Local Surface Water Management Plan

City of Robbinsdale

2018

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Executive Summary

This Local Surface Water Management Plan (LSWMP) has been developed to serve as a comprehensive planning document to guide the City of Robbinsdale in conserving, protecting, and managing it surface water resources and comply with the Metropolitan Surface Water Management Act, Minnesota Rules 8410, and the requirements of the local watershed management organizations. This document provides an inventory of water resource related information including the results of assessments conducted by other government units, both local and state. From this inventory and assessment, Robbinsdale sets forth its goals and policies and implementation program.

The plan is organized as follows:

Section 1 offers an introduction to and purpose of the LSWMP.

Section 2 provides an inventory of land and water resources within the City of Robbinsdale, including a description of the physical setting and land use, available and pertinent water resources data, and watershed boundaries. Various location maps are referenced.

Section 3 identifies the storm water management agreements between Robbinsdale and other entities.

Section 4 includes a comprehensive documentation of the regulatory agencies influencing the management of surface water resources in Robbinsdale.

Section 5 highlights various studies, plans, and reports affecting surface water management in Robbinsdale.

Section 6 provides a current assessment of surface water management in Robbinsdale, including a review of official controls, a summary of the NPDES permitting process, comparison of regulatory standards, and identification of issues and possible corrective actions.

Section 7 lists the goals and policies identified to address surface water management needs in the City.

Section 8 summarizes the City's implementation responsibilities and presents a list of system improvement activities with known funding sources to implement these activities.

Section 9 outlines the continued administration of this plan with respect to plan updates and amendments.

Section 1 – Purpose and Scope

1.1 Purpose

The Robbinsdale Local Surface Water Management Plan (LSWMP) serves as a comprehensive planning document to guide the City of Robbinsdale in conserving, protecting, and managing its surface water resources. This plan has been created to meet the requirements detailed in Minnesota Statutes 103B and Minnesota Rules 8410, administered by the Minnesota Board of Water and Soil Resources (BWSR). This plan is also consistent with the goals and policies of the Metropolitan Council's Water Resources Management Policy Plan, and the Watershed Management Organizations (WMOs) having jurisdiction within the city. Robbinsdale will periodically update this plan to remain current with evolving regulation and to remain current with projected and completed implementation items.

1.2 Scope

This plan serves multiple purposes including statutory and rule compliance. First, Minnesota Statute 103B.235 defines content for LSWMPs. According to statute's text:

"Subd. 2. Contents. (a) Each local plan, in the degree of detail required in the watershed plan, shall:

(1) Describe existing and proposed physical environment and land use;

(2) Define drainage areas and the volumes, rates, and paths of storm water runoff;

(3) Identify areas and elevations for storm water storage adequate to meet performance standards established in the watershed plan;

(4) Define water quality and water quality protection methods adequate to meet performance standards established in the watershed plan;

(5) Identify regulated areas; and

(6) Set forth an implementation program, including a description of official controls and, as appropriate, a capital improvement program."

Minnesota Rules 8410, written for BWSR, provides more detail on local plan content. Though BWSR guidance applied specifically to WMOs, this guidance has historically been used to frame expectations for municipal plans. According to Minnesota Rules 8410.0160 Subp. 3., local plans must contain the following:

A. An executive summary that summarizes the highlights of the local water plan;

B. Appropriate water resource management-related agreements that have been entered into by the local community must be summarized, including joint powers agreements related to water management that the local government unit may be party to between itself and watershed management organizations, adjoining communities, or private parties;

C. The existing and proposed physical environment and land use must be described. Drainage areas and the volumes, rates, and paths of storm water runoff must be defined. Data may be incorporated by reference as allowed under parts 8410.0060 and 8410.0105, subpart 9, or the local comprehensive plan;

D. As assessment of existing or potential water resource-related problems must be summarized. The problem assessment must be completed for only those areas within the corporate limits of the local government unit and similar to the process under part 8410.0045, subpart 7; and

E. A local implementation program through the year the local water plan extends must describe nonstructural, programmatic, and structural solutions to programs identified in item D. The program must not jeopardize achievement of the goals of an organization's plan…the program shall:

    (1) Include areas and elevations for storm water storage adequate to meet performance standards or official controls established in the organization plan;
    (2) Define water quality protection methods adequate to meet performance standards or official controls in the organization plan and identify regulated areas;
    (3) Clearly define the responsibilities of the local government unit from that of an organization for carrying out the implementation components;
    (4) Describe official controls and any changes to official controls relative to requirements of the organization's plan;
    (5) Include a table that briefly describes each component of the implementation program and clearly details the schedule, estimated cost, and funding sources for each component including annual budget totals; and
    (6) Include a table for a capital improvement program that sets forth, by year, details of each contemplated capital improvement that includes the schedule, estimated cost, and funding source.

