BETTER SITE DESIGN include reducing the amount of impervious cover, increasing the amount of natural lands set aside for conservation, using pervious areas for more effective stormwater treatment, innovative grading and drainage techniques and through the review of every aspect of the project site planning process. BETTER SITE DESIGN involves techniques applied early in the design process to reduce impervious cover, conserve natural areas and use pervious areas to more effectively treat stormwater runoff and promote a treatment train approach to runoff management.

BIOFIL TRATION. A stormwater quality and quantity BMP that utilizes vegetation and soil to filter and absorb pollutants including nutrients, hydrocarbons and metals and remove water volume through evapotranspiration.

BRIDGE. A road, path, railroad or utility crossing over a waterbody, wetland, ditch, ravine, road, railroad or other obstacle.

BRIDGE SPAN. The clear span between the inside surfaces of a bridge's terminal supports.

CHANNEL. A perceptible natural or artificial depression, with a defined bed and banks that confine and conduct water flowing either continuously or periodically.

CONSTRUCTION ACTIVITY. Includes construction activity as defined in 40 C.F.R. pt. 122.26(b)(14)(x) and small construction activity as defined in 40 C.F.R. pt. 122.26(b)(15). This includes a disturbance to the land that results in a change in the topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated stormwater runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of CONSTRUCTION ACTIVITY may include clearing, grading, filling, and excavating. CONSTRUCTION ACTIVITY includes the disturbance of less than one acre of total land area that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb one acre or more.

CRITICAL DURATION FLOOD EVENT. The 100-year precipitation or snow melt event with a duration resulting in the maximum 100-year return period water surface elevation. The CRITICAL DURATION FLOOD EVENT is generally either the 100-year, 24 hour rainfall event as found in NOAA Atlas 14 or the ten-day snow melt event assumed to be 7.2 inches of runoff occurring on frozen ground (CN=100); however, other durations (e.g., 6-hour) may result in the maximum 100-year return period water surface elevation.

DETENTION BASIN. Any natural or man-made depression that stores stormwater runoff temporarily.

DEVELOPMENT. Any land-disturbing activity resulting in creation or reconstruction of impervious surface including, but not limited to, municipal road construction. Normal farming practices part of an ongoing farming operation shall not be considered a DEVELOPMENT.

DRAINAGE SYSTEM. A system of open channel, pipe or tile, to drain property, including laterals, improvements, and improvements of outlets, which may or may not be a public system under the jurisdiction of a watershed district under M.S. Chs. 103B, 103D, or 103E.

EMERGENCY OVERFLOW (EOF). A primary overflow to pass flows above the design capacity around the principal outlet safely downstream without causing flooding.

EROSION AND SEDIMENT CONTROL PLAN. A plan of BMPs or equivalent measures designed to control runoff and erosion and to retain or control sediment on land during the period of land disturbance in accordance with the standards set forth in this chapter.

EROSION PREVENTION. Measures employed to prevent erosion including, but not limited to, soil stabilization practices, limited grading, mulch, temporary or permanent cover, and construction phasing.

EXCAVATION. The displacement or removal of soil, sediment or other material.

FILTRATION. A stormwater quality BMP that uses either natural media such as soil or vegetation or manufactured media to trap pollutants such as nutrients and particles in surface water.

FINAL STABILIZATION. All soil disturbing activities at the site have been completed and all soils have to be stabilized by a uniform perennial vegetative cover with a density of 70% over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions.

FLOODPLAIN. The areas adjoining a waterbody that are inundated during the 100-year flood.

FLOODWAY. The channel of a watercourse, the bed of water basins and those portions of adjoining floodplains that must be kept free of encroachment to accommodate the 100-year flood.

FLOODWAY FRINGE. The area between the floodway and the boundary of the 100-year flood.

FREEBOARD. Vertical distance between the 100-year flood elevation or emergency overflow elevation of a water basin or watercourse and the elevation of the regulatory elevation of a structure.

IMPERVIOUS SURFACE. A compacted surface or a surface covered with material (i.e., gravel, asphalt, concrete, Class 5, etc.) that increases the depth of runoff compared to natural soils and land cover. Including but not limited to roads, driveways, parking areas, sidewalks and trails, patios, tennis courts, basketball courts, swimming pools, building roofs, covered decks, and other structures.

INFILTRATION. Water entering the ground through the soil.

LAND-DISTURBING ACTIVITY. Any disturbance to the ground surface that, through the action of wind or water, may result in soil erosion or the movement of sediment into waters, wetlands or storm sewers or onto adjacent property. LAND-DISTURBING ACTIVITY includes but is not limited to the demolition of a structure or surface, soil stripping, clearing, grubbing, grading, excavating, filling and the storage of soil or earth materials. The term does not include normal farming practices as part of an ongoing farming operation.

LANDLOCKED BASIN. A water basin lacking an outlet at an elevation at or below the water level produced by the critical duration flood event, generally the ten-day snowmelt event.

LOW ENTRY ELEVATION. The elevation of the lowest opening in a structure.

LOW FLOOR ELEVATION. The elevation of the lowest floor of a habitable or uninhabitable structure, which is often the elevation of the basement floor or walk-out level.

MILL, RECLAMATION AND OVERLAY. Removal of the top layer(s) of an impervious surface (e.g. roadway, parking lot, sport court) by mechanical means, followed by the placement of a new layer of impervious surface, without exposure of the underlying native soil.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER DISCHARGE PERMIT . A permit issued by the Minnesota Pollution Control Agency that authorizes the discharge of pollutants to the waters of the state.

NATIONWIDE URBAN RUNOFF PROGRAM (NURP). Urban Runoff Program developed by the Environmental Protection Agency to study stormwater runoff from urban development.

ORDINARY HIGH WATER LEVEL (OHW). The highest water level elevation that has been maintained for a sufficiently long period of time to leave evidence upon the landscape. The OHW is commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. If an OHW has been established for a waterbody by the Minnesota Department of Natural Resources, it will constitute the OHW under this definition.

OWNER. The person or party possessing the title of the land on which the construction activities will occur; or if the construction activity is for a lease, easement, or mineral rights license holder, the party or individual identified as the lease, easement, or mineral rights license holder; or the contracting government agency responsible for the construction activity.

PUBLIC LINEAR PROJECT . A project involving a roadway, sidewalk, trail or utility not part of an industrial, commercial, institutional or residential development.

RECONSTRUCTION. Removal of an impervious surface such that the underlying structural aggregate base is effectively removed and the underlying native soil exposed.

SEASONAL HIGH WATER TABLE. The highest known seasonal elevation of groundwater as indicated by redoximorphic features such as mottling within the soil.

SATURATED SOIL. The highest seasonal elevation in the soil that is in a reduced chemical state because of soil voids being filled with water. Saturated soil is evidenced by the presence of mottled features or other information.

SEDIMENT CONTROL. Methods employed to prevent sediment from leaving the site. SEDIMENT CONTROL practices include silt fences, sediment traps, earth dikes, drainage swales, check dams, subsurface drains, pipe slope drains, storm drain inlet protection, and temporary or permanent sedimentation basins.

SHORELAND. Land located within the following distances from the ordinary high water elevation of public waters:

(a) Land within 1,000 feet from the normal high watermark of a lake, pond or flowage; and

(b) Land within 300 feet of a river or stream or the landward size of a floodplain delineated by ordinance on the river or stream, whichever is greater.

STABILIZED. The exposed ground surface has been covered by appropriate materials such as mulch, staked sod, riprap, erosion control blanket, mats or other material that prevents erosion from occurring. Applying mulch, hydromulch, tackifier, polyacrylamide, or similar erosion prevention practices is not

acceptable stabilization in temporary or permanent drainage ditches or areas where concentrated overland flow occurs. Grass seeding is not stabilization.

STANDARD PLATES. General drawings having or showing similar characteristics or qualities that are representative of a construction activity or practice.

STORMWATER. Defined under Minn. Rules 7077.0105, Subd. 41(b), meaning precipitation runoff, stormwater runoff, snowmelt runoff, and any other surface runoff and drainage.

STORMWATER FACILITY, PRIVATE. Any BMP that is maintained by a private property owner, or other private entity and not maintained by a public agency.

STORMWATER MANAGEMENT PLAN. A plan for the permanent management and control of runoff prepared and implemented in accordance with the standards set forth in this chapter.

STORMWATER POLLUTION 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 waterbodies to the maximum extent practicable.

STORMWATER POND. Constructed basins placed in the landscape to capture stormwater runoff.

SURFACE WATERS. All streams, lakes, ponds, marshes, wetlands, reservoirs, springs, rivers, drainage systems, waterways, watercourses, and irrigation systems whether natural or artificial, public or private.

UNDERGROUND WATERS. Water contained below the surface of the earth in the saturated zone including, without limitation, all waters whether under confined, unconfined, or perched conditions, in near surface unconsolidated sediment or regolith, or in rock formations deeper underground. The term GROUND WATER shall be synonymous with underground water.

WATER QUANTITY BEST MANAGEMENT PRACTICE. The use of on-site runoff management practices such as biofiltration, infiltration, buffers/conservation areas, impervious disconnection, and greenway connections to satisfy stormwater management requirements.

WATERS OF THE ST ATE. As defined in M.S. § 115.01, Subd. 22, means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

WETLAND. Land transitional between terrestrial and aquatic systems, as defined in M.S. § 103G.005, Subd. 19.

(Ord. 09-15, passed 10-26-2015)

§ 1011.007 APPLICABILITY .

All land disturbing activity may be subject to standard erosion and sediment control BMPs. A grading, erosion and sediment control permit and/or a stormwater management permit shall be required for projects that meet or exceed the thresholds established in §§ 1011.009 and 1011.010.

(Ord. 09-15, passed 10-26-2015)

§ 1011.008 EXEMPTIONS.

The following land disturbing activities will be exempt from the grading, erosion and sediment control and stormwater management permit requirements of this chapter:

(1) Cemetery graves;

(2) Routine agricultural activity such as tilling, planting, or harvesting of agricultural, horticultural, or silvicultural (forestry) crops; and

(3) Emergency work necessary to protect life, limb, or property.

(Ord. 09-15, passed 10-26-2015)

§ 1011.009 TECHNICAL REFERENCES.

The following documents shall be used for technical reference:

(1) The Lino Lakes Surface Water Management Plan.

(2) The Lino Lakes Engineering Design Details.

(3) The Lino Lakes Standard City Specifications.

(4) The Rice Creek Watershed District (RCWD) Rules.

(5) The Vadnais Lakes Area Watershed Management Organization (VLAWMO) Rules.

(Ord. 09-15, passed 10-26-2015)

§ 1011.010 GRADING, EROSION AND SEDIMENT CONTROL REQUIREMENTS.

(1) Grading, erosion and sediment control (ESC). A grading, erosion and sediment control (ESC) permit including a grading, erosion and sediment control plan shall be required for all proposed land disturbing activity unless otherwise exempted in this chapter that meets any or all of the following:

(a) Includes excavation, filing, or stockpiling of erodible material in excess of 50 cubic yards per acre;

(b) Involves the laying, repairing, replacing, or enlarging of an underground utility, pipe or other facility, or the disturbance of road ditch, grass swale, or other open channel for a distance of 500 feet or more;

(c) Disturbs more than one acre of land or 10,000 square feet if within 300 feet of a lake, stream or wetland and drains towards it; and/or

(d) A land disturbing activity, regardless of size, that the city determines is likely to cause an adverse impact to an environmentally sensitive area or other property.

(2) Grading, erosion and sediment control plan design standards. Grading, erosion and sediment control plans must comply with the following criteria:

(a) All plans shall be consistent with national pollutant discharge elimination permit (NPDES) requirements, the city engineering design standards, the Lino Lakes stormwater detail plates, and the filing or approval requirements of Rice Creek Watershed District, Vadnais Lakes Watershed Management Organization, Anoka County, Minnesota Department of Natural Resources, Minnesota Department of Transportation, Minnesota Pollution Control Agency, U.S. Army Corps of Engineers, State of Minnesota Stormwater Manual or other regulatory agencies;

(b) Natural site topography and soil conditions must be specifically addressed to reduce erosion and sedimentation during construction and after project completion;

(c) Site erosion and sediment control practices must be consistent with the Minnesota Pollution Control Agency document Protecting Water Quality in Urban Areas (2000), as amended, city-specific written design guidance, and be sufficient to retain sediment on-site;

(d) The project must be phased as best possible to minimize disturbed areas and removal of existing vegetation until necessary for project progress;

(e) The city may require additional erosion and sediment control measures on areas with a continuous slope leading to a sensitive, impaired or special water body, stream, ditch or wetland to assure retention of sediment on site;

(f) When site restrictions do not allow for a temporary sediment basin or less than the required acreage is being developed, temporary sediment basins, where appropriate, are encouraged. They are not required in areas with steep slopes, highly erodible soils, or to take equivalent measures such as smaller basins, check dams, and vegetated buffer strips;

(g) The plan must include conditions adequate to protect facilities to be used for post-construction stormwater infiltration;

(h) The plan must include conditions to minimize off-site sediment transport on trucks and equipment, such as rock entrances;

(i) The plan must minimize work in and adjacent to water bodies and wetlands;

(j) Stable slopes shall be maintained throughout the construction process.

(k) Steep slopes and the need for high cuts and fills shall be avoided (no slopes greater than 3(h): 1(v), except as approved by the City Engineer).

(l) Protection shall be provided to minimize disturbance to surrounding soils, root systems and trunks of trees adjacent to site activity that are intended to be left standing.

(m) Compaction of site soils shall be minimized.

(n) All imported materials shall be approved by the City Engineer prior to placement on the site.

(o) Appropriate on-site containment must be provided for all trash, solid waste, construction debris, floating debris, and hazardous materials. Disposal of collected sediment shall be deposited only in approved locations.

(3) Grading, erosion and sediment control (ESC) required exhibits. The plan shall be prepared and signed by a duly licensed professional engineer in the State of Minnesota. The following exhibits must accompany the permit application: two plan sets, full size (22 inches by 34 inches); one plan set, reduced to maximum size of 11 inches by 17 inches. Additional copies may be required in accordance with applicable zoning and subdivision provisions of city code. All plan sets shall also be submitted electronically in a .dwg format or as otherwise determined by the City Engineer. The minimum requirements of the grading, erosion, and sediment control plan shall be consistent with the most recent version of the NPDES permit requirements and include the following information:

(a) Project name and type (residential, commercial, industrial, road construction, or other);

(b) Project location;

(c) County parcel identification number (legal description);

(d) Names and addresses of the record owner, developer, land surveyor, engineer, designer of the plat, and any agents, contractors, and subcontractors who will be responsible for project implementation, including the name, address and phone number of the party responsible for maintenance of all erosion and sediment control measures;

(e) Tabulation of construction implementation schedule, including: estimated start date, time frames, and schedules for each construction phase, and completion date;

(f) Copies of permits or permit applications required by any other government entity or agencies including mitigation measures required as a result of any review for the project (e.g., wetland mitigation, EAW, EIS, archaeology survey);

(g) Existing conditions map. An existing topographic site map, drawn to a legible scale and clearly labeled with a north arrow and date of preparation. The plan, based on a certificate of survey, shall include the following information:

1. Property lines and lot dimensions;

2. Existing zoning classifications for land within and abutting the development, including shoreland, floodway, floodway fringe, or general floodplain, and other natural resource overlay districts;

3. All buildings and outdoor uses including all dimensions and setbacks;

4. All public and private roads, interior roads, driveways and parking lots;

5. Show ordinary high water marks of all navigable waters, 100-year critical flood duration event elevations, and delineated wetland boundaries, if any. If not available, appropriate flood zone determination or wetland delineation, or both, may be required at the applicant's expense;

6. Identify all special waters and impaired waters, as identified in the most recent listing by the MPCA, within one mile of the project that receive runoff from the project;

7. Location of drainage areas, existing storm sewer facilities, including pipes, manholes, catch basins, ponds, swales and drainage channels within 100 feet of the subject property. Existing pipe sizes, grades, rim and invert elevations, and normal and high water elevations must be included;

8. Existing contours at one foot intervals, shown as dashed lines for the subject property and extending 100 feet beyond the outside boundary of the proposed plat;

9. Steep slopes where areas with an average slope of more than 12% over a distance of at least 50 feet, or bluff areas as defined in the shoreland ordinance, whichever is applicable; and

10. Wooded areas, high quality native plant communities, or other officially designated natural resource areas.

(h) Proposed conditions map.

1. Maps identifying areas discussed in (3)(g)1. through (g)10. of this section.

2. Location, size, and approximate grade of proposed public sewer and water mains.

3. Elevations, sections, profiles, and details as needed to describe all natural and artificial features of the project.

4. Proposed grade contours at one-foot intervals shown as solid lines.

5. An estimate of the total volume (cubic yards) of materials proposed to be imported to or exported from the site.

6. Provisions for groundwater management (dewatering), including subsurface drains, disposals, ponding and flood controls.

7. Spot elevations at drainage break points and directional arrows indicating site swale and lot drainage.

8. Proposed lot lines, lot and block numbers, building style, building pad location and elevations at the lowest floor and garage slab, if applicable, for each lot.

9. Locations, sizes, grades, rim and invert elevations of all proposed stormwater facilities, including ponds, proposed to serve the subject property.

10. The location of all oversize, non-typical easements including conservation easements, if applicable.

11. Show the boundary of the 100-year flood elevations of all waterbodies.

12. Locations of all stormwater management practices, infiltration areas, and areas not to be disturbed during construction.

13. Normal water level, high water level, and emergency overflow elevations for the site and all associated ponding systems.

14. Location of areas where construction will be phased to minimize duration of exposed soil areas. Include map and calculations as necessary of areas of grubbing, clearing, tree removal, grading, excavation, fill, and other disturbance; areas of soil or earth material storage; quantities of soil or earth material to be removed, placed, stored, or otherwise moved on site, and delineated limits of disturbance.

15. Location and type of all temporary and permanent erosion prevention, sediment control, stormwater runoff, and soil stabilization BMPs, along with procedures to be used to establish additional temporary BMPs as necessary for the site conditions during construction. Standard plates and/or specifications for the BMP's used on the project must be included in the final plans and specifications for the project. Location and design of temporary sediment basins where ten acres or more (five acres or more for special or impaired waters) are disturbed and drained to a single point. When site restrictions do not allow for a temporary sediment basin or less than the required acreage is being developed, temporary sediment basins where appropriate are encouraged, but not required in areas with steep slopes or highly erodible soils or to take equivalent measures such as smaller basins, check dams, and vegetated buffer strips.

16. Methods to be used for final stabilization of all exposed soil areas.

17. Documentation that the project applicant has applied for the NPDES permit from the Minnesota Pollution Control Agency (MPCA), when applicable.

18. A stormwater pollution prevention plan for projects that require an NPDES permit.

(4) Construction activity requirements. Any activity subject to a permit under this chapter must conform to the standards of the NPDES general permit regarding construction-site erosion and sediment control.

(5) Inspections. (See also § 1101.011.)

(a) The applicant shall be responsible for inspection, maintenance and effectiveness of all erosion and sediment control measures until final soil stabilization is achieved.

(b) The city may inspect the project site and require the applicant to provide additional erosion control measures as it determined conditions warrant.

(6) Final stabilization.

(a) Erosion and sediment control measures must be maintained until final vegetation and ground cover is established to a density of 70%.

(b) All temporary erosion and sediment control BMPs will be removed after all disturbed areas have been permanently stabilized.

(Ord. 09-15, passed 10-26-2015)

§ 1011.011 STORMWATER MANAGEMENT REQUIREMENTS.

(1) Stormwater management. A permit incorporating an approved stormwater management plan shall be required for all proposed land development activity including public linear projects, unless otherwise exempted in this chapter, which meets any or all of the following:

(a) A development, redevelopment or reconstruction, except public linear projects, that creates or reconstructs 10,000 square feet or more of impervious surface, including smaller individual sites that are part of a common plan of development that may be constructed at different times.

(b) A subdivision of an area exceeding one acre. This includes subdivision for single-family residential, multi-unit residential, commercial, industrial, or institutional development.

(c) For public linear projects, a permit is required to create or reconstruct 10,000 square feet or more of impervious surface through multiple phases or connected actions of a single project, as defined by the city.

(d) The site is within the 100-year floodplain; within 1,000 feet of a public water or protected wetland; impacts a wetland; and/or within 300 feet of Rice Creek, Clearwater Creek, Hardwood Creek, or a public ditch.

(e) Any land disturbing activity, regardless of size, that the city determines would otherwise cause an adverse impact to an environmentally sensitive area or other property.

(f) Stormwater management requirements do not apply to development of an individual lot within a residential subdivision if it conforms to an approved development plan.

(g) Stormwater management requirements do not apply to sidewalks and trails ten feet wide or less that are bordered down-gradient by vegetated open space or vegetated filter strip with a minimum width of five feet, however the grading, erosion and sediment control requirements are still effective.