Minnesota Rules 8410.0160 Subp. 4 also requires that a section entitled “Amendments to Plan” must establish the process by which amendments to the plan may be made, conforming with the plan amendment procedures in the organization plans that affect the community. Robbinsdale has structured its LSWMP to provide the information required by Minnesota Rules 8410 without holding strictly to the outline above.

The LSWMP must also satisfy Metropolitan Council requirements for local water management plans. Their requirements are consistent with those outlined in Minnesota Rules Chapter 8410 and Minnesota Statute 103B.235. Minimum requirements are to:

- Provide an executive summary that includes the highlights of the local water management plan
- Describe the water resource management related agreements that have been entered into by your community
- Include a section on amendment procedures that defines the process by which amendments may be made
- Describe the existing physical environment and existing land use
- Describe the proposed physical environment and future land use
- Include a map and/or description of drainage areas that includes path and flow directions of the storm water runoff in your community
- Describes the volumes and rates of flow for those defined drainage areas
- Include an assessment of the existing water resource related problems in your community
- Include an assessment of the potential water resource related problems in your community
- Include a list or map of impaired waters within your community as shown on the most current 303d impaired waters list
- Include prioritized nonstructural, programmatic, and structural solutions to identified problems
- Describe the areas and elevations for stormwater storage adequate to meet performance standards or official controls in watershed organization(s) plan

- Define the water quality protection methods that would be adequate to meet performance standards or official controls

- Clearly define the roles and responsibilities of the community from that of the WMO(s) for carrying out implementation components

- Describe the official controls and any changes needed to official controls

- Include a table briefly describing each component of the implementation program that clearly details the schedule, estimated cost, and funding sources for each component, including annual budget totals

- Include a table describing the capital improvement program that sets forth, by year, details of each contemplated capital improvement that includes the schedule, estimated cost, and funding source

Beyond state level requirements and those of Metropolitan Council, all local plans must achieve consistency with the jurisdictional WMOs Watershed Management Plans (WMPs). The jurisdictional WMOs in Robbinsdale are the Shingle Creek Watershed Management Commission (SCWMC) and Bassett Creek Watershed Management Commission (BCWMC). The WMPs for these Commissions outline specific content for local plans that reiterate statutory and rule requirements as well as define unique requirements that address issues of local importance. The SCWMC and BCWMC requirements in their WMPs are as follows:

Shingle Creek and West Mississippi Watershed Management Commissions Third Generation Watershed Management Plan

"4.4.1 Local Plan Content

…At minimum, local water management plans are required to do the following:

- Update the existing and proposed physical environment and land use. Information from previous plans that have not changed may be referenced and summarized but does not have to be repeated. Local plans may adopt relevant sections of this Plan's Section 2.0 Inventory and Condition Assessment by reference unless the member city has more recent information, such as revised land use figures and data.

- Update the existing and proposed hydrology and provide subwatershed, storm drainage system, and installed BMP figures and shapefiles.

- Explain how the goals and policies, rules, and standards established in the WMP will be implemented at the local level.

- Show how the member city will take action to achieve the load reductions and other actions identified in and agreed to in TMDL Implementation Plans, including identifying known upcoming projects including street reconstruction projects that will provide opportunities to include load and volume reduction BMPs.

- Explain how the City will implement the City Review project review requirements of the revised Rules and Standards.

- Update existing or potential water resource related programs and identify nonstructural, programmatic, and structural solutions, including those program elements detailed in Minnesota Rules 8410.0100, Subp. 1 through 6.

Bassett Creek Watershed Management Commission 2015 – 2025 Watershed Management Plan

"5.3.1.1 Requirements for Local Water Management Plans and Official Controls

…The policies and goals established in each city's local water management plan must be consistent with the BCWMC Plan. The section of the local plan covering assessment of problems must include those problems identified in the BCWMC Plan that affect the city. The corrective action proposed must consider the individual and collaborative roles of the BCWMC and its member cities and must be consistent within the BCWMC Plan. A city may use all or part of the BCWMC Plan when updating its local plan.

Local units of government are to maintain stormwater systems (storm sewers, ponding areas, ditches, water level control structures, etc.) under their jurisdiction in good working order to prevent flooding and water quality problems. The BCWMC requires that local plans assess the need for periodic maintenance of public works, facilities and natural conveyance systems, including the condition of public ditches constructed under Minnesota Statutes 103D or 103E, if they are under the cities' jurisdiction.

The BCWMC also requires local water management plans to assess the need to establish a waterbody management classification system to provide for water quality and quantity management. If a different classification system than the BCWMC classification system is used, it must be correlated to the BCWMC system and approved by the BCWMC. Local plans must evaluate the need for other management programs, if necessary.

The local water management plan must identify official controls and programs (e.g., ordinances, management plans) which are used to enforce the policies and requirements of the BCWMC. Member city ordinances, management programs, and other official controls required by the BCWMC Plan must be implemented within 2 years of BCWMC Plan adoption. Revisions to local water management plans or local controls that are potentially inconsistent with the BCWMC Plan must be submitted by the member cities to the BCWMC for review.

The BCWMC reserves the right to recommend to a member city that a project the BCWMC considers to be inconsistent with the local management plan be denied."

Section 2 – Physical Setting

2.1 Location and History

The City of Robbinsdale spans approximately 1,910 acres and is located immediately north and west of Minneapolis, about 15 minutes from downtown Minneapolis. Robbinsdale borders Golden Valley to the south, Crystal to the west, Brooklyn Center to the north, and Minneapolis to the east (see Figure 2.1).

Prior to European settlers arriving, members of Dakota tribes lived throughout modern-day Robbinsdale. Throughout the 1800s many treaties were made with local Dakota bands, but in 1851 the Sisseton, Wahpeton, Mdewakanton, and Wahpekute bands ceded a combined 35 million acres of land to the United States government. Reservations for Dakota bands in Minnesota are currently near Redwood Falls (Lower Sioux), Granite Falls (Upper Sioux), Prior Lake (Shakopee Mdewakanton Sioux), and Welch (Prairie Island).[1] The first European settlers filed claims and started farms in the area in 1852, six years before Minnesota officially became a state.

Robbinsdale officially came into existence on April 19, 1893 as the Village of Robbinsdale, and the City Charter was adopted November 8, 1938. It was named after Andrew B Robbins who purchased ninety acres in the late 1880s with the intention to make it the site of a suburban town. Local legends state that Mr. Robbins was so impressed with the area while passing though on a train, he could not get the memory out of his mind. He saw the advantages of having a residential area with many attractive landscape features close to Minneapolis.

Robbinsdale remained more rural than urban through the end of the nineteenth century. Large areas of the community were platted prior to the turn of the century, but major growth did not occur until after World War I when the first significant suburban migration began. This period of growth resulted in the development of large portions of the community situated west and south of County Road 81. In 1925, the names of the streets were changed to eliminate duplication to bring about a unified naming system between the villages of Crystal, Golden Valley, and Robbinsdale. Following World War II, a second period of suburban boom caused large community growth. Areas around Crystal, Twin, and Ryan Lakes were developed into residential areas.[2] Current and projected population data is listed in Table 2.1.

[1] Minnesota Historical Society, "The U.S. – Dakota War of 1862", usdakotawar.org
[2] Robbinsdale Comprehensive Plan 2030, Chapter 1 Section 1

The Robbinsdale Historical Society, founded in 1978, was organized to collect, preserve, and tell the story of Robbinsdale's past. Robbinsdale is home to several historical locations. The largest is Victory Memorial Drive, a landscaped boulevard commemorating fallen World War I soldiers from Hennepin County that lies on the eastern side of Robbinsdale. As part of the Grand Rounds, a 50-mile tour of parkways and parks encircling Minneapolis, Victory Memorial Drive is a 3.8-mile stretch extending north along Theodore Wirth Parkway from Lowry Avenue North to 45th Ave North and east to Humboldt Ave North and the entrance of Webber Park.[3] Another historical area in Robbinsdale is Graeser Park, also known as Robbinsdale Rock Garden Roadside Parking Area, which is located in the northwestern corner of Robbinsdale north of Highway 100 between County Road 81 and West Broadway Ave. It was built in 1940 by the Works Progress Administration and contains a sunken rock garden and a rare, beehive-shaped fireplace designed by A. R. Nichols.[4]

As one of the Twin Cities metropolitan area's older suburbs, Robbinsdale shares many issues with other "first ring" suburban cities. For example, there are increasing concentrations of elderly residents, a slower growth in the commercial tax base, and the need for continued renewal of local housing stock. Robbinsdale has been working since the 1980s to address these issues, both within its own borders and with other first ring suburbs on a regional basis.[5]

2.2 Topography and Drainage

The natural drainage in Robbinsdale splits between two watersheds, Shingle Creek to the north and northeast and Bassett Creek to the south and southwest. Shingle Creek and Bassett Creek themselves do not enter Robbinsdale, but water bodies and surface water within Robbinsdale drain to them. The jurisdictional boundaries of the Shingle Creek Watershed Management Commission (SCWMC) and Bassett Creek Watershed Management Commission (BCWMC) generally follow the natural drainage patterns of the watersheds (see Figure 2.2). About 80% of the City's land area is located in the Shingle Creek watershed and the remaining 20% is in the Bassett Creek watershed.