(h) Stormwater management requirements do not apply to mill, reclamation and overlay projects that do not expose underlying soils.

(i) Stormwater Management Requirements do not apply to bridge span projects, however

grading, erosion and sediment control requirements are still effective.

(2) Stormwater management performance standards. Site plans for new development of any kind will be assessed for stormwater quantity control and stormwater quality management. The general policy on stormwater runoff rates is to reduce the impacts of development by maintaining predevelopment hydrological conditions in the following ways:

(a) Use of natural topography. The applicant shall incorporate the use of natural topography and land cover such as natural swales and depressions as they exist before development to the degree that they can accommodate the additional flow of water without compromising the integrity or quality of the receiving waterbody.

(b) Minimize impact to natural features. The development shall minimize impact to significant natural features. Applicant shall review the site for natural features protected under city, state or Federal requirements, including steep slopes, wetlands, wooded areas, endangered or threatened species, or species of concern habitat, areas designated by the county biological survey, greenways, parks and open space, groundwater recharge areas, wellhead or surface water protection areas or regional stormwater pond locations.

(c) Conveyance system. Wherever possible untreated and treated stormwater runoff shall be conveyed in facilities open to the atmosphere (e.g. swales, vegetated buffer strips, energy-dissipating structures, and the like) rather than through enclosed pipes, so as to decrease runoff velocity, allow for natural infiltration, allow suspended sediment particles to settle, and to remove pollutants.

(d) Proposed development design shall:

1. Maintain or decrease runoff volume;

2. Decrease erosion and sedimentation;

3. Maintain or decrease flow frequency, duration, and peak runoff rates;

4. Increase infiltration (groundwater recharge) or filtration;

5. Maintain existing flow patterns;

6. Reduce time to peak flows by increasing the time of concentration to and through storm sewers;

7. Provide storage of stormwater runoff on site;

8. Avoid channel erosion;

9. The proposed project must not adversely affect water level off the site during or after construction; and

10. The proposed activity may not reduce hydraulic efficiency of the drainage ways at any point up-gradient of the applicant's parcel boundary.

(e) Landlocked basins. A landlocked basin may be provided an outlet only if it:

1. Retains a hydrologic regime that complies with the requirements of the local governmental unit (LGU) responsible for administration of the Wetland Conservation Act (WCA);

2. Provides sufficient dead storage volume to retain back to back 100-year, 24-hour rainfalls and runoff; and

3. Does not create adverse downstream flooding or water quality conditions as a result of increased discharge rate or volume, or other factors.

(f) All plans shall be consistent with National Pollutant Discharge Elimination permit (NPDES) requirements, the Lino Lakes engineering design standards, the Lino Lakes stormwater design standards, and the filing or approval requirements of Rice Creek Watershed District, Vadnais Lakes Watershed Management Organization, Anoka County, Minnesota Department of Natural Resources, Minnesota Department of Transportation, Minnesota Pollution Control Agency, U.S. Army Corps of Engineers, State of Minnesota Stormwater Manual or other regulatory agencies.

(g) The City of Lino Lakes may develop a comprehensive stormwater management plan (CSMP) as an alternative way to meet the stormwater requirements of the local watershed agencies for development within a defined area and a common resource of concern (ROC). The CSMP will be submitted to the applicable watershed district for review and must comply with the requirements of the watershed district.

(3) Stormwater management plan modeling requirements.

(a) A hydrograph method or computer program based on Natural Resources Conservation Service Technical Release #20 (TR-20) and subsequent guidance must be used to analyze stormwater runoff for the design or analysis of flows and water levels within and off the project site. Composite curve numbers shall not include directly connected impervious surfaces.

(b) In determining curve numbers to model runoff in the post-development condition, the hydrologic soil group (HSG) of areas within construction limits is to be shifted down one classification (or one-half classification for HSG A) to account for the impacts of grading on soil structure unless the project specifications incorporate soil amendments in accordance with Rice Creek Watershed District Soil Amendment guidelines.

(c) The following curve numbers (Table 1) shall be utilized for modeling of those site areas not covered by impervious surface:

Table 1. Curve numbers for use with pervious areas

Hydrologic Soil Group	Existing Runoff Curve Number *	Post-Construction Runoff Curve Number**	
		Undisturbed Land	Disturbed Land
A	39	39	49
B	61	61	74
C	74	74	80
D	80	80	80

* Curve numbers from USDA-NRCS, Technical Release 55
** Rice Creek Watershed District 2013 Rules

(d) The analysis of flood levels, storage volumes, and discharge rates for waterbodies and stormwater management basins must include the NOAA Atlas 14 values, as amended, for the two-year, ten-year and 100-year return period, 24-hour rainfall events and the ten-day snowmelt event, in order to identify the critical duration flood event. The ten-day snowmelt event is simulated by a 7.2 inch, ten-day spring runoff event during which it is assumed the ground is frozen solid and no infiltration occurs (CN set to 100 for all areas). The City Engineer may require analysis of additional precipitation durations to determine the critical duration flood event. Analysis of the ten-day snowmelt event is not required for stormwater management detention basins with a defined outlet elevation at or below the 100-year, 24-hour event elevation.

(4) Water quality treatment.

(a) Land development activities creating impervious surface shall address the use of better site design (BSD) techniques as outlined in the better site design and low impact development sections of the Minnesota Stormwater Manual (MPCA, 2014 and subsequent revisions).

(b) The water quality treatment volume standard for all projects, except public linear projects, is determined as follows (Table 2):

Table 2. Required quality volume calculations for new or reconstructed developments

BMP	BMP Design Variation	Water Quality Treatment Volume Calculation [ft^3]
Infiltration	Infiltration Feature	Impervious surface [ft^2] * 1.1 [in] /12 [in/ft]
Water Reuse	Irrigation	Impervious surface [ft^2] * 1.1 [in] / 12 [in/ft]
Biofiltration	Underdrain	Impervious surface [ft^2] * 1.1 [in] / (0.65 * 12 [in/ft])
Filtration	Sand or Rock Filter	Impervious surface [ft^2] * 1.1 [in] / (0.50 * 12 [in/ft])
Stormwater Wetlands	Shallow Wetland	Impervious surface [ft^2] * 1.1 [in] / (0.40 * 12 [in/ft])

	Pond/Wetland	Impervious surface [ft2] * 1.1 [in] / (0.55 * 12 [in/ft])
Stormwater Ponds	Wet Pond	Impervious surface [ft2] * 1.1 [in] / (0.50 * 12 [in/ft])
	Multiple Pond	Impervious surface [ft2] * 1.1 [in] / (0.60 * 12 [in/ft])

(c) The required water quality treatment volume standard for public linear projects is determined as follows:

$$\text{Required Water Quality Treatment Volume [ft}^3\text{]} = \text{Area of New or Reconstructed Impervious Surface [ft2]} \times 0.75 \text{ [in]} \div 12 \text{ [in/ft]}$$

(d) Public linear projects shall meet the requirements of the Rice Creek Watershed District (RCWD) or Vadnais Lakes Area Water Management Organization (VLAWMO) as applicable.

(e) Infiltration BMPs (see city BMP standard plates and design criteria) are to be incorporated in areas with A and B hydrologic soil groups. Stormwater from impervious surfaces other than rooftops must be pretreated before discharge to infiltration BMPs, to remove sediment and floatables, or other materials that would restrict the BMP's capacity or contaminate ground water.

(f) If the project meets any of the following conditions listed in Table 3, infiltration is prohibited and the water quality volume requirements shall be provided the remaining options in Table 2:

Table 3. Specific conditions that may restrict inflitration.

Type	Specific Site Conditions
Potential Contamination	Potential stormwater hotspots [PSH]
	Contaminated soils
	Vehicle fueling and maintenance areas
Physical Limitations	Low permeability soils [HSG C and D]
	Bedrock within three vertical feet of bottom of infiltration area
	Seasonal high water table within three vertical feet of bottom of infiltration area
	Where soil infiltration tests are more than 8.3 inches per hour
Land Use Limitations	Utility locations
	Adjacent wells

(g) BMPs must provide infiltration where feasible. If the city concurs that the infiltration BMPs are not feasible or directs that infiltration not be used, then any BMP may be chosen. If infiltration is feasible on-site, then a regionally-sited BMP must provide equivalent runoff volume reduction.

(5) Peak stormwater runoff control.

(a) Stormwater runoff rates for the proposed project at the site boundary, in aggregate, must not exceed existing runoff rates for the critical two-, ten-, and 100-year frequency events.

(b) Any increase in a critical event rate at a specific point of discharge from the site must be limited and cause no adverse down gradient impact. The project must meet the hydroperiod standards found in Table 4 with respect to all down-gradient wetlands.

Table 4. Hydroperiod standards

Wetland Susceptibility Class	Permitted Storm Bounce for 2-year and 10-year Event*	Inundation Period for 2-year Event*	Inundation Period for 10-year Event*
Highly Susceptible	Existing	Existing	Existing
Moderately Susceptible	Existing + 0.5 ft	Existing + 1 day	Existing + 7 days
Slightly Susceptible	Existing + 1.0 ft	Existing + 2 days	Existing +14 days
Least Susceptible	No Limit	Existing + 7 days	Existing + 21 days

* Duration of 24-hours for the return periods utilizing NOAA Atlas 14 precipitation data. Source: Adapted from Rice Creek Watershed District 2013 Rules.

(c) Wetland Susceptibility Class is determined based on wetland type, as follows:

1. Highly susceptible wetland types include: sedge meadows, bogs, coniferous bogs, open bogs, calcareous fens, low prairies, coniferous swamps, lowland hardwood forests, and seasonally flooded water basins.

2. Moderately susceptible wetland types include: shrub-carrs, alder thickets, fresh (wet) meadows, and shallow and deep marshes.

3. Slightly susceptible wetland types include: floodplain forests and fresh wet meadows or shallow marshes dominated by cattail giant reed, reed canary grass or purple loosestrife.

4. Least susceptible wetland includes severely degraded wetlands. Examples of this condition include cultivated hydric soils, dredge/fill disposal sites and some gravel pits.

(d) Exceptions. Rate control criteria of division (5) may be waived if the site discharges directly to a water body with large storage capacity (such as a public water) that has a time-to-peak elevation greater than that for an on-site pond and the volume discharged from the on-site pond is negligible, relative to the volume of runoff entering the water body.

(6) Design criteria.

(a) Infiltration BMPs. Infiltration BMPs must be designed to provide:

1. Adequate pretreatment measures to remove sediment before runoff enters the primary infiltration area;

2. Drawdown within 48-hours or 72-hours from the end of a storm event, for surface or sub-surface features, respectively. Soil infiltration rates shall be based on the appropriate HSG classification and associated infiltration rates (Table 5). Infiltration area will be limited to the horizontal areas subject to prolonged wetting;

Table 5. Soil Infiltration Rates.

HSG	Soil Texture*	Corresponding Unified Soil Classification**		Infiltration Rate [in/hr]
A	Gravel Sandy Gravel Silty Gravel	GW	Well-graded gravels, sandy gravels	1.63
		GP	Gap-graded or uniform gravels, sandy gravels	
		GM	Silty gravels, silty sandy gravels	
		SW	Well-graded gravelly sands	
	Sand Loamy Sand Sandy Loam	SP	Gap-graded or uniform sands, gravelly sands	0.8
B	Loam Silt Loam	SM	Silty sands, silty gravelly sands	0.45
		MH	Micaceous silts, diatomaceous silts, volcanic ash	0.3
C	Sandy Clay Loam	ML	Silts, very fine sands, silty or clayey fine sands	0.2
D	Clay Loam Silty Clay Loam Sandy Clay Silty Clay Clay	GC	Clayey gravels, clayey sandy gravels	0.06
		SC	Clayey sands, clayey sandy gravels	
		CL	Low plasticity clays, sandy or silty clays	
		OL	Organic silts and clays of low plasticity	
		CH	Highly plastic clays and sandy clays	
		OH	Organic silts and clays of high plasticity	

Source: Adapted from the "Design Infiltration Rates" table from the Minnesota Stormwater Manual, MPCA (January 2014).

* U.S. Department of Agriculture, Natural Resources Conservation Service, 2005. National Soil Survey Handbook, title 430-VI. (Online) Available: http://soils.usda.gov/technical/handbook/.
** ASTM standard D2487-00

3. A minimum of three feet of separation from the seasonal high water table.

4. Design and placement in accordance with the 2007 Minnesota Department of Health guidance Evaluating Proposed Stormwater Infiltration Projects in Vulnerable Wellhead Protection Areas.

(b) Water reuse. Water reuse BMPs must be designed to provide:

1. A maximum irrigation rate of one-inch per week over the irrigated lawn/turf grass area(s);

2. No greater than a 26 week (April 15 to October 15) growing season; and

3. No increase in stormwater runoff from the irrigated area or project site.

4. The amount of water quality treatment volume credit given will be based upon the three year average of the volume irrigated, determined by the average of three years of monitoring records.

(c) Biofiltration and filtration BMPs. Biofiltration and filtration BMPs must be designed to provide:

1. Adequate pretreatment measures to remove sediment before runoff enters the primary biofiltration area;

2. Drawdown within 48-hours or 72-hours from the end of the storm event for surface or sub-surface features, respectively;

3. A minimum of 12-inches of organic material or sand above the rock trench or drain tile system; and

4. Drain tile system must be designed above the seasonal high water table.

(d) Stormwater ponds. Stormwater ponds must be designed to provide:

1. Water quality features consistent with NURP criteria and city standard plate;

2. Permanent wet pool with dead storage at least equal to the runoff from a two and one half inch rainfall over the area tributary to the pond

3. An outlet structure capable of preventing migration of floating debris and oils for at least the one-year storm.

4. An outlet structure to control the two-year, ten-year and 100-year frequency events to existing peak runoff sites; and

5. An identified overflow spill way sufficiently stabilized to convey flows greater than the 100-year critical storm event.

(e) Outfalls. An outfall structure discharging to a wetland, public water or public water wetland must incorporate a stilling-basin, surge-basin, energy dissipater, placement of ungrouted natural rock riprap or other feature to minimize disturbance and erosion of natural shoreline and bed resulting from stormwater discharges.

(f) Freeboard requirements. All new residential, commercial, industrial and other habitable or non-habitable structures, and all stormwater basins, must be constructed so that the lowest floor and lowest entry elevations of structures comply with the following:

Table 6. Low floor and low entry freeboard requirements

	Regional Elevations	Local Detention Basins & Wetlands			Infiltration Basins			Rain Gardens	Groundwater
Elevation	100 year	EOF	100 year	EOF	Bottom	100 year	EOF	EOF	Seasonal High Level
Low Floor Freeboard	2-ft	1-ft	0-ft	N/A	0-ft	N/A	N/A	N/A	4-ft
Low Entry Freeboard	N/A	N/A	2-ft	1-ft	N/A	2-ft	1-ft	0.5-ft	N/A

(g) Within a landlocked basin, lowest floor elevations must be at least one foot above the surveyed basin overflow elevation. Where a structure is proposed below the runoff elevation of a land-locked basin, the low-floor elevation will be a minimum of two feet above the high water level as determined from an estimate of high water levels determined from the highest of either the 100-year, ten-day runoff event or back-to-back 100-year, 24-hour rainfalls. Aerial photos, vegetation, soils, and topography will be used to derive a "normal" water elevation for the basin for the purpose of computing the 100-year elevation.

(7) Drainage and utility easements.

(a) If a stormwater management plan involves direction of some or all runoff off of the site, it shall be the responsibility of the applicant to obtain from adjacent property owners any necessary easements or other property interests concerning flowage of water.

(b) Easements are required for all stormwater management facilities, stormwater conveyances and on-site floodplain and shall extend a minimum of ten feet beyond the basin's 100-year storm high water level elevation.

(c) Easements are required for all outlet swales and ditches, and for overland overflow routes located downstream of basins located on site.

(d) If the storm sewer is to be installed less than ten feet deep within private property, the easement shall be a minimum of 20 feet wide. If the storm sewer is ten feet or greater, the easement shall be twice as wide as the depth.

(e) Easements necessary for maintenance vehicle access are required for all of the above where not directly available on a public road.

(8) Stormwater management plan required exhibits. The stormwater management plan shall be prepared and signed by a duly licensed engineer in the State of Minnesota. The following exhibits must accompany the permit application: two plan sets, full size (22 inches by 34 inches); one plan set, reduced to maximum size of 11 inches by 17 inches. Additional copies may be required in accordance with applicable zoning and subdivision provisions of city code. All plan sets shall also be submitted electronically in a .dwg format or as otherwise determined by the City Engineer. The minimum information requirements of the stormwater management plan shall be consistent with the most recent version of the NPDES permit requirements and include the following information:

(a) A grading, erosion and sediment control plan and, for projects that require a NPDES permit, a stormwater pollution prevention plan (SWPPP) is required;

(b) Stormwater management plan including existing and proposed hydrologic calculations for total runoff volume and peak discharge rates as described in this chapter, including:

1. A narrative including a project description, discussion of BMP selection, incorporation of infiltration BMPs, and revegetation plan for the project site;

2. Delineation of all drainage areas, including contributing runoff from off-site areas, proposed and existing subwatersheds on-site, emergency overflows, and drainage ways;

3. Existing, proposed, and total amount of impervious surfaces created by the project;

4. Existing and proposed runoff curve numbers;

5. Time of concentration used in calculations; and

6. Existing and proposed total runoff volume and peak discharge rates for the two-, ten-, and 100-year critical events utilizing NOAA Atlas 14.

(c) Property of lines and delineation of lands under ownership of the applicant.

(d) Locations of all stormwater management practices, infiltration areas, and areas not to be disturbed during construction.

(e) Location of all drain tiles on the project site shall be identified.

(f) Location and engineered designs for structural stormwater management practices including stormwater treatment devices that remove oil and floatable material (e.g., basin outlets with submerged inlets).

(g) Normal water level, high water level, and emergency overflow elevations for the site and all ponding systems related to NAVD88.

(h) Identification of existing and proposed one-foot contour elevations within the project site related to NAVD88.

(i) Geotechnical analysis including soil borings at all proposed stormwater management facility locations.

(j) Provisions for groundwater management (dewatering), including subsurface drains, disposals, ponding and flood controls.

(k) Completed city worksheet explaining better site design techniques that were evaluated during project design, the results of the evaluation of each and for any techniques deemed infeasible.

(l) A long-term maintenance plan and schedule for all permanent stormwater practices, along with the identity of the party responsible for the maintenance of the project. The maintenance responsibility must be memorialized in a document executed by the property owner in a form acceptable to the city and filed for record on the deed.

(m) Before work is deemed complete, as-built plans must be submitted demonstrating that at the time of final stabilization, stormwater facilities conform to design specifications.

(n) Other project site-specific submittal requirements as may be required by the city.

(Ord. 09-15, passed 10-26-2015)

§ 1011.012 INSPECTIONS AND MAINTENANCE.

(1) Inspections. The applicant is responsible for inspections and record keeping in accordance with the NPDES permit requirements. The city shall conduct inspections on a regular basis to ensure that both stormwater and erosion and sediment control measures are properly installed and maintained prior to construction, during construction, and at the completion of the project. In all cases the inspectors will attempt to work with the applicant or developer to maintain proper stormwater management. Mandatory inspections, conducted by the city, are required as follows:

(a) Before any land disturbing activity begins;

(b) Five working days after footing inspections;

(c) At the completion of the project; and

(d) Prior to the release of financial securities.

(2) Post-construction inspection and maintenance of stormwater facilities.

(a) Private stormwater facilities. No private stormwater facility may be approved unless a maintenance agreement is provided that defines who will conduct maintenance, the type of maintenance, and the maintenance intervals. All private stormwater facilities shall be inspected by the owner and

maintained in proper condition consistent with the performance standards for which they were originally designed.

1. Facility access. Access to all stormwater facilities must be inspected annually and maintained as necessary. It shall be the responsibility of the applicant to obtain any necessary easements or other property interests to allow access to the facilities for inspection or maintenance for both the responsible party and the city.

2. Maintenance. All settled materials from ponds, sumps, grit chambers, and other devices, including settled solids, shall be removed and properly disposed of once capacity is reduced by 30%.

3. Inspection. All private stormwater facilities must submit an as-built record plan of the facility and must provide documentation to the city of an inspection during construction, during the first year of operation, and at least once every five years thereafter. Private facilities are subject to city inspection at any time to ensure compliance.

(b) Public stormwater facilities.

1. Acceptance of publicly owned facilities.Before work under the permit is deemed complete, as-builts and certification must be submitted demonstrating at the time of final stabilization that the stormwater facilities conform to design specifications. A final inspection shall be required before the city accepts ownership of the stormwater facilities.