The majority of land area in Robbinsdale drains to Crystal Lake, which is located southeast of the city center. Robbinsdale also contains LowerTwin Lake and portions of Middle Twin and Ryan Lakes, which are within the Shingle Creek Watershed along with Crystal Lake. It is important to note that Crystal Lake has no natural outlet, and high water levels in Crystal Lake made it necessary to install a pumping station to draw down the water level. In the southwestern bottom corner of Robbinsdale, water drains

[3] Minneapolis, MN website: http://www.minneapolismn.gov/hpc/landmarks/hpc_landmarks_victory_memorial_drive
[4] Historic Roadside Development Structures on Minnesota Trunk Highways (1998)
[5] Robbinsdale Comprehensive Plan 2030, Chapter 1 Section 1

to Grimes Pond and Rice Lake which are within the Bassett Creek Watershed. For more information on the storm sewer network in Robbinsdale, see Section 2.8 and Figure 2.8.

2.3 Soils

The surface geology of Robbinsdale consists of sediments deposited during the Quaternary Period (2 million year ago – present), including the glacial sediments laid down during the Wisconsinan glaciation approximately 10,000 to 25,000 years ago. The Des Moines lobe glacier deposited material in Robbinsdale that is predominately of the Kingsley, Hayden, and Dakota associations with moderate to high moisture capacity and moderate permeability. The portion of Robbinsdale south of Crystal Lake is dominated by Urban land-Lester complex soils. West of Crystal Lake is a large portion of Urban land-Dorset complex soils, and areas near the Twin and Ryan Lakes have predominately Urban land-Udorthents wet substratum and Urban land-Hubbard complexes[6] (see Figure 2.3).

The USDA Web Soil Survey assigns each soil type to a hydrologic soil group, according to the soil's ability to infiltrate water during long-duration storms. The soil types in Robbinsdale are each associated with a hydrologic soil group (see Figure 2.4). The four hydrologic soil groups are defined as follows:

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

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

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

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

[6] USDA Web Soil Survey, websoilsurvey.sc.egov.usda.gov

2.4 Geology

The area around Robbinsdale formed when glacial retreat led to the formation of Glacial Lake Fridley in southwestern Anoka County. An outlet of this lake was the Mississippi River, which cut a valley through the glacial drift deposits and placed additional sand and gravel down in a series of terraces. The northeastern third of Robbinsdale lies on one of the upper terraces of this valley. Lakes and bogs formed where ice blocks, left behind in the glacial retreat, melted and formed depressions in the drift sediments. Some areas are still open water while others were filled in with post-glacial organic deposits of silt and peat.

All the bedrock units in Hennepin County are marine sedimentary rocks of the Paleozoic age (525-450 million years ago). The bedrock underlying Robbinsdale consists of two major units: St. Peter Sandstone and the Platteville–Glenwood Formation, which consists of limestone and shale.[7] The majority of the City's bedrock is St. Peter Sandstone but the eastern edge of Robbinsdale lies over the margin of a dome of Platteville–Glenwood that stretches east into north Minneapolis. The top of the bedrock ranges from approximately 750 to 850 feet above sea level with glacial drift on top of the bedrock varying in thickness from 25 to 200 feet.

Glacial streams carrying melt water south formed several small valleys in Robbinsdale. A buried bedrock valley filled with glacial drift runs north and south through Robbinsdale extending from Lower Twin Lake under Crystal Lake down to Rice Lake and Bassett Creek. Another small valley extends approximately along the alignment of Highway 100 north to Twin Lake.

The northern part of the city is relatively flat while the southern portion has occurrences of steep slopes. Many of these slopes have already been developed into residential lots but some areas remain vacant due to a combination of severe gradients and unstable soil conditions.[8]

2.5 Groundwater

Groundwater deep wells serve the City's municipal drinking water needs; Robbinsdale's five municipal water supply wells tap into the Prairie du Chein and Jordan aquifers. Each of these wells has a groundwater appropriation permit from the DNR. Information on the DNR permit number for each well, permitted volume, and number of gallons withdrawn each year can be downloaded from the DNR's website at www.dnr.state.mn.us. Well details are given in Table 2.2.