2. Inventory of stormwater facilities. The city shall inventory and maintain a database for all public stormwater facilities within the city requiring maintenance to ensure compliance with this chapter.

(3) Maintenance. The city shall perform maintenance of publicly owned stormwater facilities within the city as provided for in the local surface water management plan.

(Ord. 09-15, passed 10-26-2015)

§ 1011.013 PLAN REVIEW PROCEDURE.

Plan review. The applicant shall not commence any construction activity subject to this chapter until the stormwater management plan and/or the grading, erosion and sediment control plan have been approved by the city. The submittal shall be processed in accordance with § 2 of the Zoning Ordinance or Ch. 1011 of city code as applicable. City approval is contingent on issuance of all other permits required by the city or other agencies having jurisdiction on the project. The following standards shall apply to all developments within the city:

(1) Plan approval. If the city determines that the stormwater management plan and/or the grading, erosion and sediment control plan meets the requirements of this chapter, the city shall issue a plan approval valid for a specified period of time that authorizes the land disturbance activity contingent on the implementation and completion of this plan.

(2) Plan denial. If the city determines that the plan does not meet the requirements of this chapter, the city shall not issue plan approval for the land disturbance activity. This plan must be resubmitted for approval before the land disturbance activity begins. All land use and building permits shall be suspended until the developer has an approved ESC or stormwater management permit.

(3) Modification of plan. The applicant must amend the plan as necessary to include additional requirements such as additional or modified BMPs designed to correct problems identified or address situations whenever:

(a) A change in design, construction, operation, maintenance, weather, or seasonal conditions that has a significant effect on the discharge or pollutants to surface waters or underground waters;

(b) Inspections or investigations indicate the plans are not effective in eliminating or significantly minimizing the discharge or pollutants to surface waters or underground waters or that the discharges are causing water quality degradation;

(c) The plan is not achieving the general objectives of minimizing pollutants in stormwater discharges associated with construction activity; or

(d) The plan is not consistent with the terms and conditions of this chapter.

(Ord. 09-15, passed 10-26-2015)

§ 1011.014 FINANCIAL SECURITIES.

The applicant shall be subject to the financial security provisions of the city development agreement, site improvement performance agreement and/or the city public improvement financing policy, as applicable.

(Ord. 09-15, passed 10-26-2015)

§ 1011.015 ENFORCEMENT .

(1) Notification of failure of the permit. The city shall notify the permit holder of the failure of the permit's measures.

(a) Initial contact. The initial contact will be to the party or parties listed on the application and/or the SWPPP as contacts. Except during an emergency action, 48 hours after notification by the city or 72 hours after the failure of erosion and sediment control measures, whichever is less, the city at its discretion may begin corrective work. Such notification should be in writing, but if it is verbal, a written notification should follow as quickly as practical. If after making a good faith effort to notify the responsible party or parties, the city has been unable to establish contact, the city may proceed with corrective work. There are conditions when time is of the essence in controlling erosion. During such a condition, the city may take immediate action and then notify the applicant as soon as possible.

(b) Emergency action. If circumstances exist such that non-compliance with this chapter poses an immediate danger to the public health, safety and welfare, as determined by the city, the city may take emergency preventative action. The city shall also take every reasonable action possible to contact and direct the applicant to take any necessary action. Any cost to the city may be recovered from the applicant's financial security.

(c) Erosion off site. If erosion breaches the perimeter of the site, the applicant shall clean up and repair or supplement with functional BMPs within 24 hours of discovery or immediately as conditions allow. If, in the discretion of the city, the permit holder does not repair the damage caused by the erosion, the city may do the remedial work required and charge the cost to the applicant. When restoration to wetlands and other resources are required, the applicant shall be required to work with the appropriate agency to ensure that the work is done properly.

(d) Erosion into streets, wetlands, or water bodies. If eroded soils (including tracked soils from construction activities) enter or appear likely to enter streets, wetlands, or other water bodies, cleanup and repair shall be immediate. The applicant shall provide all traffic control and flagging required to protect the traveling public during the cleanup operations.

(e) Failure to do corrective work. When an applicant fails to conform to any provision of this policy within the time stipulated, the city may take the following actions:

1. Issue a stop work order, withhold the scheduling of inspections, and/or the issuance of a certificate of occupancy.

2. Revoke any permit issued by the city to the applicant for the site in question or any other of the applicant's sites within the city's jurisdiction.

3. Correct the deficiency or hire a contractor to correct the deficiency.

4. Require reimbursement to the city for all costs incurred in correcting stormwater pollution control deficiencies. If payment is not made within 30 days after costs are incurred by the city, payment will be made from the applicant's financial securities as described above.

5. If there is an insufficient financial amount in the applicant's financial securities as described above, then the city may assess the remaining amount against the property. As a condition of the permit, the owner shall waive notice of any assessment hearing to be conducted by the city, concur that the benefit to the property exceeds the amount of the proposed assessment, and waive all rights by virtue of M.S. § 429.081 to challenge the amount or validity of assessment.

(2) Enforcement. The city shall be responsible for enforcing this chapter.

(a) Penalties. Any person, firm, or corporation failing to comply with or violating any of these regulations shall be deemed guilty of a misdemeanor and be subject to a fine or imprisonment or both. All land use and building permits shall be suspended until the applicant has corrected the violation. Each day that a separate violation exists shall constitute a separate offense.

(b) Right-of-entry and inspection; powers. The issuance of a permit constitutes a right-of-entry for the city or its contractor to enter upon the construction site. The applicant shall allow the city and their authorized representatives, upon presentation of credentials, to:

1. Enter upon the permitted site for the purpose of obtaining information, examination of records, conducting investigations or surveys;

2. Bring such equipment upon the permitted site as is necessary to conduct such surveys and investigations;

3. Examine and copy any books, papers, records, or memoranda pertaining to activities or records required to be kept under the terms and conditions of the permitted site;

4. Inspect the stormwater pollution control measures; and

5. Sample and monitor any items or activities pertaining to stormwater pollution control measures;

6. Correcting deficiencies in stormwater and erosion and sediment control measures.

(Ord. 09-15, passed 10-26-2015)

§ 1011.016 ABROGATION AND GREATER RESTRICTIONS.

In the event of any conflict between the provisions of this chapter and the provisions of any other city ordinance adopted by the City Council, the more restrictive standard prevails.

(Ord. 09-15, passed 10-26-2015)

CHAPTER 1102: SHORELAND MANAGEMENT OVERLAY

Section

§ 1102.01 STATUTORY AUTHORIZA TION AND POLICY .

(1) Statutory authorization. Local government units are required to adopt shoreland management ordinances in M.S. §§ 103F.201 to 103F.221, as it may be amended from time to time. This Shoreland Overlay District chapter is adopted pursuant to these authorizations and policies and the planning and zoning enabling legislation in M.S. Ch. 462, as it may be amended from time to time.

(2) Policies. The uncontrolled use of shorelands of the city affects the public health, safety and general welfare not only by contributing to pollution of public waters, but also by impairing the local tax base. Therefore, it is in the best interests of the public health, safety and welfare to provide for the wise subdivision, use and development of shorelands of public waters. The Legislature of Minnesota has delegated responsibility to local governments of the state to regulate the subdivision, use and development of shorelands of public waters and thus preserve and enhance the quality of surface waters, conserve the economic and natural environmental values of shorelands, and provide for the wise use of waters and related land resources. The responsibility for the management of shoreland areas is hereby recognized by the city.

(Ord. 04-95, passed 4-10-1995)

§ 1102.02 GENERAL PROVISIONS.

(1) Jurisdiction. The provisions of this chapter shall apply to the shorelands of the public water bodies as classified in § 1102.05 and as shown on the official zoning map of the city as being located within the Shoreland Overlay District. A body of water created by a private user where there was no previous shoreland may, at the discretion of the city, be exempt from this chapter.

(2) Compliance. The use of any shoreland of public waters; the size and shape of lots; the use, size, type and locations of structures on lots; the installation and maintenance of water supply and waste treatment systems; the grading and filling of any shoreland area; the cutting of shoreland vegetation; and the subdivision of land shall be in full compliance with the terms of this chapter and other applicable regulations.

(3) Enforcement. The Zoning Administrator is responsible for the administration and enforcement of this chapter. Any violation of the provisions of this chapter or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with grants of variances or conditional uses) shall constitute a misdemeanor and shall be punishable as defined by law. Violations of this chapter can occur regardless of whether or not a permit is required for a regulated activity pursuant to § 1102.04(1).

(4) 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. The approximate boundaries of the Shoreland Overlay District are indicated on the official zoning map of the city and attachments thereto. Exact determination of the boundaries will be made by the Minnesota Department of Natural Resources, Division of Waters.

(5) 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.

(6) Abrogation and greater restrictions. It is not intended by this chapter to repeal, abrogate or impair any existing easements, covenants or deed restrictions. Where the conditions imposed by any provision of this chapter are either more restrictive or less restrictive than comparable conditions imposed by any other law, ordinance, statute, resolution or regulation of any kind, the regulations which are more restrictive or which impose higher standards or requirements shall prevail. All other ordinances inconsistent with this chapter are hereby repealed to the extent of the inconsistency only.

(Ord. 04-95, passed 4-10-1995)

§ 1102.03 DEFINITIONS.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the same meaning as they have in common usage and so as to give this chapter its most reasonable application. For the purpose of this chapter, the words MUST and SHALL are mandatory and not permissive. All distances, unless otherwise specified, shall be measured horizontally.

ACCESSORY STRUCTURE OR FACILITY. Any building or improvement subordinate to a principal use which, because of the nature of its use, can reasonable be located at or greater than normal structure setbacks.

BLUFF . A topographic feature such as a hill, cliff or embankment having the following characteristics (an area with an average slope of less than 18% over a distance for 50 feet or more shall not be considered part of the bluff):

(a) Part of all of the feature is located in a shoreland area;

(b) The slope rises at least 25 feet above the ordinary high water level of the waterbody;

(c) The grade of the slope from the toe of the bluff to a point 25 feet or more above the ordinary high water level averages 30% or greater; and

(d) The slope must drain toward the waterbody.

BLUFF IMP ACT ZONE. A bluff and land located within 20 feet from the top of a bluff.

BOATHOUSE. An accessory structure designed and used solely for the storage of boats and boating equipment.

BUILDING LINE . A line parallel to a lot line or the ordinary high water level at the required setback beyond which a structure may not extend.

CLEAR CUTTING. The removal of an entire stand of trees.

COMMERCIAL USE. The principal use of land or buildings for the sale, lease, rental or trade of products, goods and services.

COMMISSIONER. The Commissioner of the Department of Natural Resources.

CONDITIONAL USE. A land use or development as defined by ordinance that would not be appropriate generally but may be allowed with appropriate restrictions as provided by official controls upon a finding that certain conditions as detailed in the official Zoning Chapter exist, the use or development conforms to the comprehensive land use plan of the community and the use is compatible with the existing neighborhood.

DECK. A horizontal, unenclosed platform with or without attached railings, seats, trellises or other features, attached or functionally related to a principal use or site and at any point extending more than three feet above the ground.

DWELLING SITE. A designated location for residential use by one or more persons using temporary or movable shelter, including camping and recreational vehicle sites.

DWELLING UNIT. Any structure or portion of a structure or other shelter designed as short- or long-term living quarters for one or more persons, including rental or timeshare accommodations such as motel, hotel, and resort rooms and cabins.

EXTRACTIVE USE. The use of land for surface or subsurface removal of sand, gravel, rock, industrial minerals, other nonmetallic minerals and peat not regulated under M.S. §§ 9.44 to 9.51, as it may be amended from time to time.

FOREST LAND CONVERSION. The clear cutting of forested land to prepare for a new land use other than reestablishment of a subsequent forest stand.

HARDSHIP. The property in question cannot be put to a reasonable use if used under conditions allowed by the official controls; the plight of the landowner is due to circumstances unique to the property, not created by the landowner; and the variance, if granted, will not alter the essential character of the locality. Economic considerations alone shall not constitute a HARDSHIP if a reasonable use for the property exists under terms of the official controls.

HEIGHT OF BUILDING. The vertical distance between the highest adjoining ground level at the building or ten feet above the lowest ground level, whichever is lower, and the highest point of a flat roof or average height of the highest gable of a pitch or hipped roof.

INDUSTRIAL USE. The use of land or buildings for the production, manufacture, warehousing, storage or transfer of goods, products, commodities or other wholesale items.

INTENSIVE VEGETATION CLEARING. The complete removal of trees or shrubs in a contiguous patch, strip, row or block.

LOT. A designated parcel, tract or area of land established by plat, subdivision, or as otherwise permitted by law, to be used developed or built upon as a unit.

LOT WIDTH. The shortest distance between lot lines measured at the midpoint of the building line.

NONCONFORMING USE. Any legal use, structure or parcel of land already in existence, recorded or authorized before the adoption of official controls or amendments thereto that would not have been permitted to become established under the terms of the official controls as now written, if the official controls had been in effect prior to the date it was established, recorded or authorized.

OPEN SPACE. Undeveloped land of the subdivided property providing visual expanses and recreational areas clear of obstructions other than natural vegetation, or structures directly related to the use and

enjoyment of these spaces. OPEN SPACES may include natural habitats, places for neighborhood recreation and pedestrian corridors.

ORDINARY HIGH WATER LEVEL. The boundary of public waters and wetlands and shall be an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial.

PLANNED UNIT DEVELOPMENT. A type of development characterized by a unified site design for a number of dwelling units or dwelling sites on a parcel, whether for sale, rent or lease, and also usually involving clustering of these units or sites to provide areas of common open space, density increase, and a mix of structure types and land uses. These developments may be organized and operated as condominiums, time-share condominiums, cooperatives, full fee ownership, commercial enterprises, or any combination of these, or cluster subdivisions of dwelling units, residential condominiums, townhouses, apartment buildings, campgrounds, recreational vehicle parks, resorts, hotels, motels and conversions of structures and land uses to these uses.

PUBLIC WATERS. Any waters as defined in M.S. § 103G.005, Subd. 15, as it may be amended from time to time.

RESIDENTIAL PLANNED UNIT DEVELOPMENT. A use where the nature of residency is nontransient and the major or primary focus of the development is not service-oriented. For example, residential apartments, manufactured home parks, time-share condominiums, townhouses, cooperatives and full fee ownership residences would be considered as RESIDENTIAL PLANNED UNIT DEVELOPMENT. To qualify as a residential PLANNED UNIT DEVELOPMENT, a development must contain at least five dwelling units or sites.

RESORT PLANNED UNIT DEVELOPMENT. Typically uses that provide transient, short-term lodging spaces, rooms or parcels and their operations are essentially service-oriented. For example, hotel/motel accommodations, resorts, recreational vehicle and camping parks, and other primarily service-oriented activities are resort planned unit developments.

SEMIPUBLIC USE. The use of land by a private, nonprofit organization to provide a public service that is ordinarily open to some persons outside the regular constituency of the organization.

SENSITIVE RESOURCE MANAGEMENT. The preservation and management of areas unsuitable for development in their natural state due to constraints such as shallow soils over groundwater or bedrock, highly erosive or expansive soils, steep slopes, susceptibility to flooding or occurrence of flora or fauna in need of special protection.

SETBACK. The minimum horizontal distance between a structure, sewage treatment system or other facility and an ordinary high water level, sewage treatment system, road, highway, property line or other facility.

SEWER SYSTEM. Pipelines or conduits, pumping stations, and force main and all other construction, devices, appliances or appurtenances used for conducting sewage or industrial waste or other wastes to a point of ultimate disposal.

SEWAGE TREATMENT SYSTEM. A septic tank and soil absorption system or other individual or cluster type sewage treatment system as described and regulated in § 1102.11 of this chapter.

SHORE IMPACT ZONE. Land located between the ordinary high water level of a public water and a line parallel to it at a setback of 50% of the structure setback.

SHORELAND. Land located within 1,000 feet from the ordinary high water level of the lakes and land located within 300 feet from the streams classified in § 1102.05 or the landward extent of a flood plain designated by ordinance on a river or stream, whichever is greater. The limits of shorelands may be reduced

whenever the waters involved are bounded by topographic divides which extend landward from the waters for lesser distances and when approved by the Commissioner.

SIGNIFICANT HIST ORIC SITE . Any archaeological site, standing structure or other property that meets the criteria for eligibility to the National Register of Historic Places or is listed in the State Register of Historic Sites, or is determined to be an unplatted cemetery that falls under the provisions of M.S. § 307.08, as it may be amended from time to time. An historic site meets these criteria if it is presently listed on either register or if it is determined to meet the qualifications for listing after review by the Minnesota state archaeologist or the director of the Minnesota Historical Society. All unplatted cemeteries are automatically considered to be SIGNIFICANT HIST ORIC SITES.

STEEP SLOPE . Land where development is either not recommended or described as poorly suited due to slope steepness and the site's soil characteristics as mapped and described in available county. Soil surveys or other reports, unless appropriate design and construction techniques and farming practices are used in accordance with the provisions of this chapter. Where specific information is not available, STEEP SLOPES are lands having average slopes over 12%, as measured over horizontal distances of 50 feet or more that are not bluffs.

STRUCTURE. Any building or appurtenance, including decks, mobile homes, docks and boat launches, except aerial or underground utility lines, such as sewer, electric, telephone, telegraph, gas lines, towers, poles and other supporting facilities.

SUBDIVISION. Land that is divided for the purpose of sale, rent or lease, including planned unit developments.

SURFACE WATER-ORIENTED COMMERCIAL USE . The use of land for commercial purposes, where access to and use of a surface water feature is an integral part of the normal conductance of business. Marinas, resorts and restaurants with transient docking facilities are examples of that use.

WATER-ORIENTED ACCESSOR Y, STRUCTURE OR F ACILITY. A small, above ground building or other improvement, except stairways, fences, docks and retaining walls, which, because of the relationship of its use to a surface water feature, reasonable needs to be located closer to public waters than the normal structure setback. Examples of those structures and facilities include boathouses, gazebos, screen houses, fish houses, pump houses and detached decks.

(Ord. 04-95, passed 4-10-1995)

§ 1102.04 ADMINISTRA TION.

(1) Permits required.

(a) Permit required. A building permit is required for the construction of buildings or building additions (including related activities such as construction of decks and signs), the installation and/or alteration of sewage treatment systems, and a grading permit for those grading and filling activities not exempted by § 1102.09 of this chapter. Application for a permit shall be made to the Zoning Administrator on forms provided. The application shall include the necessary information so that the Zoning Administrator can determine the site's suitability for the intended use and that a compliant sewage treatment system will be provided.

(b) Permit stipulation. A building permit authorizing an addition to an existing structure shall stipulate that an identified nonconforming sewage treatment system, as defined in § 1102.11 shall be reconstructed or replaced in accordance with the provisions of this chapter.

(2) Certificate of zoning compliance. The Zoning Administrator shall issue a certificate of zoning compliance for each activity requiring a permit as specified in division (1) above of this section. This certificate will specify that the use of land conforms to the requirements of this chapter. Any use,

arrangement or construction at variance with that authorized by permit shall be deemed a violation of this chapter and shall be punishable as provided in § 1102.02(3) of this chapter.

(3) Variances.

(a) Variances may only be granted in accordance with M.S. Ch. 462, as it may be amended from time to time, as applicable. A variance may not circumvent the general purposes and intent of this chapter. 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 to ensure compliance and to protect adjacent properties and the public interest. In considering a variance request, the Zoning Administrator must also consider whether the property owner has reasonable use of the land without the variance, whether the property is used seasonally or year-round, whether the variance is being requested solely on the basis of economic considerations, and the characteristics of development on adjacent properties.

(b) The City Council shall hear and decide requests for variances in accordance with the rules that it has adopted for the conduct of business of the City Zoning Chapter. When a variance is approved after the Department of Natural Resources has formally recommended denial in the hearing record, the notification of the approved variance required in division (4)(b) shall also include the City Council's summary of the public record/testimony and the findings of facts and conclusions which supported the issuance of the variance.

(c) For existing developments, the applications for variance must clearly demonstrate whether a conforming sewage treatment system is present for the intended use of the property. The variance, if issued, must require reconstruction of a nonconforming sewage treatment system.

(4) Notification to the Department of Natural Resources.

(a) Copies of all notices of any public hearings to consider variances, zoning amendments or conditional uses in the Shoreland Overlay District must be sent to the Commissioner of the Department of Natural Resources or the Commissioner's designated representative and postmarked at least ten days before the hearings. Notices of hearing to consider proposed subdivision/plats must include copies of the subdivision/plat.

(b) A copy of approved amendments and subdivisions/plats and final decisions granting variances or conditional uses in the Flood Plain or Shoreland Management Districts must be sent to the Commissioner or the Commissioner's designated representative and postmarked within ten days of final action.

(Ord. 04-95, passed 4-10-1995)

§ 1102.05 SHORELAND OVERLAY DISTRICT.