[7] Geologic Atlas of Hennepin County, Minnesota
[8] Robbinsdale Comprehensive Plan 2030

Robbinsdale completed a Wellhead Protection Plan (WPP) in April 2007, which was reviewed and approved by the Minnesota Department of Health and is currently being updated to include new wells being proposed in the City. The WPP identifies drinking water source protection areas and assigns a vulnerability rating to the aquifers that supply the City's municipal drinking water. Figure 5 in the WPP Part 1 identifies the capture zones in the wellhead protection area while Figure 6 identifies the vulnerability of the aquifers, with vulnerability levels ranging from low to moderate to high based on the amount of geologic protection between the land surface and aquifers.[9] For example, a high amount of clay in soils results in lower vulnerability while a high amount of sand and gravel results in higher vulnerability.

Part 2 of the WPP includes a potential contaminant source inventory and management strategy as well as references the existing Emergency/Alternative Water Supply Contingency Plan. Figure 6 in Part 2 pinpoints the locations of other groundwater wells within Robbinsdale as well as any other items that could potentially negatively affect the groundwater.[10] Residents can also use the MPCA's online tool called "What's in My Neighborhood" to view potentially contaminated sites and ongoing investigation and cleanup at www.pca.state.mn.us/data/whats-my-neighborhood.

2.6 Climate

Minnesota and the Twin Cities area experience some of the widest ranging temperatures in the United States. Summers are often hot and humid with heat indices occasionally exceeding 110° F while winters can be bitterly cold due to no major topographic barriers existing between Minnesota and Canada (i.e. mountains). Summer precipitation accounts for roughly half of the annual total and usually falls during thunderstorms while winter precipitation is variable and includes snow, sleet, freezing rain, and occasional rain. Annual average temperatures have risen by 3.2° F from 1951-2012, faster than the national and global rates, and total precipitation has increased as well as the number of intense precipitation events.[11] Average monthly temperature, precipitation, and snowfall from 1981-2010 in the Twin Cities area are shown in Table 2.3.

Rainfall frequency estimates are used as design tools for handling stormwater from new developments and best management practices. Table 2.4 lists the likelihood of 24-hour rain events as shown by recurrence intervals of years. For example, a 100-year flood is a flood event that has a 1% probability in any given year.

[9] Wellhead Protection Plan Part 1, Figures
[10] Wellhead Protection Plan Part 2, Figures
[11] Excerpts from Historical Climatology: Minneapolis-Saint Paul, Minnesota by GLISA (a NOAA RISA team)

2.7 Water Resources

The most valuable environmental features of Robbinsdale exist in the form of its lakes, creeks, and adjoining open space areas. These include Rice Lake, Grimes Pond, Crystal Lake, Ryan Lake, Twin Lakes, and the interconnecting Ryan Creek (see Figure 2.5). They are all areas of valued aesthetics, with many city parks situated near them. They also provide wildlife habitat while serving an important natural drainage function within the City. The Minnesota DNR has regulatory jurisdiction over the City's waterbodies defined as Public Waters of the State (see Table 2.5).

2.7.1 Monitoring Information

Since 2010, Robbinsdale has been conducting lake monitoring on Crystal Lake during the summer months to determine the Trophic State Index (TSI) of the lake. Crystal Lake is connected to a flocculation facility that is in operation during ice-free months working to lower phosphorus levels in the lake. Monitoring is performed to see if removal of phosphorus will increase water clarity and water quality.

Notable waterbodies within Robbinsdale are monitored by the SCWMC on a rotating basis. Total Daily Maximum Load (TMDL) reports and management plans are used to evaluate current conditions and are updated at intervals set by the watershed commissions. See Table 2.6 for the most recent reports on Robbinsdale waterbodies. Monitoring information also be found through Metropolitan Council's Citizen Assisted Monitoring Program (CAMP) that is sponsored by the SCWMC.

Existing monitoring information and reports can be found at the following websites:

- BCWMC – www.bassettcreekwmo.org
- SCWMC – www.shinglecreek.org
- Metropolitan Council CAMP – https://metrocouncil.org/Wastewater-Water/Services/Water-Quality-Management/Lake-Monitoring-Analysis.aspx?source=child

2.7.2 Public Waters

1. **Crystal Lake**
   Crystal Lake is located entirely within Robbinsdale and is a Lacustrine limnetic unconsolidated bottom basin with a fringe of Palustrine forested broad-leaf deciduous temporarily flooded wetland on its west shore. Because the lake has no natural outlet and was prone to large fluctuations in water levels, the City of Robbinsdale obtained a DNR permit to establish an

outlet in 1992. The lake has an OHWL of 847.5 and a natural OHWL of 853.5 (the natural OHWL indicates the DNR recognizes evidence that water levels in the lake were typically higher before outlet was created – the DNR revised its OHWL from 853.5 to 847.5 in the mid-1980s).