(1) Establishment of Shoreland Overlay District. The public waters of the city have been classified consistent with the criteria found in Minnesota Regulations, Part 6120.3300. The Shoreland Overlay District for the waterbodies listed below is that land within 1,000 feet of the ordinary high water level of the lakes and 300 feet from a river or stream as shown on the official zoning map.

(a) Natural environment lakes.

Natural Environment Lakes	Protected Water Inventory I.D. #	Ordinary High Water Level (OHWL)
Unnamed	2-1	
Peltier Lake	2-4	884.7

George Watch Lake	2-5	
Marshan Lake	2-7	883.3
Rice Lake	2-8	883.1
Wards Lake	2-10	883.7
Sherman Lake	2-11	
Cedar Lake	2-12	892.9
Amelia Lake	2-14	908.1
Rondeau Lake	2-15	
Wilkinson Lake	62-43	895.2

(b) Recreational development lakes.

Recreational Development Lakes	Protected Water Inventory I.D. #	Ordinary High W ater Level (OHWL)
Otter Lake	2-3	911.5
Centerville Lake	2-6	885.0
Reshanau Lake	2-9	883.5
Baldwin Lake	2-13	883.1

(c) General development lake.

General Development Lake	Protected Water Inventory I.D. #	Ordinary High W ater Level (OHWL)
Bald Eagle Lake	62-2	911.0

(d) Tributary rivers and str eams.

Tributary Rivers and Streams	Protected Watercourse Legal Description
Rice Creek	From Basin 740 to Basin 13
Hardwood Creek	From T31N, R22W, Sect. 12 to Basin 4

(2) Establishment of official zoning map. The official zoning map, together with all materials attached thereto is hereby adopted by reference and declared to be a part of this chapter. The attached material shall include the protected waters inventory map for Anoka County. The official zoning map shall be on file in the office of the Zoning Administrator.

(3) Land use district descriptions.

(a) Criteria for designation . The land use districts in division (3)(b) below and the delineation of a land use district's boundaries on the official zoning map must be consistent with the goals, policies and objectives of the comprehensive land use plan.

(b) Land use district descriptions. The land use districts and the allowable land uses therein for the given classifications of waterbodies shall be properly delineated on the official zoning map for the shorelands of the city. The designated land use districts shall be in conformance with the criteria specified in Minnesota Regulations, Part 6120.3200, Subp. 3.

(Ord. 04-95, passed 4-10-1995)

§ 1102.06 SHORELAND OVERLA Y DISTRICT USES.

(1) Permitted uses. The permitted uses in the Shoreland Overlay District are those uses allowed and regulated by the applicable underlying zoning district as indicated on the official zoning map of the city.

(2) Conditional uses.

(a) The conditional uses in the Shoreland Overlay District are those uses allowed and regulated on a conditional basis by the applicable underlying zoning district as indicated on the official zoning map of the city.

(b) Evaluation criteria. A thorough evaluation of the waterbody and the topographic, vegetation and soils conditions on the site must be made to ensure:

1. The prevention of soil erosion or other possible pollution of public waters, both during and after construction in accordance with Chapter 1001 and 1005 and the Zoning Chapter 1007 of the city code;

2. The visibility of structures and other facilities as viewed from public waters is limited;

3. The site is adequate for water supply and on-site sewage treatment; and

4. The types, uses and numbers of watercraft that the project will generate are compatible in relation to the suitability of public waters to safely accommodate these watercraft.

(c) Conditions attached to conditional use permits. The city, upon consideration of the criteria listed above and the purposes of this chapter, shall attach the conditions to the issuance of the conditional use permits as it deems necessary to fulfill the purposes of this chapter and the City Zoning Chapter. These 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 and vehicle parking areas.

(d) City Council. The City Council shall hear and decide applications for conditional uses permissible under this chapter in accordance with conditional use permit approval process of the city code.

(3) Permitted accessory uses.

(a) The permitted accessory uses in the Shoreland Overlay District are those uses allowed and regulated as accessory uses by the applicable underlying zoning district as indicated on the official zoning map of the city.

(b) Water-oriented accessory structures are permitted when constructed in accordance with the design criteria of § 1102.07(2)(b).

(c) Dock and boat launches are permitted provided they are constructed on the same lot as the principal structure.

(4) Prohibited uses. Any uses which are not permitted or conditional uses as regulated by the applicable underlying zoning district as indicated on the official zoning map are not permitted.

(Ord. 04-95, passed 4-10-1995)

§ 1102.07 ZONING AND W ATER SUPPL Y/SANITARY PROVISIONS.

(1) Lot area and width standar ds. The following standards shall apply to all lots within the Shoreland Overlay District, provided that the resulting total development density in the shoreland area does not exceed the total city-wide shoreland density allowed based on state shoreland standards. The city, in its evaluation of any development, shall evaluate the proposed development in light of the development capacity of the city-wide Shoreland Overlay District. Where the requirements of the underlying zoning district are more or less restrictive than those set forth herein, the more restrictive standards shall apply.

(a) Residential (R-1, R-1A, R-2, R-3, R-4) Zoning Districts

	NE	RD	GD	T
Lot Area per Unit:				
Unsewered* no unsewered in R-2, R-3, R-4 zones	10 acres	10 acres	10 acres	10 acres
Sewered abutting				**
Single-family	20,000	20,000	20,000	
Two-family/duplex	8,775	8.775	8,775	
Triplex/quad/townhome	6,000	6,000	6,000	
Sewer non-abutting				**
Single-family	10,800	10,800	10,800	
Two-family/duplex	8,775	8,775	8,775	
Triplex/quad/townhome	5,000	5,000	5,000	
Lot Width/Base Lot***				
Unsewered*	330	330	330	330
Sewered abutting				
Single-family	80	80	80	80
Two-family/duplex	130	130	130	130
Triplex/quad/townhome	130	130	130	130
Sewered non-abutting				
Single-family	80	80	80	130
Two-family/duplex	130	130	130	130
Triplex/quad/townhome	130	130	130	130
* Lot size requirement in unsewered area are delineated by the standards of the base zoning districts.				
** Lot area and width requirements along rivers in sewered areas and commercial zoning districts in sewered areas will be delineated by the standards of the base zoning districts.				
*** Lot widths shall be measured at both the front building setback line and at the setback from the ordinary high water level.				

(b) Commercial and Industrial (NB, LB, GB, CB, SC, LI, GI) Zoning Districts

	NE	RD	GD	T
Lot area				
No unsewered commercial or industrial				
Sewered abutting				
Commercial	1 acre	1 acre	1 acre	**
Industrial	1 acre	1 acre	1 acre	
Sewered non-abutting				
Commercial	**	**	**	**
Industrial	1 acre	1 acre	1 acre	1 acre
Lot widths***				
Sewered abutting				
Commercial	100	100	100	100
Industrial	150	150	150	150
Sewered non-abutting				
Commercial	**	**	**	**
Industrial	150	150	150	150
* Lot size requirement in unsewered area are delineated by the standards of the base zoning districts.				
** Lot area and width requirements along rivers in sewered areas and commercial zoning districts in sewered areas will be delineated by the standards of the base zoning districts.				
*** Lot widths shall be measured at both the front building setback line and at the setback from the ordinary high water level.				

(c) Additional special provisions.

1. Only land above the ordinary high water level of public waters and outside existing watercourses can be used to meet the lot area standards.

2. The shoreland lot width standards must be met at both the ordinary high water level and the building setback line.

3. All single-family, two-family, triplex, quadraminium, townhouse, commercial and industrial subdivisions must provide a grading and drainage plan for review and approval of the city engineer and Rice Creek Watershed District. The grading and drainage plan shall include:

a. Compliance for the impervious surface standards of the respective zoning district;

b. The subdivision or lot development shall provide for the collection and treatment of storm water in compliance with the Lino Lakes local storm water management plan if determined that the site improvements will result in increased runoff directly entering a public water. All grading and drainage plans shall require review and approval by the city engineer and the Rice Creek Watershed District;

c. Measures to be taken for the treatment of storm water runoff and/or prevention of storm water from directly entering a public water. The measures may include, but not be limited to the following:

i. Appurtenances as sedimentation basins, debris basins, desalting basins or silt traps;

ii. Installation of debris guards and microsilt basins on storm sewer inlets;

iii. Use where necessary, oil skimming devices or sump catch basins;

iv. Direct drainage away from the lake and into pervious, grassed yards through site grading, use of gutters and downspouts;

v. Construct sidewalks and driveways of partially pervious raised materials such as decking which has natural earth or other previous material beneath or between the planking;

vi. Use grading and construction techniques which encourage rapid-infiltration; for example, sand and gravel under impervious materials with adjacent infiltration swales graded to lead into them; and/or

vii. Install berms, water bars or terraces which temporarily detain water before dispersing it into pervious area.

4. Impervious surface coverage of lots must not exceed the following percentages of lot area:

	NE	RD	GD	R
Single-family	30%	30%	30%	30%
Two-family/duplex	30%	30%	30%	30%
Triplex/quad/townhomes	35%	35%	35%	35%
Commercial/industrial	60%	60%	60%	60%

5. Medium density residential, commercial and industrial structures, parking areas and other facilities shall be treated to reduce visibility as viewed from public waters and adjacent shorelands by vegetation, topography, increased setbacks or color, assuming summer, leaf-on conditions. Vegetative and topographic screening shall be preserved, if existing, or may be required to be provided.

6. Accessory structures and facilities shall meet the required principal structure setback and shall be centralized.

7. Multiple-family developments shall contain open space meeting the following criteria:

a. At least 35% of the total development area shall be preserved as open space;

b. Dwelling units or sites, land covered by road surfaces, parking areas or structures are developed areas and shall not be included in the computation of minimum open space;

c. Open space shall include areas with physical characteristics unsuitable for development in their natural state and areas containing significant historic sites or unplatted cemeteries; and

d. The shore impact zone, based on normal structure setbacks, shall be included as open space. At least 50% of the shore impact zone area of existing developments or at least 70% of the shore impact zone area of new developments shall be preserved in its natural or existing state.

8. Residential subdivisions exceeding those permitted by the lot area standards of this section can only be allowed if designed and approved as a residential planned unit development under § 1102.13 of this chapter.

(2) Placement, design and height of structures.

(a) Placement of structures on lots. When more than one setback applies to a site, structures and facilities must be located to meet all setbacks. Where structures exist on the adjoining lots on both sides of

a proposed building site, structure setbacks may be altered without a variance to conform to the adjoining setbacks from the ordinary high water level, provided the proposed building site is not located in a shore impact zone. Structures shall be located as follows.

1. Structure and on-site sewage system setbacks (in feet) from ordinary high water level.

Classes of Public Waters	Structures		Sewage Treatment System
	Unsewered	Sewered	
Lakes			
Natural environment	150	150	150
Recreational development	100	75	75
General development	75	50	50
Rivers and streams	100	50	75

* One water-oriented accessory structure exclusive of one dock and lake access individual lot, designed in accordance with division (2)(b) below of this chapter may be set back a minimum distance of ten feet from the ordinary high water level.

2. Additional structure setbacks. The following additional structure setbacks apply, regardless of the classification of the water body:

Setback From:	Setback (in feet)
Top of bluff	30
Unplatted cemetery	50
Right-of-way line of federal, state or county highway	40
Right-of-way line of a town road, public street or other roads or streets not classified	30

3. Uses without water-oriented needs. Uses without water-oriented needs must be substantially screened from view from the water by vegetation or topography, assuming summer, leaf-on conditions.

4. Exceptions to structure setback requirements. Accessory structures may be located in the front yard of lakeshore properties upon approval of a riparian lot variance.

(b) Design criteria for structur es.

1. High water elevations.

a. Structures must be placed with the lowest floor three feet above the (OHW) ordinary high water level in accordance with the local water management plan for the City of Lino Lakes.

b. Water-oriented structures may have the lowest floor placed lower than the elevation determined in the local water management plan if the structure is constructed of flood-resistant materials to the elevation, 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.

2. Water-oriented accessory structur es. Each lot may have one water-oriented accessory structure not meeting the normal structure setback in division (2)(a) above of this chapter if this water-oriented structure

complies with the following provisions:

a. The structure or facility must not exceed ten feet in height, exclusive of safety rails and cannot occupy an area greater than 250 square feet. Detached decks must not exceed eight feet above grade at any point;

b. The setback of the structure or facility from the ordinary high water level must be at least ten feet;

c. The structure or facility must be treated to reduce visibility as viewed from public waters and adjacent shorelands by vegetation, topography, increased setbacks or color, assuming summer, leaf-on conditions;

d. The roof may be used as a deck with safety rails, but must not be enclosed or used as a storage area;

e. The structure or facility must not be designed or used for human habitation and must not contain water supply or sewage treatment facilities; and

f. Within the shoreland areas of general development and recreational development waterbodies, water-oriented accessory structures used solely for watercraft storage, and including storage or related boating and water-oriented sporting equipment, may occupy an area up to 400 square feet provided the maximum width of the structure is 20 feet as measured parallel to the configuration of the shoreline.

3. Stairways, lifts and landings. Stairways and lifts are the preferred alternative to major topographic alterations for achieving access up and down steep slopes to shore areas. Stairways and lifts must meet the following design requirements:

a. Stairways and lifts must not exceed four feet in width on residential lots. Wider stairways may be used for commercial properties, public open-space recreational properties and planned unit developments;

b. Landings for stairways and lifts on residential lots must not exceed 32 square feet in area. Landings larger than 32 square feet may be used for commercial properties, public open-space recreational properties and planned unit developments;

c. Canopies or roofs are not allowed on stairways, lifts or landings;

d. Stairways, lifts and landings may 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;

e. Stairways, lifts and landings must 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

f. Facilities such as ramps, lifts, mobility paths for, physically handicapped persons are also allowed for achieving access to shore areas, provided that the dimensional and performance standards of division (2)(b)1. to (2)(b)5. or complied with in addition to the requirements of Minnesota Regulations, Chapter 1340.

4. Significant historic sites. No structure may be placed on a significant historic site in a manner that affects the values of the site unless adequate information about the site has been removed and documented in a public repository.

5. Steep slopes. The Zoning Administrator must evaluate possible soil erosion impacts and development visibility from public waters before issuing a permit for construction of sewage treatment systems, roads, driveways, structures or other improvements on steep slopes. When determined necessary, conditions must be attached to issued permits to prevent erosion and to preserve existing vegetation

screening of structures, vehicles and other facilities as viewed from the surface of public waters, assuming summer, leaf-on vegetation.

(c) Height of structures. All structures shall not exceed 36 feet in height, except churches and nonresidential agricultural structures.

(Ord. 04-95, passed 4-10-1995)

§ 1102.08 NONCONFORMITIES.

All legally established nonconformities as of the date of this chapter may continue, but they will be managed according to applicable state statutes and other regulations of the city for the subjects of alterations and additions, repair after damage, discontinuance of use and intensification of use; except that the following standards will also apply in the Shoreland Overlay District.

(1) Construction on nonconforming lots of record.

(a) Lots of record in the office of the county recorder prior to the date of enactment of this chapter which do not meet the requirements of § 1102.07(1) may be allowed as building sites without variances from lot size requirements, provided:

1. This use is permitted in the underlying zoning district;

2. The lot is and has been in separate ownership from abutting lands at all times since it became substandard;

3. The lot was created compliant with official controls in effect at the time;

4. All other dimensional requirements are complied with insofar as practical; and

5. Sewage treatment and setback requirements of this chapter are met.

(b) A variance from setback requirements must be obtained before any use or building permit is issued for a lot. In evaluating the variance, the City Council shall consider sewage treatment and water supply capabilities or constraints of the lot and shall deny the variance if adequate facilities cannot be provided.

(c) If, in a group of two or more contiguous lots under the same ownership, any individual lot does not meet the requirements of § 1102.07(1), the lot must not be considered as a separate parcel of land for the purposes of sale or development. The lot must be combined with the one or more contiguous lots so they equal one or more parcels of land, each meeting the requirements of § 1102.07 of this chapter as much as possible.

(2) Additions/expansions to nonconforming structures.

(a) 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 must be authorized by a variance pursuant to § 1102.04(3).

(b) Deck additions may be allowed without a variance to a structure not meeting the required setback from the ordinary high water level if all of the following criteria and standards are met:

1. The structure existed on the date the structure setbacks were established;

2. 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;

3. The deck encroachment toward the ordinary high water level does not exceed 15% of the existing setback of the structure from the ordinary high water level or does not encroach closer than 30 feet,

whichever is more restrictive; and

4. The deck is constructed primarily of wood and is not roofed or screened.

(3) Nonconforming sewage treatment systems.

(a) A sewage treatment system not meeting the requirements of § 1102.11 of this chapter must be upgraded, at a minimum, at any time a permit or variance of any type is required for any improvement on, or use of, the property. For the purposes of this provision, a sewage treatment system shall not be considered nonconforming if the only deficiency is the sewage treatment system's improper setback from the ordinary high water level.

(b) The governing body of the city has by formal resolution notified the commissioner of its program to identify nonconforming sewage treatment systems. The city will require upgrading or replacement of any nonconforming system identified by this program within a reasonable period of time which will not exceed two years. Sewage systems installed according to all applicable local shoreland management standards adopted under M.S. § 103F.211, as it may be amended from time to time, in effect at the time of installation may be considered as conforming unless they are determined to be failing, except that systems using cesspools, leaching pits, seepage pits or other deep disposal, method or systems with less soils treatment area separation above groundwater than required by the Minnesota Pollution Control Agency's Chapter 7080 for design of on-site sewage treatment systems shall be considered nonconforming.

(Ord. 04-95, passed 4-10-1995)

§ 1102.09 SHORELAND AL TERA TIONS.

Alterations of vegetation and topography in the Shoreland Overlay District will be regulated to prevent erosion into public waters, fix nutrients, preserve shoreland aesthetics, preserve historic values, prevent bank slumping, and protect fish and wildlife habitat.

(1) Vegetation alterations .

(a) Vegetation alteration necessary for the construction of structures, sewage treatment systems, uses permitted in the underlying zoning district and the construction of roads and parking areas regulated by division (3) below of this chapter are exempt from the vegetation alteration standards that follow.

(b) Removal or alteration of natural vegetation, except for agricultural and forest management uses as regulated in § 1102.10, shall be restricted to prevent erosion into protected waters, to consume nutrients in the soil and to preserve shoreland aesthetic. Removal of natural vegetation in the Shoreland Overlay District is allowed subject to the following standards.

1. Clear cutting of natural vegetation is prohibited.

2. Limited clearing of trees and shrubs and cutting, pruning and trimming of trees is allowed to provide a view to the water from the principal dwelling site and to accommodate the placement of stairways and landings, picnic areas, access paths, beach and watercraft access areas and permitted water-oriented accessory structures or facilities, provided that:

a. The screening of structures, vehicles or other facilities as viewed from the water, assuming summer, leaf-on conditions, is not substantially reduced;

b. Along rivers, existing shading of water surfaces is preserved; and

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

3. Natural vegetation shall be restored insofar as feasible after any construction project is completed to retard surface runoff and soil erosion.

4. The provisions of this section shall not apply to permitted uses which normally require the removal of natural vegetation.

(2) Topographic alterations/grading and filling .

(a) Grading, filling and excavations necessary for the construction of structures, sewage treatment systems, driveways and other uses permitted in the underlying zoning district under validly issued construction permits for these facilities do not require the issuance of a separate grading and filling permit. However, the grading and filling standards in this section must be incorporated into the issuance of permits for construction of structures, sewage treatment systems and driveways.

(b) Public roads and parking areas are regulated by division (3) of this chapter.

(c) Notwithstanding divisions (2)(a) and (2)(b) above, a grading and-filling permit, in accordance with the City Zoning Chapter, will be required for:

1. The movement of more than ten cubic yards of material on steep slopes or within the shore impact zone; or

2. The movement of more than 50 cubic yards of material per acre.

(d) The following considerations and conditions must be adhered to during the issuance of construction permits, grading and filling permits, conditional use permits, variances and subdivision approvals:

1. Grading or filling in any wetland must be evaluated to determine the extent of impact to the functions and values of the wetland area in accordance with the city code. This evaluation must also include a determination of whether the wetland alteration being proposed requires permits, reviews or approvals by other local, state or federal agencies such as a watershed district, a local governmental unit, the Minnesota Department of Natural Resources or the United States Army Corps of Engineers. The applicant will be so advised.

2. Alterations must be designed and conducted in a manner that ensures only the smallest amount of bare ground is exposed for the shortest time possible. Mulches or similar materials must be used, where necessary, for temporary bare soil coverage and a permanent vegetation cover must be established as soon as possible;

3. Methods to minimize soil erosion and to trap sediments before they reach any surface water feature must be used. Altered areas must be stabilized to acceptable erosion control standards consistent with the field office technical guides of the Anoka County Soil and Water Conservation District and the United States Soil Conservation Service;

4. Fill or excavated material must not be placed in a manner that creates an unstable slope. Plans to place fill or excavated material on steep slopes must be reviewed by qualified professionals for continued slope stability and must not create finished sloped of 30% or greater;

5. Any alterations below the ordinary high water level of the waterbodies described in § 1002.05(1) must first be authorized by the Commissioner under M.S. § 103G.245, as it may be amended from time to time;

6. Alterations of topography must only be allowed if they are necessary to allow a defined permitted accessory or conditional use within the underlying zoning district and do not adversely affect adjacent or nearby properties; and

7. Placement of natural rock riprap, including associated grading of the shoreline and placement of a filter blanket, is permitted if the finished slope does not exceed three feet horizontal to one foot vertical, the

landward extent of the riprap is within ten feet of the ordinary high water level and the height of the riprap above the ordinary high water level does not exceed three feet.

(e) Connections to public waters. Excavations where the intended purpose is connection to a public water, such as boat slips, canals, lagoons and harbors, must be controlled by local shoreland controls. Permission for excavations may be given only after the Commissioner has approved the proposed connection to public waters.

(3) Placement and design of roads, driveways and parking areas.

(a) Public and private roads and parking areas must be designed to take advantage of natural vegetation and topography to achieve maximum screening from view from public waters. Documentation must be provided by a qualified individual that all roads and parking areas are designed and constructed to minimize and control erosion to public waters consistent with the Lino Lakes local water management plan.

(b) Roads, driveways and parking areas must meet structure setbacks and must not be placed within shore impact zones when other reasonable and feasible placement alternatives exist. If no alternatives exist, they may be placed within these areas and must be designed to minimize adverse impacts.

(c) Public and private watercraft access ramps, approach roads and access-related parking areas may be placed within shore impact zones provided the vegetative screening and erosion control conditions of this division are met. For private facilities, the grading and filling provisions of division (2) of this chapter must be met.

(4) Stormwater management.

(a) Impervious surface coverage of lots must not exceed the impervious surface percentage of lot area outlined in § 1102.07 of this chapter.

(b) When possible, existing natural drainageways, wetlands and vegetated soil surfaces must be used to convey, store, filter and retain stormwater runoff before discharge to public waters.

(c) Development must be planned and conducted in a manner that will minimize the extent of disturbed areas, runoff velocities, erosion potential and reduce and delay runoff volumes. Disturbed areas must be stabilized and protected as soon as possible and facilities or methods used to retain sediment on the site.

(d) When development density, topographic features and soil and vegetation conditions are not sufficient to adequately handle stormwater runoff using natural features and vegetation, various types of constructed facilities such as diversions, settling basins, skimming devices, dikes, waterways and ponds may be used. Preference must be given to designs using surface drainage, vegetation and infiltration rather than buried pipes and man-made materials and facilities. Residential, commercial and industrial subdivisions and site plans shall provide for the collection and treatment of storm water in compliance with the city storm water management plan if determined that the site improvements will result in increased runoff directly entering a public water. All grading and drainage plans shall require review and approval by the city engineer and the Rice Creek Watershed District.

(e) When constructed facilities are used for stormwater management, documentation must be provided by a qualified individual that they are designed and installed consistent with the Lino Lakes local water management plan.

(f) Newly constructed stormwater outfalls to public waters must provide for filtering or settling of suspended solids and skimming of surface debris before discharge.

(Ord. 04-95, passed 4-10-1995)

§ 1102.10 SPECIAL PROVISIONS FOR COMMERCIAL, INDUSTRIAL, PUBLIC/ SEMIPUBLIC, AGRICULTURAL, FORESTRY AND EXTRACTIVE USES AND MINING OF METALLIC MINERALS AND PEAT.

(1) Standards for commercial, industrial, public and semipublic uses. Surface water-oriented commercial uses and industrial, public or semipublic uses with similar needs to have access to and use of public waters may be located on parcels or lots with frontage on public waters. Those uses with water-oriented needs must meet the following standards:

(a) In addition to meeting impervious coverage limits, setbacks and other zoning standards in this chapter, the uses must be designed to incorporate topographic and vegetative screening of parking areas and structures;

(b) Uses that require short-term watercraft mooring for patrons must centralize these facilities and design them to avoid obstructions of navigation and to be the minimum size necessary to meet the need; and

(c) Uses that depend on patrons arriving by watercraft may use signs and lighting to convey needed information to the public, subject to the following standards:

1. No advertising signs or supporting facilities for signs may be placed in or upon public waters. Signs conveying information or safety messages may be placed in or on public waters by a public authority or under a permit issued by the Anoka County Sheriff;

2. Signs may be placed, when necessary, within the shore impact zone if they are designed and sized to be the minimum necessary to convey needed information. They must only convey the location and name of the establishment and the general types of goods or services available. The signs must not contain other detailed information such as product brands and prices, must not be located higher than ten feet above the ground and must not exceed 32 square feet in size. If illuminated by artificial lights, the lights must be shielded or directed to prevent illumination out across public waters; and

3. Other outside lighting may be located within the shore impact zone or over public waters if it is used primarily to illuminate potential safety hazards and is shielded or otherwise directed to prevent illumination out across public waters. This does not preclude use of navigational lights.

(2) Agriculture use standards.

(a) General cultivation farming, grazing, nurseries, horticulture, truck farming, sod farming and wild crop harvesting are permitted uses if steep slopes and shore impact zones are maintained in permanent vegetation or operated under an approved conservation plan consistent with the Lino Lakes local water management plan, as provided by a qualified individual or agency. The shore impact zone for parcels with permitted agricultural land uses is equal to a line parallel to and 50 feet from the ordinary high water level.

(b) Animal feedlots must meet the following standards:

1. New feedlots must not be located in the shoreland of watercourses and must meet a minimum setback of 300 feet from the ordinary high water level of all public waters basins; and

2. Modifications or expansions to existing feedlots that are located within 300 feet of the ordinary high water level are allowed if they do not further encroach into the existing ordinary high water level setback.

(3) Forest management standards. The harvesting of timber and associated reforestation must be conducted consistent with the provisions of the Minnesota Nonpoint Source Pollution Assessment-Forestry and the provisions of Water Quality in Forest Management "Best Management Practices in Minnesota."

(4) Extractive use standards.

(a) Site development and restoration plan. An extractive use site development and restoration plan must be developed, approved and followed over the course of operation of the site. The plan must address dust, noise, possible pollutant discharges, hours and duration of operation and anticipated vegetation and topographic alterations. It must also identify actions to be taken during operation to mitigate adverse environmental impacts, particularly erosion and must clearly explain how the site will be rehabilitated after extractive activities end.

(b) Setbacks for processing machinery. Processing machinery must be located consistent with setback standards for structures from ordinary high water levels of public waters.

(5) Mining of metallic minerals and peat. Mining of metallic minerals and peat, as defined in M.S. §§ 93.44 to 93.51, as they may be amended from time to time, shall be a permitted use provided the provisions of M.S. §§ 93.44 to 93.51, as they may be amended from time to time, are satisfied.

(Ord. 04-95, passed 4-10-1995)

§ 1102.11 WATER SUPPLY AND SEWAGE TREATMENT.

(1) Water supply. Any public or private supply of water for domestic purposes must meet or exceed standards for water quality of the Minnesota Department of Health and the Minnesota Pollution Control Agency.

(2) Sewage treatment. Any premises used for human occupancy must be provided with an adequate method of sewage treatment as follows.

(a) Publicly-owned sewer systems must be used in accordance with Chapter 402 of the city code. Any new buildings used for human habitation or human occupancy, including businesses, located on property adjacent to a sewer main or in a block through which the system extends, shall be connected to the municipal sanitary sewer system.

(b) All private sewage treatment systems must meet or exceed the Minnesota Pollution Control Agency's standards for individual sewage treatment systems contained in the document titled, "Individual Sewage Treatment Systems Standards, Chapter 7080," as may be amended, a copy of which is hereby adopted by reference and declared to be a part of this chapter.

(c) On-site sewage treatment systems must be set back from the ordinary high water level in accordance with the setbacks contained in § 1102.07 of this chapter.

(d) All proposed sites for individual sewage treatment systems shall be evaluated in accordance with the criteria in divisions (2)(d)1. through (2)(d)4. below. If the determination of a site's suitability cannot be made with publicly available, existing information, it shall then be the responsibility of the applicant to provide sufficient soil borings and percolation tests from on-site field investigations. Evaluation criteria:

1. Depth to the highest known on calculated ground water table or bedrock;

2. Soil conditions, properties and permeability;

3. Slope; and

4. The existence of lowlands, local surface depressions and rock outcrops.

(e) Nonconforming sewage treatment systems shall be regulated and upgraded in accordance with § 1102.08(3) of this chapter.

(Ord. 04-95, passed 4-10-1995)

§ 1102.12 SUBDIVISION/PLA TTING PROVISIONS.

(1) Land suitability. Each lot created through subdivision, including planned unit developments authorized under § 1102.13 of this chapter, must be suitable in its natural state for the proposed use with minimal alteration. Suitability analysis by the City Council shall consider susceptibility to flooding, existence of wetlands, soil and rock formations with severe limitations for development, severe erosion potential, steep topography, inadequate water supply or sewage treatment capabilities, 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 must conform to all official controls of this community. A subdivision will 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. In areas not served by publicly owned sewer and water systems, a subdivision will not be approved unless domestic water supply is available and a sewage treatment system consistent with §§ 1102.08(3) and 1102.11 can be provided for every lot. Each lot shall meet the minimum lot size and dimensional requirements of § 1102.07(1) including at least a minimum contiguous lawn area, that is free of limiting factors sufficient for the construction of two standard soil treatment systems. Lots that would require use of holding tanks shall not be approved.

(Ord. 04-95, passed 4-10-1995)

§ 1102.13 SHORELAND PLANNED UNIT DEVELOPMENT (PUD).

(1) Types of PUDs permissible. Shoreland planned unit developments, as defined in § 1102.03, are allowed for new projects on undeveloped land, redevelopment of previously built sites or conversions of existing buildings and land.

(2) Processing of shoreland PUDs. Planned unit developments shall be processed as a conditional use permit or a rezoning to PUD in accordance with the City Zoning Code as well as the performance standards outlined herein.

(3) Application for a PUDs. The application for a PUD/CUP must submit the following documents in addition to documents required by Chapter 1001 of the city code and the City Zoning Code, Chapter 1007, prior to final action being taken on the application request:

(a) A site plan and/or plat for the project showing locations of property boundaries, surface water features, existing and proposed structures and other facilities, land alterations, sewage treatment and water supply systems where public systems will not be provided and topographic contours at ten-foot intervals or less. When a PUD is a combined commercial and residential development, the site plan and/or plat must indicate and distinguish which buildings and portions of the project are residential, commercial or a combination of the two.

(b) A property owners association agreement (for residential PUDs) with mandatory membership and all in accordance with the requirements of division (4)(c)3.

(c) Deed restrictions, covenants, permanent easements or other instruments that:

1. Properly address future vegetative and topographic alterations, construction of additional buildings, beaching of watercraft and construction of commercial buildings in residential PUDs; and

2. Ensure the long-term preservation and maintenance of open space in accordance with the criteria and analysis specified in division (4)(d).

(d) When necessary, a master plan/drawing describing the project and the floor plan for all commercial structures to be occupied.

(e) Those additional documents as requested by the city that are necessary to explain how the PUD will be designed and will function.

(4) Site "suitable area" evaluation. Suitable area for development within a shoreland planned unit developments (PUDs) shall exclude all wetland, watercourses, land below the ordinary high water level of public waters, public street rights-of-way and public parks. This suitable area and the proposed project are subject to PUD performance standards governing density and design.

(a) All PUDs must have access to public sanitary sewer and water.

(b) Lot area and width standards. The following lot are per unit standards shall apply to all PUDs within the Shoreland Overlay District provided that the resulting total development density in the shoreland area does not exceed the total city-wide shoreland density allowed based on State of Minnesota shoreland standards. The city, in its evaluation of any PUD, shall evaluate the proposed PUD density in light of the development capacity of the city-wide Shoreland Overlay District. Where the requirements of the underlying zoning district are more or less restrictive than those set forth herein, the more restrictive standards shall apply.

Residential (R-3, R-4 Zoning Districts)				
	NE	RD	GD	T
Lot area:				
Townhomes	5,000	5,000	5,000	5,000
Apartments/condominiums	2,900	2,900	2,900	2,900
Lot width:				
Townhomes	150	130	130	130
Apartments/condominiums	150	130	130	130
Setbacks:				
1. OHWL			200 feet	
2. Setback from streets:				
a. Right-of-way line of federal, state or county highway			40 feet	
b. Local street			30 feet	
3. Side yard setback			20 feet	
4. Setback between buildings on multiple building site			35 feet	
5. Bluff setback			50 feet	

(c) Maintenance and administration r equirements.

1. Provisions for preservation and maintenance. Before final approval of a planned unit development, adequate provisions must be developed for preservation sand maintenance in perpetuity of open spaces and for the continued existence and functioning of the development.

2. Open space preservation. Deed restrictions, covenants, permanent easements, public dedication and acceptance or other equally effective and permanent means must be provided to ensure long-term preservation and maintenance of open space. The instruments must include all of the following protections:

a. Commercial uses prohibited (for residential PUDs);

b. Vegetation and topographic alterations other than routine maintenance prohibited;

c. Construction of additional buildings or storage of vehicles and other materials prohibited; and

d. Uncontrolled beaching of watercraft prohibited.

3. Development organization and functioning. Unless an equally effective alternative community framework is established, when applicable, all residential planned unit developments must use an owners association with the following features:

a. Membership must be mandatory for each dwelling unit or site purchaser and any successive purchasers;

b. Each member must pay a pro rata share of the association's expenses and unpaid assessments can become liens on units or sites;

c. Assessments must be adjustable to: accommodate changing conditions; and

d. The association must be responsible for insurance, taxes and maintenance of all commonly owned property and facilities.

(d) Open space requirements. Planned unit developments must contain open space meeting of the following criteria:

1. At least 50% of the total project area must be preserved as open space;

2. Dwelling units or sites, road rights-of-way or land covered by road surfaces, parking areas or, structures, except water-oriented accessory structures or facilities are developed areas and shall not be included in the computation of minimum open space;

3. Open space must include areas with physical characteristics unsuitable for development in their natural state and areas containing significant historic sites or unplatted cemeteries;

4. Open space may include outdoor recreational facilities for use by owners of dwelling units or sites, by guests staying in commercial dwelling units or site and by the general public;

5. Open space must not include commercial facilities or uses, but may contain water-oriented accessory structures or facilities;

6. The appearance of open space areas, including topography, vegetation and allowable uses, must be preserved by use of restrictive deed covenants, permanent easements, public dedication and acceptance or other equally effective and permanent means; and

7. The shore impact zone, based on normal structure setbacks, must be included as open space. For residential PUDs, at least 50% of the shore impact zone area of existing developments or at least 70% of the shore impacts zone area of new developments must be preserved in its natural or existing state. For commercial PUDs, at least 50% of the shore impact zone must be preserved in its natural state.

(e) Erosion control and stormwater management. Erosion control and stormwater management plans must be developed and the PUD must:

1. Be designed, and the construction managed, to minimize the likelihood of serious erosion occurring either during or after construction. This must be accomplished by limiting the amount and length of time or bare ground exposure. Temporary ground covers, sediment entrapment facilities, vegetated buffer strips or other appropriate techniques must be used to minimize erosion impacts on surface water features. Erosion control plans must be in accordance with the Lino Lakes local water management plan and approved by the City Council; and

2. Be designed and constructed to effectively manage reasonably expected quantities and qualities of stormwater runoff. Impervious surface coverage must not exceed 35% with an approved stormwater

management plan and consistency with § 1102.09.

(f) Centralization and design of facilities. Centralization and design of facilities and structures must be done according to the following standards.

1. Planned unit developments must be connected to publicly owned water supply and sewer systems.

2. Dwelling units or sites must be clustered into one or more groups and located on suitable areas of the development. They must be designed and located to meet or exceed the following dimensional standards for the relevant shoreland classification, setback from the ordinary high water level, elevation above the surface water features and maximum height.

3. Shore recreation facilities, including but not limited to swimming areas, docks and watercraft mooring areas and launching ramps, must be centralized and located in areas suitable for them. The shared lake access must be approved by the City Council. Evaluation of suitability must include consideration of land slope, water depth, vegetation, soils, depth to groundwater and bedrock or other relevant factors. The number of spaces provided for continuous beaching, mooring or docking of watercraft must not exceed one for each allowable dwelling unit or site in the first tier (notwithstanding existing mooring sites in an existing commercially used harbor). Launching ramp facilities including a small dock for loading and unloading equipment, may be provided for use by occupants of dwelling units or sites located in other tiers.

4. Structures, parking areas and other facilities must be treated to reduce visibility as viewed form public waters and adjacent shorelands by vegetation, topography, increased setbacks, color or other means acceptable to the City Council, assuming summer, leaf-on conditions. Vegetative and topographic screening must be preserved, if existing, or may be required to be provided.

5. Accessory structures and facilities, except water-oriented accessory structures, must meet the required principal structural setbacks and must be centralized.

6. Water-oriented accessory structures and facilities may be allowed if they meet or exceed design standards contained in § 1102.07(2) of this chapter and are centralized.

(5) Conversions. The city may allow existing resorts or other land uses and facilities to be converted to residential planned unit developments if all of the following standards are met.

(a) Proposed conversions must be initially evaluated using the same procedures for residential planned unit developments involving all new construction. Inconsistencies between existing features of the development and these standards must be identified.

(b) Deficiencies involving water supply and sewage treatment, structure color, impervious coverage, open space and shore recreation facilities must be corrected as part of the conversion or as specified in the conditional use permit.

(c) Shore impact zone deficiencies must be evaluated and reasonable improvements made as part of the conversion. These improvements must include, where applicable, the following:

1. Removal of extraneous buildings, docks or other facilities that no longer need to be located in shore impact zones;

2. Remedial measures to correct erosion sites and improve vegetative cover and screening of buildings and other facilities as viewed from the water; and

3. If existing dwelling units are located in shore impacts zones, conditions shall be attached to approvals of conversions that preclude exterior expansions in any dimension or substantial alterations. The conditions must also provide for future relocation of dwelling units, where feasible, to other locations, meeting all setback and elevation requirements when they are rebuilt or replaced.

(d) 1. Existing dwelling unit or dwelling site densities that exceed standards in division (4) may be allowed to continue but must not be allowed to be increased, either at the time of conversion or in the

future.

2. Efforts must be made during the conversion to limit impacts of high densities by requiring seasonal use, improving vegetative screening, centralizing shore recreation facilities, installing new sewage treatment systems or other means.

(Ord. 04-95, passed 4-10-1995)

CHAPTER 1103: FLOOD PLAIN MANAGEMENT

Section

§ 1103.01 STATUTORY AUTHORIZA TION, FINDINGS OF F ACT AND PURPOSE.

(1) Statutory authorization. The legislature of the State of Minnesota has, in M.S. Chs. 103F and 462, delegated the responsibility to local government units to adopt regulations designed to minimize flood losses.

(2) Purpose.

(a) This chapter regulates development in the flood hazard areas of the city. These flood hazard areas are subject to the periodic inundation, which may result in loss of life and 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. It is the purpose of this chapter, to promote the public health, safety and general welfare by minimizing these losses and disruptions.

(b) National Flood Insurance Compliance. This chapter is adopted to comply with the rules and regulations of the National Flood Insurance Program codified as 44 C.F.R. pt. 59 - 78, as amended, so as to maintain the community's eligibility in the National Flood Insurance Program.

(c) This chapter is also intended to preserve the natural characteristics and functions of watercourses and floodplains in order to moderate flood and stormwater impacts, improve water quality, reduce soil erosion, protect aquatic and riparian habitat, provide recreational opportunities, provide aesthetic benefits and enhance community and economic development.

(Ord. 10-15, passed 11-23-2015)

§ 1103.02 GENERAL PROVISIONS.

(1) Uses. This chapter adopts the floodplain maps applicable to the city and includes three floodplain districts: floodway, flood fringe, and general floodplain.

(a) Where floodway and flood fringe districts are delineated on the floodplain maps, the standards of § 1103.05 or § 1103.06 will apply, depending on the location of a property.

(b) Locations where floodway and flood fringe districts are not delineated on the floodplain maps are considered to fall within the General Floodplain District. Within the General Floodplain District, the floodway district standards in § 1103.05 apply unless the floodway boundary is determined, according to the process outlined in § 1103.07. Once the floodway boundary is determined, the flood fringe district standards in § 1103.06 may apply outside the floodway.

(2) Applicability.

(a) This chapter applies to all lands within the jurisdiction of the city shown on the official zoning map and/or the attachments to the map as being located within the boundaries of the Floodway, Flood Fringe, or General Floodplain Districts.