2. **Ryan Lake**

   Ryan Lake is classified as a Lacustrine limnetic unconsolidated bottom basin with a fringe of Palustrine emergent semi-permanently flooded wetland on the western and northern sides. The basin was surveyed by the DNR in 1995; an official OHWL of 849.6 was established at that time. The SCWMC obtained a DNR protected waters permit to install a new 54-inch RCP outlet under the railroad tracks on the Brooklyn Center (northern) side of this basin in 1990.

3. **Lower & Middle Twin Lakes**

   Lower & Middle Twin Lakes are classified as Lacustrine limnetic unconsolidated bottom basins. The 100-year flood elevation of the Twin Lakes has been estimated at 855.1 by the Shingle Creek Watershed Management Commission (SCWMC) and at 856.0 by the Federal Emergency Management Agency (FEMA). The lakes drain east through Basin B, Basin C, and eventually into Ryan Lake. In 1990 the SCWMC replaced the existing 48-inch culvert under France Ave with a larger 6 foot by 4 foot box culvert and a control weir to maintain the level of Lower Twin Lake while increasing the 100-year flow capacity.

4. **Ryan Creek**

   Ryan Creek is a DNR protected watercourse that flows west to Ryan Lake. Based on aerial photographic review, it is classified as a Palustrine emergent semi-permanently flooded/unconsolidated bottom wetland. There is no OHWL listed but the limits of DNR jurisdiction of all protected watercourses are considered to be the top of the banks of the channel.

5. **Grimes Pond**

   Grimes Pond, a.k.a. DNR protected wetland 27-644W, is a Palustrine emergent semi-permanently flooded/unconsolidated bottom wetland located on the west edge of the city between 31st and 29th Ave. The Burlington Northern Railroad divides Grimes Pond into two basins and the BCWMC refers to the eastern basin as Grimes Pond and the western basin as North Rice Pond. Although the total wetland area exceeds 10 acres, the DNR has not assigned a shoreline classification to this basin, nor have they estimated its OHWL.

6. **Rice Lake**
   Rice Lake, also known as South Rice Pond by the BCWMC, is a Palustrine emergent semi-permanently flooded wetland and is DNR protected wetland 27-645W. It is located south of Grimes Pond, partially in Golden Valley, and entirely on the west side of the Burlington Northern Railroad. The DNR has not estimated the OHWL of this basin.

7. **Unnamed Wetland**
   This wetland lies between Lower Twin Lake and Ryan Lake on Ryan Creek and is a Palustrine emergent semi-permanently flooded wetland designated as DNR protected wetland 27-640W. No official or estimated OHWL exists for this basin. However, notes in DNR files dated February 20, 1985 placed the OHWL at 853.5, correcting an earlier reference to an OHWL of 852.5.[12]

Wetland basins that fall within Robbinsdale are identified in Figure 2.6 as either open water, freshwater emergent, and freshwater forested/shrub wetlands. Many are associated with the watercourse and lakes within Robbinsdale as well as storm water ponds. The DNR requires that a protected waters permit be obtained for any alteration of the course, current, or cross section below the Ordinary High Water Level (OHWL) of these basins. In some cases, an official determination of the OHWL has not been made. Draining of filling of any wetlands not regulated by the DNR or located above the OHWL of DNR protected waters is prohibited by the Minnesota Wetland Conservation Act of 1991 unless prior approval is obtained from the local government unit. Regardless of state or local regulatory authority, all wetlands are regulated under the Federal Clean Water Act, which is administered by the U.S. Army Corps of Engineers.

2.7.3 Regulatory Floodplain

In Robbinsdale, areas subject to flooding represent a significant concern for the City. Flood-prone areas are located near the lakes, wetlands, and creek in Robbinsdale. Much of the undeveloped land in these near-shore areas has been acquired by the City and developed into Robbinsdale park facilities.

The standard utilized within Robbinsdale for flood hazard area identification is the 100-year floodplain boundary. Employing the 100-year floodplain boundary as a standard is consistent with both Federal and State laws as well as current Robbinsdale floodplain regulations. Currently adopted floodplain regulations have been invoked to preclude improper development from occurring within the identified floodplains. This is necessary to avoid adverse effects as well as to protect investments made in both existing and future developments.