(b) The Floodway, Flood Fringe and General Floodplain Districts are overlay districts that are superimposed on all existing zoning districts. The standards imposed in the overlay districts are in addition to any other requirements in the zoning ordinance. In case of a conflict, the more restrictive standards will apply.

(3) Incorporation of maps by reference. The following maps together with all materials are hereby adopted by reference and declared to be a part of the official zoning map and this chapter. The referenced material includes the Flood Insurance Study for Anoka County, Minnesota, and Incorporated Areas and the Flood Insurance Rate Map panels enumerated below, all dated December 16, 2015 and all prepared by the Federal Emergency Management Agency. These materials are on file in the office of the City Clerk and the Zoning Administrator.

(4) Regulatory flood protection elevation. The regulatory flood protection elevation (RFPE) is an elevation no lower than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the flood plain that result from designation of a floodway.

(5) Interpretation. The boundaries of the zoning districts are determined by scaling distances on the flood insurance rate map.

(a) Where a conflict exists between the floodplain limits illustrated on the official zoning map and actual field conditions, the flood elevations shall be the governing factor. The Zoning Administrator must interpret the boundary location based on the ground elevations that existed on the site on the date of the first national flood insurance program map showing the area within the regulatory floodplain, and other available technical data.

(b) Persons contesting the location of the district boundaries will be given a reasonable opportunity to present their case to the Board of Adjustment and to submit their own technical evidence.

(6) Abrogation and greater restrictions. It is not intended by this chapter to repeal, abrogate or impair any existing easements, covenants, deed restrictions, or other private agreements. However, where this chapter imposes greater restrictions, the provisions of this chapter shall prevail. All other ordinances inconsistent with this chapter are hereby repealed to the extent of the inconsistency only.

(7) Warning and disclaimer of liability. This chapter does not imply that areas outside of the floodplain districts or land uses permitted within such districts will be free from flooding or flood damages. The 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 decision lawfully made under it.

(8) Annexations. The flood insurance rate map panels adopted by reference into § 1103.02(3) above may include floodplain areas that lie outside of the corporate boundaries of the city at the time of adoption of this chapter. If any of these floodplain land areas are annexed into the city after the date of adoption of this chapter, the newly annexed floodplain lands will be subject to the provisions of this chapter immediately upon the date of annexation.

(Ord. 10-15, passed 11-23-2015)

§ 1103.03 DEFINITIONS.

Unless specifically defined below, words or phrases used in this chapter must be interpreted according to common usage and so as to give this chapter its most reasonable application.

ACCESSORY USE OR STRUCTURE. A use or structure on the same lot with, and of a nature customarily incidental and subordinate to, the principal use or structure.

BASE FLOOD ELEVATION. The elevation of the regional flood. The term BASE FLOOD ELEVATION is used in the flood insurance study.

BASEMENT. Any area of a structure, including crawl spaces, having its floor or base subgrade (below ground level) on all four sides, regardless of the depth of excavation below ground level.

CONDITIONAL USE. A specific type of structure or land use listed in the official control that may be allowed but only after an in-depth review procedure and with appropriate conditions or restrictions as provided in the official zoning controls or building codes and upon finding that:

(a) Certain conditions as detailed in the zoning ordinance exist; and

(b) The structure and/or land use conform to the comprehensive land use plan, if one exists, and are compatible with the existing neighborhood.

CRITICAL FACILITIES. Facilities necessary to a community's public health and safety, those that store or produce highly volatile, toxic or water-reactive materials, and those that house occupants that may be insufficiently mobile to avoid loss of life or injury. Examples of critical facilities include hospitals, correctional facilities, schools, daycare facilities, nursing homes, fire and police stations, wastewater treatment facilities, public electric utilities, water plants, fuel storage facilities, and waste handling and storage facilities.

DEVELOPMENT. Any manmade change to improved or unimproved real estate, including buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.

EQUAL DEGREE OF ENCROACHMENT . A method of determining the location of floodway boundaries so that floodplain lands on both sides of a stream are capable of conveying a proportionate share

of flood flows.

FARM FENCE. A fence as defined by M.S. § 344.02 Subd. 1(a) - (d). An open type fence of posts and wire is not considered to be a structure under this chapter. Fences that have the potential to obstruct flood flows, such as chain link fences and rigid walls, are regulated as structures under this chapter.

FLOOD. A temporary increase in the flow or stage of a stream or in the stage of a wetland or lake that results in the inundation of normally dry areas.

FLOOD FREQUENCY . The frequency for which it is expected that a specific flood stage or discharge may be equaled or exceeded.

FLOOD FRINGE. That portion of the floodplain outside of the floodway. Flood fringe is synonymous with the term FLOODWAY FRINGE used in the Flood Insurance Study for Anoka County, Minnesota.

FLOODPLAIN. The beds proper and areas adjoining a wetland, lake or watercourse which have been or hereafter may be covered by the regional flood.

FLOODPROOFING. A combination of structural provisions, changes or adjustments to properties and structures subject to flooding, primarily for the reduction or elimination of flood damages.

FLOODWAY. The bed of a wetland or lake and the channel of a watercourse and those portions of the adjoining floodplain which are reasonably required to carry or store the regional flood discharge.

LOWEST FLOOR. The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, used solely for parking of vehicles, building access, or storage in an area other than a basement area, is not considered a building's lowest floor.

MANUFACTURED HOME. A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term MANUFACTURED HOME does not include the term RECREATIONAL VEHICLE .

OBSTRUCTION. Any dam, wall, wharf, embankment, levee, dike, pile, abutment, projection, excavation, channel modification, culvert, building, wire, fence, stockpile, refuse, fill, structure or matter in, along, across or projecting into any channel, watercourse or regulatory floodplain which may impede, retard or change the direction of the flow of water, either in itself or by catching or collecting debris carried by the water.

ONE HUNDRED YEAR FLOODPLAIN. Lands inundated by the REGIONAL FLOOD . (See definition.)

PRINCIP AL USE OR STRUCTURE. All uses or structures that are not accessory uses or structures.

REACH. A hydraulic engineering term to describe a longitudinal segment of a stream or river influenced by a natural or man-made obstruction. In an urban area, the segment of a stream or river between two consecutive bridge crossings would most typically constitute a reach.

RECREATIONAL VEHICLE. A vehicle that is built on a single chassis, is 400 square feet or less when measured at the largest horizontal projection, is designed to be self-propelled or permanently towable by a light duty truck, and is designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use. For the purposes of this chapter, the term RECREATIONAL VEHICLE is synonymous with the term TRAVEL TRAILER/TRAVEL VEHICLE .

REGIONAL FLOOD. A flood which is representative of large floods known to have occurred generally in Minnesota and reasonably characteristic of what can be expected to occur on an average frequency in the magnitude of the 1% chance or 100-year recurrence interval. REGIONAL FLOOD is synonymous with the term BASE FLOOD used in the Flood Insurance Study.

REGULATORY FLOOD PROTECTION ELEVATION (RFPE). An elevation not less than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the flood plain that result from designation of a floodway.

REPETITIVE LOSS. Flood related damages sustained by a structure on two separate occasions during a ten year period for which the cost of repairs at the time of each such flood event on the average equals or exceeds 25% of the market value of the structure before the damage occurred.

SPECIAL FLOOD HAZARD AREA. A term used for flood insurance purposes synonymous with ONE HUNDRED YEAR FLOODPLAIN .

STRUCTURE. Anything constructed or erected on the ground or attached to the ground or on-site utilities, including, but not limited to, buildings, factories, sheds, detached garages, cabins, manufactured homes, recreational vehicles not meeting the exemption criteria specified in § 1103.10(2)(b) of this chapter and other similar items.

SUBSTANTIAL DAMAGE. Means damage of any origin sustained by a structure where the cost of restoring the structure to its before damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

SUBSTANTIAL IMPROVEMENT. Within any consecutive 365-day period, any reconstruction, rehabilitation (including normal maintenance and repair), repair after damage, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the start of construction of the improvement. This term includes structures that have incurred substantial damage, regardless of the actual repair work performed. The term does not, however, include either:

(a) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions.

(b) Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure. For the purpose of this chapter, HISTORIC STRUCTURE is as defined in 44 C.F.R. pt. 59.1.

VARIANCE. A modification of the strict provisions of this chapter as applied to a specific piece of property in order to provide relief for a property owner because of exceptional hardship imposed upon the property by this chapter. A VARIANCE shall normally be limited to height, density and yard requirements. A modification in the allowable uses within a district shall not be considered a VARIANCE.

ZONING ADMINISTRATOR. The Community Development Director, or assigns, who is charged with the administration and enforcement of this chapter.

(Ord. 10-15, passed 11-23-2015)

§ 1103.04 ESTABLISHMENT OF ZONING DISTRICTS.

(1) Districts.

(a) Floodway District. The Floodway District includes those areas designated as floodway on the Flood Insurance Rate Map adopted in § 1103.02(3). For lakes, wetlands and other basins, the Floodway District includes those areas designated as Zone A or AE on the Flood Insurance Rate Map that are at or below the ordinary high water level as defined in M.S. § 103G.005, Subd. 14.

(b) Flood Fringe District. The Flood Fringe District includes those areas designated as flood fringe on the Flood Insurance Rate Map adopted in § 1103.02(3), as being within Zone AE but being located outside of the floodway. For lakes, wetlands and other basins (that do not have a floodway designated), the Flood

Fringe District includes those areas designated as Zone A or AE on the Flood Insurance Rate Map panels adopted in § 1103.02(3) that are below the 1% annual chance (100-year) flood elevation but above the ordinary high water level as defined in M.S. § 103G.005, Subd. 14.

(c) General Floodplain District. The General Floodplain District includes those areas designated as Zone A or Zone AE without a floodway on the Flood Insurance Rate Map adopted in § 1103.02(3), but not subject to the criteria in divisions (1)(a) and (b) above.

(2) Compliance. Within the floodplain districts established in this chapter, the use of any land, the use, size, type and location of structures on lots, the installation and maintenance of transportation, utility, water supply and waste treatment facilities, and the subdivision of land must comply with the terms of this chapter and other applicable regulations. All uses not listed as permitted uses or conditional uses in § 1103.05, 1103.06, and 1103.07, respectively, shall be prohibited. In addition, a caution is provided here that:

(a) New and replacement manufactured homes and certain recreational vehicles are subject to the general provisions of this chapter and specifically § 1103.10 and Ch. 1007: Zoning Code.

(b) Modifications, additions, structural alterations, normal maintenance and repair, or repair after damage to existing nonconforming structures and nonconforming uses of structures or land are regulated by the general provisions of this chapter and specifically § 1103.12 and Ch. 1007: Zoning Code.

(c) As-built elevations for elevated or flood-proofed structures must be certified by ground surveys and flood-proofing techniques must be designed and certified by a registered professional engineer or architect as specified in the general provision of this chapter and specifically as stated in § 1103.11.

(d) Critical facilities, as defined in § 1103.03, are prohibited in all floodplain districts.

(Ord. 10-15, passed 11-23-2015)

§ 1103.05 FLOODW AY DISTRICT (FW).

(1) Permitted uses. The following uses, subject to the standards set forth in § 1103.05(2), are permitted uses if otherwise allowed in the underlying base zoning district or any applicable overlay district:

(a) General farming, pasture, grazing, outdoor plant nurseries, horticulture, truck farming, forestry, sod farming and wild crop harvesting.

(b) Industrial-commercial loading areas, parking areas and airport landing strips.

(c) Open space uses, including but not limited to private and public golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat launching ramps, seasonal docks, swimming areas, parks, wildlife and nature preserves, game farms, fish hatcheries, shooting preserves, hunting and fishing areas, and single- or multiple-purpose recreational trails.

(d) Residential lawns, gardens, parking areas and play areas as long as no permanent structures are constructed.

(e) Railroads, streets, bridges, utility transmission lines and pipelines, provided that the Department of Natural Resources' Area Hydrologist is notified at least ten days prior to issuance of any permit, and that the standards in divisions (4)(a), (4)(c)1., and (4)(f) of this section are met.

(2) Standards for floodway permitted uses.

(a) The use must have a low flood damage potential.

(b) With the exception of the uses listed in division (1)(e), the use must not obstruct flood flows or increase flood elevations and must not involve structures, fill, obstructions, excavations or storage of

materials or equipment.

(c) Any facility that will be used by employees or the general public must be designed with a flood warning system that provides adequate time for evacuation if the area is inundated to a depth and velocity such that the depth (in feet) multiplied by the velocity (in feet per second) would exceed a product of four upon occurrence of the regional (1% chance) flood.

(3) Conditional uses. The following uses may be allowed as conditional uses following the standards and procedures set forth in § 1103.11(4) of this chapter and further subject to the standards set forth in division (4), if otherwise allowed in the underlying zoning district or any applicable overlay district.

(a) Structures accessory to the uses listed in division (1) and the uses listed below.

(b) Extraction and storage of sand, gravel and other materials.

(c) Marinas, boat rentals, permaent docks, piers, wharves and water control structures,

(d) Storage yards for equipment, machinery or materials.

(e) Placement of fill or construction of fences that obstruct flood flows. Farm fences, as defined in § 1103.03, are permitted uses.

(f) Travel-ready recreational vehicles meeting the exemption standards in § 1103.10(3).

(g) Levees or dikes intended to protect agricultural crops for a frequency flood event equal to or less than the 10-year frequency flood event.

(4) Standards for floodway conditional uses.

(a) All uses. A conditional use must not cause any increase in the stage of the 1% chance or regional flood or cause an increase in flood damages in the reach or reaches affected.

(b) Fill; storage of materials and equipment.

1. 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.

2. Fill, dredge spoil, and other similar materials deposited or stored in the floodplain must be protected from erosion by vegetative cover, mulching, riprap or other acceptable method. Permanent sand and gravel operations and similar uses must be covered by a long-term site development plan.

3. Temporary placement of fill, other materials, or equipment which would cause an increase to the stage of the 1% percent chance or regional flood may only be allowed if the City Council has approved a plan that assures removal of the materials from the floodway based upon the flood warning time available.

(c) Accessory structures.

1. Accessory structures must not be designed for human habitation.

2. Accessory structures, if permitted, must be constructed and placed on the building site so as to offer the minimum obstruction to the flow of flood waters:

a. Whenever possible, structures must be constructed with the longitudinal axis parallel to the direction of flood flow; and

b. So far as practicable, structures must be placed approximately on the same flood flow lines as those of adjoining structures.

3. Accessory structures shall be elevated on fill or structurally dry floodproofed in accordance with the FP-1 or FP-2 flood-proofing classifications in the State Building Code. All floodproofed accessory structures must meet the following additional standards:

a. The structure must be adequately anchored to prevent flotation, collapse or lateral movement and designed to equalize hydrostatic flood forces on exterior walls; and

b. Any mechanical and utility equipment in the structure must be elevated to or above the regulatory flood protection elevation or properly floodproofed.

4. As an alternative, an accessory structure may be internally/wet floodproofed to the FP-3 or FP-4 flood-proofing classification in the State Building Code, provided the accessory structure constitutes a minimal investment, does not exceed 576 square feet in the size. A detached garage may only be used for parking of vehicles and limited storage. All flood-proofed accessory structures must meet the following standards:

a. To allow for the equalization of hydrostatic pressure, there must be a minimum of two automatic openings in the outside walls of the structure, with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding; and

b. There must be openings on at least two sides of the structure and the bottom of all openings must be no higher than one foot above the lowest adjacent grade to the structure. Using human intervention to open a garage door prior to flooding will not satisfy this requirement for automatic openings.

(d) Structural works for flood control that will change the course, current or cross section of protected wetlands or public waters are subject to the provisions of M.S. § 103G.245.

(e) A levee, dike or floodwall constructed in the floodway must not cause an increase to the 1% chance or regional flood. The technical analysis must assume equal conveyance or storage loss on both sides of a stream.

(f) Floodway developments must not adversely affect the hydraulic capacity of the channel and adjoining floodplain of any tributary watercourse or drainage system.

(Ord. 10-15, passed 11-23-2015)

§ 1103.06 FLOOD FRINGE DISTRICT (FF).

(1) Permitted uses. Permitted uses are those uses of land or structures allowed in the underlying zoning district(s) that comply with the standards in division (2).

(2) Standards for flood fringe permitted uses.

(a) All structures, including accessory structures, must be elevated on fill so that the lowest floor, as defined, is at or above the regulatory flood protection elevation. The finished fill elevation for structures must be no lower than one foot below the regulatory flood protection elevation and the fill must extend at the same elevation at least 15 feet beyond the outside limits of the structure.

1. All service utilities, including ductwork, must be elevated or water-tight to prevent infiltration of floodwaters.

2. As an alternative to elevation on fill, an accessory structure that constitutes a minimal investment and that does not exceed 576 square feet in size may be internally floodproofed in accordance with § 1103.05(4)(c).

(b) The cumulative placement of fill or similar material on a parcel must not exceed 1,000 cubic yards, unless the fill is specifically intended to elevate a structure in accordance with division (2) of this section, or if allowed as a conditional use under division (3)(c) below.

(c) The storage of any materials or equipment must be elevated on fill to the regulatory flood protection elevation.

(d) 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.

(e) Fill must be properly compacted and the slopes must be properly protected by the use of riprap, vegetative cover or other acceptable method.

(f) All new principal structures must have vehicular access at or above an elevation not more than two feet below the regulatory flood protection elevation, or must have a flood warning /emergency evacuation plan acceptable to the City Council.

(g) Accessory uses such as yards, railroad tracks, and parking lots may be at an elevation lower than the regulatory flood protection elevation. However, any facilities used by employees or the general public must be designed with a flood warning system that provides adequate time for evacuation if the area is inundated to a depth and velocity such that the depth (in feet) multiplied by the velocity (in feet per second) would exceed a product of four upon occurrence of the regional (1% chance) flood.

(h) Interference with normal manufacturing/industrial plant operations must be minimized, especially along streams having protracted flood durations. In considering permit applications, due consideration must be given to the needs of industries with operations that require a floodplain location.

(i) Flood fringe developments must not adversely affect the hydraulic capacity of the channel and adjoining floodplain of any tributary watercourse or drainage system.

(j) Manufactured homes and recreational vehicles must meet the standards of § 1103.10 of this chapter.

(3) Conditional uses. The following uses and activities may be allowed as conditional uses, if allowed in the underlying zoning district(s) or any applicable overlay district, following the procedures in § 1103.11(4) of this chapter.

(a) Any structure that is not elevated on fill or floodproofed in accordance with division (2)(a) of this section.

(b) Storage of any material or equipment below the regulatory flood protection elevation.

(c) The cumulative placement of more than 1,000 cubic yards of fill when the fill is not being used to elevate a structure in accordance with division (2)(a) of this chapter.

(4) Standards for flood fringe conditional uses.

(a) The standards listed in divisions (2)(d) through (j) apply to all conditional uses.

(b) Basements, as defined by § 1103.03 of this chapter, are subject to the following:

1. Residential basement construction is not allowed below the regulatory flood protection elevation.

2. Non-residential basements may be allowed below the regulatory flood protection elevation provided the basement is structurally dry floodproofed in accordance with division (4)(c) of this section.

(c) All areas of nonresidential structures, including basements, to be placed below the regulatory flood protection elevation must be floodproofed in accordance with the structurally dry floodproofing classifications in the State Building Code. Structurally dry floodprooflng must meet the FP-1 or FP-2 floodproofing classification in the State Building Code, which requires making the structure watertight with the walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. Structures wet floodproofed to the FP-3 or FP-4 classification are not permitted.

(d) The placement of more than 1,000 cubic yards of fill or other similar material on a parcel (other than for the purpose of elevating a structure to the regulatory flood protection elevation) must comply with an approved erosion/sedimentation control plan.

1. The plan must clearly specify methods to be used to stabilize the fill on site for a flood event at a minimum of the regional (1% chance) flood event.

2. The plan must be prepared and certified by a registered professional engineer or other qualified individual acceptable to the City Council.

3. The plan may incorporate alternative procedures for removal of the material from the floodplain if adequate flood warning time exists.

(e) Storage of materials and equipment below the regulatory flood protection elevation must comply with an approved emergency plan providing for removal of such materials within the time available after a flood warning.

(f) Alternative elevation methods other than the use of fill may be utilized to elevate a structure's lowest floor above the regulatory flood protection elevation. These alternative methods may include the use of stilts, pilings, parallel walls, etc., or above-grade, enclosed areas such as crawl spaces or tuck under garages. The base or floor of an enclosed area shall be considered above-grade and not a structure's basement or lowest floor if:

1. The enclosed area is above-grade on at least one side of the structure;

2. It is designed to internally flood and is constructed with flood resistant materials; and

3. It is used solely for parking of vehicles, building access or storage. The above-noted alternative elevation methods are subject to the following additional standards:

a. Design and certification. The structure's design and as-built condition must be certified by a registered professional engineer or architect as being in compliance with the general design standards of the State Building Code and, specifically, that all electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities must be at or above the regulatory flood protection elevation or be designed to prevent flood water from entering or accumulating within these components during times of flooding.

b. Specific standards for above-grade, enclosed ar eas. Above-grade, fully enclosed areas such as crawl spaces or tuck under garages must be designed to internally flood and the design plans must stipulate:

i. The minimum area of openings in the walls where internal flooding is to be used as a floodproofing technique. There shall be a minimum of two openings on at least two sides of the structure and the bottom of all openings shall be no higher than one foot above grade. The automatic openings shall have a minimum net area of not less than one square inch for every square foot of enclosed area subject to flooding unless a registered professional engineer or architect certifies that a smaller net area would suffice. The automatic openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of flood waters without any form of human intervention; and

ii. That the enclosed area will be designed of flood resistant materials in accordance with the FP-3 or FP-4 classifications in the State Building Code and shall be used solely for building access, parking of vehicles or storage.

(Ord. 10-15, passed 11-23-2015)

§ 1103.07 GENERAL FLOODPLAIN DISTRICT (GF).

(1) Permitted uses.

(a) The uses listed in § 1103.05(1) of this chapter.

(b) All other uses are subject to the floodway/flood fringe evaluation criteria specified in division (2) below. Section 1103.05 applies if the proposed use is determined to be in the Floodway District. Section 1103.06 applies if the proposed use is determined to be in the Flood Fringe District.

(2) Procedures for floodway and flood fringe determinations.

(a) Upon receipt of an application for a permit or other approval within the General Floodplain District, the Zoning Administrator must obtain, review and reasonably utilize any regional flood elevation and floodway data available from a federal, state, or other source.

(b) If regional flood elevation and floodway data are not readily available, the applicant must furnish additional information, as needed, to determine the regulatory flood protection elevation and whether the proposed use would fall within the Floodway or Flood Fringe District. Information must be consistent with accepted hydrological and hydraulic engineering standards and the standards in division (c)3. below.

(c) The determination of floodway and flood fringe must include the following components, as applicable:

1. Estimate the peak discharge of the regional (1% chance) flood.

2. Calculate the water surface profile of the regional flood based upon a hydraulic analysis of the stream channel and overbank areas.

3. Compute the floodway necessary to convey or store the regional flood without increasing flood stages more than one-half foot. A lesser stage increase than one-half foot is required if, as a result of the stage increase, increased flood damages would result. An equal degree of encroachment on both sides of the stream within the reach must be assumed in computing floodway boundaries.

(d) The Zoning Administrator will review the submitted information and assess the technical evaluation and the recommended Floodway and/or Flood Fringe District Boundary. The assessment must include the cumulative effects of previous floodway encroachments. The Zoning Administrator may seek technical assistance from a designated engineer or other expert person or agency, including the Department of Natural Resources. Based on this assessment, the Zoning Administrator may approve or deny the application.

(e) Once the Floodway and Flood Fringe District boundaries have been determined, the Zoning Administrator must process the permit application consistent with the applicable provisions of §§ 1103.05 and 1103.06 of this chapter.

(Ord. 10-15, passed 11-23-2015)

§ 1103.08 LAND DEVELOPMENT ST ANDARDS.

(1) In general. Recognizing that flood prone areas may exist outside of the designated floodplain districts, the requirements of this section apply to all land within the city.

(2) Subdivisions. No land may be subdivided which is unsuitable for reasons of flooding or inadequate drainage, water supply or sewage treatment facilities. Manufactured home parks and recreational vehicle parks or campgrounds are considered subdivisions under this chapter.

(a) All lots within the floodplain districts must be able to contain a building site outside of the Floodway District at or above the regulatory flood protection elevation.

(b) All subdivisions must have road access both to the subdivision and to the individual building sites no lower than two feet below the regulatory flood protection elevation, unless a flood warning emergency plan for the safe evacuation of all vehicles and people during the regional (1% chance) flood has been

approved by the City Council. The plan must be prepared by a registered engineer or other qualified individual, and must demonstrate that adequate time and personnel exist to carry out the evacuation.

(c) For all subdivisions in the floodplain, the floodway and flood fringe district boundaries, the regulatory flood protection elevation and the required elevation of all access roads must be clearly labeled on all required subdivision drawings and platting documents.

(d) In the General Floodplain District, applicants must provide the information required in § 1103.07(2) of this chapter to determine the regional flood elevation, the floodway and flood fringe district boundaries and the regulatory flood protection elevation for the subdivision site.

(e) If a subdivision proposal or other proposed new development is in a flood prone area, any such proposal must be reviewed to assure that:

1. All such proposals are consistent with the need to minimize flood damage within the flood prone area;

2. All public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage; and

3. Adequate drainage is provided to reduce exposure of flood hazard.

(3) Building sites. If a proposed building site is in a flood prone area, all new construction and substantial improvements (including the placement of manufactured homes) must be:

(a) Designed (or modified) and adequately anchored to prevent floatation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

(b) Constructed with materials and utility equipment resistant to flood damage;

(c) Constructed by methods and practices that minimize flood damage; and

(d) Constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

(Ord. 10-15, passed 11-23-2015)

§ 1103.09 PUBLIC UTILITIES, RAILROADS, ROADS, AND BRIDGES.

(1) Building site. All public utilities and facilities such as gas, electrical, sewer, and water supply systems to be located in the floodplain must be floodproofed in accordance with the State Building Code or elevated to the regulatory flood protection elevation.

(2) Public transportation facilities. Railroad tracks, roads, and bridges to be located within the floodplain must comply with §§ 1103.05 and 1103.06 of this chapter. These transportation facilities must be elevated to the regulatory flood protection elevation where failure or interruption of these facilities would result in danger to the public health or safety or where such facilities are essential to the orderly functioning of the area. Minor or auxiliary roads or railroads may be constructed at a lower elevation where failure or interruption of transportation services would not endanger the public health or safety.

(3) On-site water supply and sewage treatment systems. Where public utilities are not provided:

(a) On-site water supply systems must be designed to minimize or eliminate infiltration of flood waters into the systems;

(b) 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 must not be subject to impairment or contamination during times of flooding; and

(c) Any sewage treatment system designed in accordance with the state's current statewide standards for on-site sewage treatment systems is considered to be in compliance with this section.

(Ord. 10-15, passed 11-23-2015)

§ 1103.10 MANUFACTURED HOMES, MANUF ACTURED HOME P ARKS, RECREA TIONAL VEHICLE P ARKS, AND RECREA TIONAL VEHICLES.

(1) Manufactured home parks. New manufactured home parks and expansions to existing manufactured home parks are prohibited in any floodplain district.

(2) Manufactured homes.

(a) The placement or replacement of manufactured home units are prohibited in the Floodway District.

(b) The placement or replacement of manufactured home units in the Flood Fringe District is subject to the requirements of § 1103.06 of this chapter and the following standards:

1. New and replacement manufactured homes must be elevated in compliance with § 1103.06 of this chapter and 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 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.

2. New or replacement manufactured homes in existing manufactured home parks must meet the vehicular access requirements for subdivisions in § 1103.08(2)(b).

(3) Recreational vehicle parks. New recreational vehicle parks or campgrounds and expansions to existing recreational vehicle parks or campgrounds are prohibited in any floodplain district. Placement of recreational vehicles in existing recreational vehicle parks or campgrounds in the floodplain must meet the exemption criteria below or be treated as new structures meeting the requirements of § 1103.10(4)(b) in this section.

(4) Recreational vehicles.

(a) Recreational vehicles are exempt from the provisions of this chapter if they are placed in any of the following areas and meet the criteria listed in division (4)(b):

1. Individual lots or parcels of record;

2. Existing commercial recreational vehicle parks or campgrounds; and

3. Existing condominium-type associations.

(b) Criteria for exempt recreational vehicles.

1. The vehicle must have a current license required for highway use;

2. The vehicle must be highway ready, meaning on wheels or the internal jacking system, attached to the site only by quick disconnect type utilities commonly used in campgrounds and recreational vehicle parks;

3. No permanent structural type additions may be attached to the vehicle;

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

5. Accessory structures are not permitted within the Floodway District. Any accessory structure in the Flood Fringe District must be constructed of flood-resistant materials and be securely anchored, meeting the requirements applicable to manufactured homes in division (4)(b); and

6. An accessory structure must constitute a minimal investment.

(c) Recreational vehicles that are exempt in division (4)(b) lose this exemption when development occurs on the site that exceeds a minimal investment for an accessory structure such as a garage or storage building. The recreational vehicle and all accessory structures will then be treated as new structures subject to the elevation and floodproofing requirements of § 1103.06 of this chapter. No development or improvement on the parcel or attachment to the recreational vehicle is allowed that would hinder the removal of the vehicle should flooding occur.

(Ord. 10-15, passed 11-23-2015)

§ 1103.11 ADMINISTRA TION.

(1) Zoning Administrator. The Zoning Administrator shall administer this chapter.

(2) Permit requirements.

(a) Permit required. A permit must be obtained from the Zoning Administrator prior to conducting the following activities, in the floodplain:

1. The erection, addition, modification, rehabilitation, or alteration of any building, structure or portion thereof. Normal maintenance and repair also requires a permit if such work, separately or in conjunction with other planned work, constitutes a substantial improvement as defined in this chapter;

2. The use or change of use of a building, structure or land;

3. The construction of a dam, fence, or on-site septic system, although a permit is not required for a farm fence as defined by this chapter;

4. The change or extension of a nonconforming use;

5. The repair of a structure that has been damaged by flood, fire, tornado, or any other source;

6. The placement of fill, excavation of materials or the storage of materials or equipment within the floodplain;

7. Relocation or alteration of a watercourse, including new or replacement culverts and bridges, unless a public waters work permit has been applied for; and/or

8. Any other type of development as defined in this chapter.

(b) Application for permit. Permit applications must be submitted to the Zoning Administrator on forms provided by the Zoning Administrator. The permit application must include the following as applicable:

1. A site plan showing all pertinent dimensions, elevations, existing or proposed buildings, structures, and significant natural features having an influence on the permit.

2. Location of fill or storage of materials in relation to the stream channel.

3. Copies of any required municipal, county, state or federal permits or approvals.

4. Other relevant information requested by the Zoning Administrator as necessary to properly evaluate the permit application.

(c) Certificate of zoning compliance for new, altered, or nonconforming use. No building, land or structure may be occupied or used in any manner until a certificate of zoning compliance has been issued by the Zoning Administrator stating that the use of the building or land conforms to the requirements of this chapter.

(d) Certification. The applicant is 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 chapter. Floodproofing measures must be certified by a registered professional engineer or registered architect.

(e) Record of first floor elevation. The Zoning Administrator shall maintain a record of the elevation of the lowest floor (including basement) of all new structures and alterations or additions to existing structures in the floodplain. The Zoning Administrator must also maintain a record of the elevations to which structures and alterations or additions to structures are floodproofed.

(f) Notification for watercourse alterations. Before authorizing any alteration or relocation of a river or stream, the Zoning Administrator must notify adjacent communities. If the applicant has applied for a permit to work in public waters pursuant to the M.S. § 103G.245, this will suffice as adequate notice. A copy of the notification must also be submitted to the Chicago Regional Office of the Federal Emergency Management Agency (FEMA).

(g) Notification to FEMA when physical changes increase or decrease base flood elevations. As soon as practicable, but not later than six months after the date such supporting information becomes available, the Zoning Administrator must notify the Chicago Regional Office of FEMA of the changes by submitting a copy of the relevant technical or scientific data.

(3) Variances. An application for a variance to the provisions of this chapter will be processed in accordance with Ch. 1007: Zoning Code and reviewed in accordance with the following:

(a) Adherence to state floodplain management standards. A variance must not allow a use that is not allowed in that district, permit a lower degree of flood protection than the regulatory flood protection elevation for the particular area, or permit standards lower than those required by state law.

(b) Additional variance criteria. The following additional variance criteria of the Federal Emergency Management Agency must be satisfied:

1. Variances must 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 may only be issued by a community upon:

a. Showing of good and sufficient cause;

b. Determination that failure to grant the variance would result in exceptional hardship to the applicant; and

c. 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 ordinances.

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

(c) Flood insurance notice. The Zoning Administrator must 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 up to amounts as high as $25 for $100 of insurance coverage; and

2. Such construction below the base or regional flood level increases risks to life and property. Such notification must be maintained with a record of all variance actions.

(d) Factors used in decision making. In passing variance applications, the City Council must consider all relevant factors specified in other sections of this chapter and those factors identified in division (5) of this section.

(e) Submittal of hearing notices to the Department of Natural Resources (DNR). The Zoning Administrator must submit hearing notices for proposed variances to the DNR sufficiently in advance to provide at least ten days' notice of the hearing. The notice may be sent by electronic mail or U.S. Mail to the respective DNR area hydrologist.

(f) Submittal of final decisions to the DNR.A copy of all decisions granting variances must be forwarded to the DNR within ten days of such action. The notice may be sent by electronic mail or U.S. Mail to the respective DNR area hydrologist.

(g) Record-keeping. The Zoning Administrator must maintain a record of all variance actions, including justification for their issuance, and must report such variances in an annual or biennial report to the Administrator of the National Flood Insurance Program, when requested by the Federal Emergency Management Agency.

(4) Conditional uses.

(a) Application. An application for a conditional use permit under the provisions of this chapter will be processed and reviewed in accordance with Chapter 1007: Zoning Code, in addition to the following supplemental information:

1. Determination of flood hazards. Upon receipt of an application for a conditional use permit for a use within the Flood Plain Overlay District where the regulatory flood protection elevation is unknown, the applicant shall be required to furnish the following information as is deemed necessary by the Zoning Administrator for the determination of the regulatory flood protection elevation:

a. A typical cross section 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;

b. Plan (surface view) showing elevations or contours of the ground; pertinent structures, fill or storage elevations; size, location and spatial arrangement of all proposed and existing structures on the site; location and elevation of streets; photographs showing existing land uses and vegetation upstream and downstream; and soil type; and

c. 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.

2. One copy of the above information shall be transmitted to a designated engineer or other expert person or agency for technical assistance in determining whether the proposed use adversely affects the capacity of the flood plain and to determine the regulatory flood protection elevation. Procedures consistent with Minnesota Regulations NR 86-87 shall be followed in this expert evaluation. 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; and

c. Compute the area necessary to convey the regional flood without increasing flood stages more than one-half foot. An equal degree of encroachment on both sides of the stream within the reach shall be assumed in computing the area of the regional flood.

3. Based upon the technical evaluation of the designated engineer or expert, the City Council shall determine whether the proposed use adversely affects the capacity of the flood plain or the regional flood protection elevation at the site.

(b) Factors used in decision making. In passing upon conditional use applications, the City Council must consider all relevant factors specified in other sections of this chapter and those factors identified in division (5) of this section.

(c) Conditions attached to conditional use permits. The City Council may attach such conditions to the granting of the conditional use permits as it deems necessary to fulfill the purpose of this chapter. These conditions may include, but are not limited to, the following:

1. Modification of waste treatment and water supply facilities;

2. Limitations on period of use, occupancy and operation;

3. Imposition of operations, controls, sureties and deed restrictions;

4. Requirements of construction of channel modifications, compensatory storage, dikes, levees and other protective measures; and

5. Flood-proofing measures, in accordance with the State Building Code and this chapter. The applicant must submit a plan or document certified by a registered professional engineer or architect that the flood-proofing measures are consistent with the regulatory flood protection elevation, the local water management plan and associated flood factors for the particular area.

(d) Submittal of hearing notices to the Department of Natural Resources (DNR). The Zoning Administrator must submit hearing notices for proposed conditional uses to the DNR sufficiently in advance to provide at least ten days' notice of the hearing. The notice may be sent by electronic mail or U.S. Mail to the respective DNR area hydrologist.

(e) Submittal of final decisions to the DNR.A copy of all decisions granting conditional uses must be forwarded to the DNR within ten days of such action. The notice may be sent by electronic mail or U.S. Mail to the respective DNR area hydrologist.

(5) General considerations. The community shall consider the following factors in granting variances and imposing conditions on variances and conditional uses in floodplains:

(a) The potential danger to life and property due to increased flood heights or velocities caused by encroachments;

(b) The danger that materials may be swept onto other lands or downstream to the injury of others;

(c) The proposed water supply and sanitation systems, if any, and the ability of these systems to minimize the potential for disease, contamination and unsanitary conditions;

(d) The susceptibility of any proposed use and its contents to flood damage and the effect of such damage on the individual owner;

(e) The importance of the services to be provided by the proposed use to the community;

(f) The requirements of the facility for a waterfront location;

(g) The availability of viable alternative locations for the proposed use that are not subject to flooding;

(h) The compatibility of the proposed use with existing development and development anticipated in the foreseeable future;

(i) The relationship of the proposed use to the comprehensive land use plan and flood plain management program for the area;

(j) The safety of access to the property in times of flood for ordinary and emergency vehicles;

(k) The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters expected at the site.

(Ord. 10-15, passed 11-23-2015)

§ 1103.12 NONCONFORMITIES.

Continuance of nonconformities. A use, structure, or occupancy of land which was lawful before the passage or amendment of this chapter but which is not in conformity with the provisions of this section may be continued subject to the following conditions. Historic structures, as identified in § 1103.03 of this chapter, are subject to the provisions of division (1) through (7) below.

(1) A nonconforming use, structure, or occupancy must not be expanded, changed, enlarged or altered in a way that increases its flood damage potential or degree of obstruction to flood flows except as provided in division (2) below. Expansion or enlargement of uses, structures or occupancies within the Floodway District is prohibited.

(2) Any addition or structural alteration to a nonconforming structure or nonconforming use that would result in increasing its flood damage potential must be protected to the regulatory flood protection elevation in accordance with any of the elevation on fill or floodproofing techniques (i.e., FP-1 through FP-4 floodproofing classifications) allowable in the State Building Code, except as further restricted in (3) and (7) below.

(3) If the cost of all previous and proposed alterations and additions exceeds 50% of the market value of the nonconforming structure, then the entire structure must meet the standards of § 1103.05 or § 1103.06 of this chapter for new structures depending upon whether the structure is in the Floodway or Flood Fringe District, respectively. The cost of all structural alterations and additions must include all costs such as construction materials and a reasonable cost placed on all manpower or labor.

(4) If any nonconforming use, or any use of a nonconforming structure, is discontinued for more than one year, any future use of the premises must conform to this chapter.

(5) If any nonconformity is substantially damaged, as defined in § 1103.03 of this chapter, it may not be reconstructed except in conformity with the provisions of this chapter. The applicable provisions for establishing new uses or new structures in § 1103.05 or § 1103.06 will apply depending upon whether the use or structure is in the Floodway or Flood Fringe, respectively.

(6) If any nonconforming use or structure experiences a repetitive loss, as defined in § 1103.03 of this chapter, it must not be reconstructed except in conformity with the provisions of this chapter.

(7) Any substantial improvement, as defined in § 1103.03 of this chapter, to a nonconforming structure requires that the existing structure and any additions must meet the requirements of § 1103.05 or § 1103.06 of this chapter for new structures, depending upon whether the structure is in the Floodway or Flood Fringe District.

(Ord. 10-15, passed 11-23-2015)

§ 1103.13 AMENDMENTS.

(1) Floodplain designation; r estrictions on removal. The floodplain designation on the official floodplain map must not be removed from floodplain areas unless it can be shown that the designation is in error or that the area has been filled to or above the elevation of the regulatory flood protection elevation and is contiguous to lands outside the floodplain. Special exceptions to this rule may be permitted by the

Commissioner of the Department of Natural Resources (DNR) if the Commissioner determines that, through other measures, lands are adequately protected for the intended use.

(2) Amendments require DNR approval. All amendments to this chapter must be submitted to and approved by the Commissioner of the Department of Natural Resources prior to adoption. The Commissioner must approve the amendment prior to community approval.

(3) Map revisions require ordinance amendments. The floodplain district regulations must be amended to incorporate any revisions by the Federal Emergency Management Agency to the floodplain maps adopted in § 1103.02(3) of this chapter.

(Ord. 10-15, passed 11-23-2015)

§ 1103.99 PENALTIES AND ENFORCEMENT.

(1) Violation constitutes a misdemeanor. Violation of the provisions of this chapter or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with grants of variances or conditional uses) constitute a misdemeanor and will be punishable as defined by law.

(2) Nothing in this chapter restricts the city from such taking other lawful action as is necessary to prevent or remedy any violation. If the responsible party does not appropriately respond to the Zoning Administrator within the specified period of time, each additional day that lapses shall constitute an additional violation of this chapter and shall be prosecuted accordingly.