[12] Excerpts from Robbinsdale Water Management Plan, 1996

The Federal Emergency Management Agency (FEMA) updated the Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRM) for Hennepin County in 2016. The FIRM map shows the 100-year floodplain boundaries and elevations for rivers, lakes, wetlands, and streams (See Figure 2.7). Flood elevations are also provided for areas where detailed studies have been completed. FEMA FIRM maps are identified in Robbinsdale and available online at: https://msc.fema.gov/portal/search. The 2015 BCWMC Watershed Management Plan identifies the BCWMC's adopted 100-year floodplain elevations for waterbodies in Robbinsdale within the jurisdiction of the BCWMC.

The BCWMC and SCWMC have completed hydrologic and water quality models. The BCWMC's watershed-wide XP-SWMM model was completed and adopted in 2017 as part of the Bassett Creek Hydrologic and Hydraulic Analyses – Phase 2 XPSWMM Model Report and is available online: http://www.bassettcreekwmo.org/application/files/2515/0240/9404/BCWMC_Ph2_XPSWMMReport_Final_August2017.pdf. At the time of this publication, the BCWMC is working with the MnDNR to incorporate additional survey information into the Phase 2 XPSWMM model. With the addition of this survey information, the Phase 2 XPSWMM model is expected to be the basis for future RIS and FIRMs published by FEMA.

2.7.4 Impaired Waters

Impaired waters are waters in the state that do not meet water quality standards. Every two years, MPCA creates a list of impaired waters in the state; two lakes in Robbinsdale, Crystal and Middle Twin Lake, are considered impaired as well as two streams that Robbinsdale water bodies drain into – Bassett Creek and Shingle Creek (see Table 2.7). Ryan Lake and Lower Twin Lake were de-listed for excess nutrients due to updated DNR standards for shallow lakes. For location of water bodies, view Figure 2.5 (Shingle Creek is not shown on this map, but Ryan Creek located in the NW corner of Robbinsdale is a tributary of Shingle Creek).

2.7.5 Aquatic Vegetation Surveys

Aquatic plant surveys have been conducted by both the BCWMC and SCWMC in water bodies in their respective watershed boundaries. For SCWMC lakes, aquatic vegetation was surveyed in the most recent TMDL review cycle. Lower Twin Lake was found to have significant stands of invasive curly-leaf pondweed and nuisance levels of Eurasian water milfoil, with coontail being the dominate species in the lake.[13] The wetland complex between Lower Twin Lake and Ryan Lake is dominated with cattail and purple loosestrife, the latter being an emergent invasive plant that is being managed by the City. There is an aquatic management plan being developed for the Twin and Ryan lakes system due to Commission-sponsored carp management creating clearer waters in the lake, which will potentially

[13] Twin and Ryan Lakes Nutrient TMDL Five Year Review December 2014

increase plant biomass. The Commission is working with the DNR to determine the most likely vegetation response and appropriate treatment.[14] Aquatic vegetation surveys and invasive species treatments are also done as needed on Crystal Lake to manage aquatic invasive species, and surveys will be done in the upcoming TMDL cycle.

Rice Lake and Grimes Pond aquatic vegetation was described in a 2013 lake water quality study. The western part of Grimes Pond, known as North Rice Pond by the BCWMC, was found to have low aquatic plant diversity with large populations of cattails and purple loosestrife. Floating leaf aquatic plants such as duckweed and watermeal were found in high densities as well as submerged plants such as coontail and pondweed varieties. Rice Lake (listed as South Rice Pond) exhibited similar plant varieties and densities to Grimes Pond, but invasive curly-leaf pondweed was observed in this water body for the first time in 2013.[15]

2.8 Drainage Systems

Robbinsdale has a storm water collection system serving the entire community, as shown in Figure 2.8. The system is a combination of surface drainage and underground pipes which are designed to discharge surface runoff into local waterbodies or into storm drainage facilities of adjacent communities. The existing storm water system is separated from the sanitary sewer.