(3) Enforcement. In responding to a suspected ordinance violation, the Zoning Administrator and city 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 city must act in good faith to enforce these official controls and to correct ordinance violations to the extent possible so as not to jeopardize its eligibility in the National Flood Insurance Program.

(a) When a violation is either discovered by or brought to the attention of the Zoning Administrator, the Zoning Administrator 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 State Department of Natural Resources and Federal Emergency Management Agency regional office along with the city's plan of action to correct the violation to the degree possible.

(b) The Zoning Administrator shall notify the suspected party of the requirements of this chapter 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 Zoning Administrator 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 Zoning Administrator 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 and after-the-fact permit/development approval within a specified period of time not to exceed 30 days.

(Ord. 10-15, passed 11-23-2015)

Appendix D – Issues, Goals, Policies and Implementation

City-Wide Issues, Goals, and Policies

RMU-Specific Issues, Goals and Policies

ISSUE CATEGORY	ISSUE NO.	ISSUE	GOAL NO.	GOAL	POLICY NO.	POLICIES	Water Rate and Quantity	Water Quality	Wetland Management	Floodpain Management	Public Ditch System	Groundwater Management	Natural Resources	Erosion and Sediment Control	Regulations, Permitting and Reporting	Monitoring, Maintenance, and Inspection	Public Outreach and Education	Financing
Water Rate & Quantity	1	Increased surface water runoff rates and volumes	1	Reduce present and future runoff rates and volumes	1	Continue to enforce standards for stormwater runoff quantity from new and redevelopment projects consistent with RCWD, VLAWMO, and NPDES requirements.	X		x	x			x	x	x	x		
					2	Implement volume control practices to address areas of identified rate and volume concern	X			x								
					3	Support implementation of RCWD Comprehensive Stormwater Management Plans to provide an alternative means of meeting RCWD water quantity and rate rules.	X	x	x	x	x		x		x			
					4	Recognize the potential uncertainty associated with managing water resources and understand the implications of emerging issues, such as climate change, and use Adaptive Management when appro	X	x								x		
					5	Promote Better Site Design development techniques in developing and redeveloping areas to minimize runoff volumes and maintain water quality	X	x		x				x	x			
					6	Promote the use of regional BMPs where appropriate to reduce the rate and volume of runoff	X								x			
Water Quality	2	Stormwater runoff carrying sediment, nutrients, road salts, and hydrocarbons	1	Protect and improve water quality of City lakes, welands, creeks and other aquatic assets	1	Develop specific management plans for each Resource Management Unit	x	X	x	x			x	x				
					2	Preserve and improve the recreational resources associated with water by improving water quality		X					x					
					3	Continue to enforce standards for stormwater runoff quality from new and redevelopment projects consistent with RCWD, VLAWMO, and NPDES requirements.	x	X	x	x			x	x	x	x		
					4	Incorporate TMDL limits, when determined, into the City's Local Water Management Plan to reduce degradation and improve the quality of the City's water resources		X					x		x	x		
					5	Manage City-owned facilities subject to MS4 program requirements, consistent with permit conditions		X					x		x	x		
					6	Implement and enforce a program to detect and eliminate illicit discharges in accordance with the City's MS4 requirements		X					x		x	x		
					7	Manage septic systems in conformance with state standards to protect the quality of water and natural resources		X					x		x	x	x	
					8	Educate residents on the importance of cleaning up after pets to reduce pollutants entering the stormwater system.		X					x		x		x	
			2	Initiate and continue collaborations to address, restore, and preserve the water quality of the City's lakes, wetlands, creeks, and other aquatic assets	1	Partner and work with RCWD, VLAWMO, Anoka County Soil and Water Conservation District, and adjacent local governments to protect high quality resources		X	x				x		x	x	x	
					2	Collaborate with adjacent jurisdictions and agencies to meet TMDL goals and remove impaired water bodies from the impaired waters list		X					x		x	x	x	
					3	Facilitate data sharing among public entities that have jurisdiction or facilities within the City		X							x	x	x	
Wetland Management	3	Loss of wetland acres, function and value	1	Maintain and enhance, where possible, the functions and services of existing wetlands and associated habitats within the City	1	Continue to support the administration of the WCA requirements within the City by the RCWD and VLAWMO			X				x		x	x		
					2	Avoid impacts to upland natural communities that are critical to wetland wildlife habitat function and incorporate these into the City's Greenway System Plan			X				x		x			
					3	Integrate parcel- or project-based wetland replacement with watershed-based restoration and enhancement locations			X				x		x			
					4	Manage wetland resources using the flexibility afforded by the state and federal rules, through the implemenation of RMU Plans and the Special Area Management Plan			X				x		x	x		
					5	Continue to enforce standards for wetland management for new and redevelopment projects consistent with RCWD, VLAWMO, and NPDES requirements.			X				x		x	x		
					6	Promote Better Site Design development techniques in developing and redeveloping areas to avoid or minimize wetland impacts	x	x	X	x			x	x	x			
					7	Consider providing incentives to private landowners who avoid or minimize wetland impacts or restore wetlands.			X				x				x	x
					8	Require wetland functional assessments, based on accepted methodology, on new development projects to ensure wetland function and services are preserved to the extent possible.			X				x		x	x		
					9	Consider creation of wetland banks to provide local replacement options.			X				x		x	x		
Floodplain Management	4	Existing flooding and floodprone areas	1	Provide adequate storage and conveyance of runoff to protect the public safety and minimize property damage	1	Preserve and manage the 100-year floodplain storage along and within waterbodies to minimize the frequency and severity of flooding caused by high water	x			X		x			x			
					2	Promote Better Site Design development techniques in developing and redeveloping areas to reduce existing and future flood damage				X					x			
					3	Require that adequate drainage facilities and easements are provided with land development activities	x			X					x			
					4	Continue to enforce the City's floodplain regulations to ensure that new structures are adequate elevated above identified flood elevations				X					x	x		
					5	Update the City floodplain ordinance, as required by FEMA and the MnDNR, to ensure adequate protection for structures and eligibility for flood insurance programs				X					x		x	
					6	Support efforts to restore and re-establish floodplain basins to improve their natural function	x		x	X			x					
					7	Consider joining the Community Rating System as a way to improve floodplain management and reduce resident's flood insurance premiums within the City				X					x	x	x	x
					8	Address capacity limitations of ACD 55 to alleviate existing floodprone areas	x		x	X								
					9	Address capacity limitations of ACD 72 to alleviate existing floodprone areas	x		x	X								
Public Ditch System	5	Agricultural drainage systems not capable of handling urban stormwater runoff	1	Ensure the management and operation of the drainage systems, considering present and future conveyance needs, and legally-established rights	1	Work with RCWD to facilitate effective management of the public ditch system, as needed, to support the recognized functions of these systems					X				x			
					2	Address capacity limitations of ACD 55 to meet current, and future, land use stormwater runoff	x	x	x	x	X							
					3	Address capacity limitations of ACD 72 to meet current, and future, land use stormwater runoff	x	x	x	x	X							
Groundwater Management	6	Prairie du Chien-Jordan aquifer supply declining	1	Incorporate groundwater considerations into the decision making process	1	Preserve groundwater recharge areas in cooperation with Anoka County	x					X	x					
					2	Promote infiltration of stormwater to recharge groundwater, where feasible and does not pose a threat to groundwater quality	x	x				X			x			
					3	Continue to implement City's Wellhead Protection Plan						X			x	x		
					4	Participate in the Anoka County Wellhead Protection Group by implementing joint projects that benefit the City						X			x	x		
Natural Resources	7	Land use changes and misuse of the natural areas may have deleterious effects on the City's unique and rare natural resources	1	Identify, protect and preserve the desirable natural areas and ecological and aquatic resources of the City	1	Pursue a well-defined natural resource restoration and management plan, consistent with the RCWD and Lino Lakes Resource Management Plan (RMP)							X		x	x		
					2	Maintain the partnership with RCWD, VLAWMO, Anoka County and others, to maintain, restore, and manage the aquatic, aquatic-dependent, and upland areas of the City			x				X		x			
					3	Require natural space buffers, where appropriate, around wetlands to preserve their function and value.			x				X		x			
					4	Apply the Resource Management Unit Plan recommendations to meet goals for aquatic resource protection and management							X		x			
					5	Protect the existing Blue Heron rookery on Peltier Lake							X					
			2	Ensure new and redevelopment projects accommodate the City's projected growth needs and occurs in a manner that also conserves and enhances the City's natural resources and amenities	1	Encourage developers to use Open Space Design/Conservation Development Model to implement the Resource Management System Plan							X					
					2	Define incentives to achieve Better Site Design to the extent feasible on all development							X		x			
					3	Continue to use the Alternative Urban Areawide Review (AUAR) process to assess the impact of development on the City's natural resources and infrastructure	x	x	x	x			X					
			3	Capitalize on opportunities to enhance water quality, reduce runoff volume and flood damage, and enhance ecological resources by using open space and greenways	1	Encourage the use of open space in the design of City projects when multiple benefits are realized							X		x			
					2	Capitalize on the efforts of other responsible for managing open space to enhance their ongoing recreational programs			x				X		x			
					3	Seek opportunities to enhance habitat function and integrity, to benefit water resources and ecosystems	x	x	x				X					
Erosion and Sediment Control	8	Construction site runoff over disturbed soils and streambank erosion due to altered hydrology	1	Prevent erosion and minimize the conveyance of sediment into surface water systems through the enforcement of the City's Stormwater Pollution Prevention Plan (SWPPP)	1	Require erosion control plans for all land-distrubing activities in accordance with the City's stormwater management ordinance		x						X	x	x		
					2	Continue to enforce the Illicit Discharge and Detection Elimination (IDDE) ordinance		x						X	x	x		
					3	Use best management practices (BMPs) at all construction sites per the MPCA General Construction Permit and Minnesota Stormwater Manual, as amended		x						X	x	x		
					4	Coordinate construction site inspections and enforcement with watershed inspection staff. Enforcement actions will be taken where warranted to support the protection of water resources.		x						X	x	x		
					5	Implement and perform good housekeeping measures to minimize sediment entering the drainage system.		x						X	x	x	x	

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Regulations, Permitting, and Reporting	9	Multiple regulatory agencies and requirements in City	1	Implement the Resource Management System Plan through Resource Management Unit Plans	1	Develop and implement RMU plans for each RMP	x	x	x	x	x	x	x		X			
					2	Cooperate, collaborate, and partner with other entities, such as RCWD, VLAWMO, and other regulating agencies, to implement this plan.									X		x	
			2	Address regulatory requirements of local, state, and federal programs through updated ordinances, permitting, and ongoing reporting	1	Evaluate City's existing ordinances and programs to facilitate implementation of the Resource Management System Plan	x	x	x	x	x	x	x		X			
					2	Coordinate with RCWD and the U.S. Army Corps of Engineers to manage local wetland resources			x				x		X			
					3	Work with RCWD to implement the recommendations of the 2008 Lino Lakes Resource Management Plan	x	x	x	x	x	x	x		X			
					4	Implement programs, structural solutions, and complete reporting as needed to meet MPCA's MS4 requirements		x							X		x	
					5	Support the implementation of the SAMP by the U.S. Army Corps of Engineers			x				x		X			
Monitoring, Maintenance, and Inspection	10	Existing infrastructure needs regular monitoring and maintenance to remain effective	1	Maintain the function and effectiveness of stormwater management structures through inspection, monitoring and maintenance	1	Implement the City's plan for regular inspection and maintenance of public water resource infrastructure, consistent with the requirements of the NDPES MS4 permit		x					x	x	x	X		
					2	Require operations and maintenance agreements for the inspection and maintenance of privately-constructed water resource infrastructure		x					x	x	x	X		
					3	Implement and refine a training program to prevent or reduce pollutant runoff resulting from City operations		x					x	x	x	X	x	
					4	Prepare an annual report in accordance with the NPDES MS4 permit and share results with the public, City Council and Boards		x					x	x	x	X	x	
					5	Conduct monitoring to evaluate the effectiveness of the City's stormwater management actions on the quality of water resources.		x					x	x	x	X		
Public Participation, Information, and Education	11	City residents, businesses, and property owners need a clear understanding of basic stormwater management, water quality and natural resource protection concepts, policies and regulations	1	Inform and educate the public concerning urban stormwater management and the problems pollutants cause if allowed to enter the City's water resoruces	1	Identify and alert residents of potential ecological challenges and threat that can affect the City residents, businesses, and properties.			x				x	x			X	
					2	Plan and initiate cooperative efforts with the state and local government entities in programs that provide information to the public on how to effectively address and manage ecological and water quality thre		x	x				x	x			X	
					3	Proactively educate the community and its residents of all ages about the specific actions they can or may be asked to take in addressing ecological and water quality threats.			x	x			x	x			X	
			2	Offer programs, educational opportunities and information that facilitate an understanding of water resource issues in the City	1	Continue to encourage and support programs that measure the effectiveness of Best Management Practices			x				x	x			X	
					2	Actively develop and implement a community education program relating to preserving and improving water quality consistent with the City's MS4 permit requirements			x				x	x	x		X	
					3	Coordinate with regional educational efforts to educate the community residents consisten with the City's MS4 permit requirements			x				x	x	x		X	
					4	Share infrastructure information developed through the MS4 program for City-owned facilities to educate the public about water resources management; the City's programs, policies, and projects; and to enc		x					x	x	x	x	X	
					5	Utilize and engage citizens to promote sustainable stewardship of lakes							x				X	
					6	Continue to support and participate in the RCWD Stream Health Evaluation Program (SHEP)			x	x	x		x	x	x	x	X	
Financing	12	Adequate funding and staffing resources	1	Ensure that the costs of the surface water system are equitably distributed and sufficiently funded to cover the liabilities	1	Update and apply area-based charges so that the surface water-related costs of development can be fairly borne by development												X
					2	Consider funding options that will equitably distribute the costs of managing and implementing the City's Local Water Management Plan, such as stormwater utility- or district-based fees	x											X
			2	Leverage partnerships to cost-effectively manage the City's surface water and natural resource systems to attain the goals of this plan	1	Pursue grants, donations, and in-kind contributions to help fund stormwater projects	x	x	x	x		x	x					X
					2	Coordinate local stormwater management issues with the member watersheds, county, and neighboring communities in order to leverage the watershed's work and reduce City expenditures	x	x	x	x		x	x					X

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A-1	Riparian animal movement restricted	Amelia							X					
A-2	Potential for excess nitrogen from agriculture activities in watershed	Amelia		X	X				X				X	
A-3	Stormwater sensitive wetlands at risk	Amelia	X	X	X	X			X	X	X			
BE-1	Total phosphorus levels exceed state standards	Bald Eagle		X	X				X		X	X	X	
BE-2	Impaired water for mercury in fish tissue	Bald Eagle		X					X		X	X	X	
B-1	Impaired water for excess nutrients	Baldwin		X					X		X	X	X	
B-2	Stormwater sensitive wetlands at risk from stormwater runoff and future land development	Baldwin	X	X	X	X			X	X	X			
B-3	Fully developed urban drainage area limits opportunities for stormwater management	Baldwin	X	X		X								
B-4	Unregulated stormwater volume	Baldwin	X			X					X			
CD-1	Water levels controlled by ditched outlets	Cedar	X		X	X	X				X		X	
CD-2	Stormwater sensitive wetlands at risk	Cedar	X	X	X	X			X	X	X			
CD-3	Excess total phosphorus	Cedar		X					X		X	X	X	
CE-1	Total phosphorus levels exceed state standards	Centerville		X					X		X	X	X	
CL-1	Impaired water	Clearwater Creek		X					X		X	X	X	
CL-2	ACD 55 tile system ineffective for traditional urban runoff volumes	Clearwater Creek	X			X	X				X			
CL-3	Existing floodprone areas	Clearwater Creek	X			X	X				X			
CL-4	Floodplain missing and unmitigate volume	Clearwater Creek	X			X	X		X	X	X			
CL-5	City of Hugo stormwater runoff	Clearwater Creek	X								X			
GW-1	Threat to tamarack plant community from existing stormwater runoff	George Watch	X		X				X	X		X		
GW-2	High phosphorus loads from Peltier Lake affect George Watch	George Watch		X					X		X	X	X	
GW-3	Altered hydrology	George Watch	X		X				X					
HW-1	Existing floodprone areas	Hardwood Creek	X		X	X	X		X		X			
HW-2	ACD 72 capacity limitations	Hardwood Creek	X			X	X				X			
HW-3	Downstream confined tile requires strict adherence to volume control in future development	Hardwood Creek	X				X				X			
HW-4	Riparian animal movement restricted	Hardwood Creek							X					
HW-5	Impaired water	Hardwood Creek		X					X		X	X	X	
M-1	ACD 10-22-32 ineffective for future urban runoff volumes	Marshan	X			X	X				X			
M-2	Fragmented habitat	Marshan			X				X			X		
M-3	High phosphorus loads from Peltier Lake affect Marshan	Marshan		X					X		X	X		
M-4	Unregulated stormwater volumes	Marshan	X		X	X				X	X			

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O-1	Rare and high qualilty vegetation, including cranberry bog, sensitive to changes in water chemistry	Otter		X					X			X		
O-2	Impaired water	Otter		X					X		X	X	X	
P-1	Impaired water for excess nutrients	Peltier		X					X		X	X	X	
P-2	Impaired water for mercury in fish tissue	Peltier		X					X		X	X	X	
P-3	Unregulated volume	Peltier	X		X	X				X	X			
P-4	ACD 55 tile system ineffective for traditional urban runoff volumes	Peltier	X			X	X				X			
P-5	ACD 72 tile system ineffective for traditional urban runoff volumes	Peltier	X			X	X				X			
P-6	Internal phosphorus loading in lake	Peltier		X					X		X	X	X	
P-7	Blue Heron rookery	Peltier			X				X			X	X	
P-8	Riparian animal movement restricted	Peltier							X					
P-9	Incised channel on Clearwater Creek	Peltier	X			X				X				
P-10	Highly sensitive wetlands	Peltier	X	X	X				X		X	X		
P-11	Existing floodprone areas associated with ACD 55 and 72, and Clearwater Creek	Peltier				X	X		X		X			
RE-1	Impaired water for excess nutrients	Reshanau		X					X		X	X	X	
RE-2	High quality forest in WMC	Reshanau			X				X					
RE-3	Unregulated volume	Reshanau	X		X	X				X	X			
RE-4	ACD 25 has altered wetland hydrology	Reshanau	X	X	X	X	X							
RE-5	Partially drained wetlands	Reshanau	X	X	X	X	X		X					
RE-6	Stormwater sensitive wetlands at risk from stormwater runoff from existing conditions	Reshanau	X	X	X				X		X	X		
RI-1	Watershed is nearlly fully developed urban land use	Rice	X	X		X								
RI-2	Intercommunity flows from municipal storm sewer mains	Rice	X								X	X	X	
RI-3	Stormwater ponds may be subject to flooding under future conditions	Rice	X			X								
RI-4	Stormwater sensitive wetlands at risk from stormwater runoff from existing conditions	Rice	X	X	X				X					
RI-5	Impaired water for excess nutrients	Rice		X					X		X	X	X	
RI-6	Unregulated volume	Rice	X		X	X				X	X			
RO-1	Plant communities highly susceptible to urban stormwater	Rondeau	X	X	X				X					
RO-2	High quality wetlands at risk from stormwater runoff and future land development	Rondeau	X	X	X				X					
RO-3	Unregulated volume	Rondeau	X		X	X				X	X			

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S-1	Stormwater sensitive wetlands at risk from stormwater runoff from existing conditions	Sherman	X	X	X				X					
S-2	Unregulated volume	Sherman	X		X	X				X	X			
UR-1	Downstream confined tile requires strict adherence to volume control in future development	Upper Rice Creek	X		X	X	X				X			
WA-1	Water levels controlled by ditched outlets	Wards	X		X	X	X				X			
WA-2	Stormwater sensitive wetlands at risk	Wards	X	X	X				X					
WA-3	Excess total phosphorus	Wards		X					X		X	X	X	
WI-1	Total phosphorus levels exceed state standards	Wilkinson		X					X		X	X	X	
WI-2	Unregulated volumes	Wilkinson	X		X	X				X	X			
WI-3	Stormwater sensitive wetlands at risk	Wilkinson	X	X	X				X					
WI-4	Protect wildlife habitat and migratory refuge	Wilkinson			X				X					
C-1	Increased surface water runoff rates and volumes contribute to erosion problems, water quality and flooding concerns	City	X	X	X	X	X	X	X	X	X	X	X	
C-2	Approximate floodplain boundaries result in unnecessary flood insurance policies and expensive amendment process for residents and landowners.	City	X			X					X	X	X	X
C-3	Contaminants of emerging concern such as chlorides threaten water quality and natural resources	City		X	X			X	X					
C-4	Concern that maximum impervious percentages are out of line with other communities	City	X	X		X	X		X		X			