A major portion of Robbinsdale's storm sewer system was constructed around the 1950s. The storm water infrastructure from this time relies heavily on large diameter trunk storm sewers that route storm water quickly away from impervious surfaces such as roads and parking lots and discharge this large volume of storm water directly into nearby wetlands, lakes, and streams. These systems are aging and must be properly maintained and replaced where necessary to remain functional, and the City has embarked on a reconstruction program to replace aging infrastructure. To increase infiltration and reduce urban run-off water quality issues, the City added Best Management Practices (BMPs) into its storm water system; Sediment ponds were added starting in the 1990s and rain gardens in the early 2000s as storm water BMPs. In recent road reconstruction projects, Robbinsdale started installing sump manholes, hydrodynamic separation chambers, and underground chambers under parts of the street to reduce illicit discharge and help ground infiltration into the surficial aquifer. Locations of these BMPs in Robbinsdale are shown in Figure 2.12. The City will continue to evaluate the effects of peak storms and storm water run-off as well as research innovative designs and techniques for controlling localized flooding.[16]

Robbinsdale is home to twenty wet and dry storm water treatment ponds of various ages, many that were built along with linear projects such as Highway 100 and County Road 81. Wet and dry ponds in the City can help meet water quality standards for storm water as well as provide adequate storm

[14] SCWMC website: Twin Lake Next Steps - http://www.shinglecreek.org/twin-lake-next-steps.html
[15] 2013 Lake Water Quality Study: Northwood Lake, North Rice Pond, and South Rice Pond, April 2014
[16] Excerpts from Robbinsdale Comprehensive Plan 2040

water storage. Figure 2.11 shows the location of the storm water ponds while Table 2.8 lists the bottom, normal water level, and high water level elevations. Numbered ponds in the map correspond to numbers in the table.

A drainage analysis was done for storm sewer zones in Robbinsdale (see Figure 2.8 for locations) using Atlas 14 rainfall data. Table 2.9 lists information such as the area, longest run, and rate of storm water flow.

2.9 Vegetation

Pre-settlement vegetation consisted of oak savannah and prairie communities. Current cover is mostly comprised of boulevard trees with private landscaping, shrubs, and lawns. In the 1970s and 1980s much of the urban Elm trees were destroyed by Dutch elm disease. Since then, active reforestation and disease control programs have prevented a dramatic decline in the City's tree coverage, including controlling the spread of Emerald Ash Borer via treatment and/or tree removal. In the 1990s, the City planted native prairie grasses in Sochacki and Humphrey Parks. This was done to revitalize some of the original landscape.[17] The increased use of raingardens as a stormwater BMP has also contributed to returning some native prairie plants to the Robbinsdale area.

2.10 Land Use

Robbinsdale's location relative to the metro area has caused the Metropolitan Council to designate it as an Urban Center. Robbinsdale does have high density land uses generally on the periphery of the downtown area and along West Broadway between County Road 81 and the Burlington Northern Santa Fe (BNSF) railroad corridor. Robbinsdale has been considered to be fully developed since the 1970s. In effect, all development is redevelopment of existing small properties already occupied by buildings. Redevelopment at higher densities will occur as market forces and regional investment provide stimulation, especially with the planned Blue Line Light Rail Extension through Robbinsdale.

Single-family residential land makes up the majority of Robbinsdale at 55.6% of the 2010 generalized land use (Figure 2.9). Multifamily residental and mixed use totals are 8.1% and 1%, respectively. Institutional land totals 5.1% of the City, commercial land 4%, and public land 11%.[18] Much of the public land is located around lakes and the Victory Memorial Drive. Projected land use for year 2040 is shown in Figure 2.10 and is also enclosed, along with more specific details on current and expected land use, in the Robbindale Comprehensive Plan 2040.

[17] Robbinsdale Comprehensive Plan 2030
[18] Source: Metropolitan Council Generalized Land Use Historical Data Set

Section 3 – Regulatory Setting

3.1 Overview

This section describes Robbinsdale's current surface water resources management programs and practices and the agencies and organizations having roles in the City's management of these resources. Table 3.1 summarizes the City's and other agencies' respective regulatory controls related to water resources management and protection.

3.2 City Services

The Robbinsdale Public Works Department manages the City's stormwater infrastructure and is responsible for the monitoring and maintenance of storm sewers, ponding areas, water quality devices, and outlet control structures. The Public Works Department provides the operation and maintenance necessary to minimize local flooding and improve water quality in the storm water system. The Engineering Department provides design elements for the storm water system as well as looks over city and private building plans to make sure water quality elements are included. The Engineering Department assists with maintenance of City BMPs and coordinates with Watershed Management Commissions and other outside agencies in water resource management and conservation.

3.3 Hennepin County

Hennepin County, originally part of Dakota County, was created in 1851. The County provides many services within Robbinsdale, including health services, property records, and other vital records. Hennepin County was the first county in Minnesota to begin groundwater planning in 1988, with authority delegated to the Hennepin Conservation District (now the Hennepin County Environment & Energy Department). That groundwater plan received state approval in March 1994. Although the county has not formally adopted the plan, the county is proceeding with implementation of many aspects of the plan such as delineation of wellhead protection areas around public supply wells, applying existing zone authority to protect groundwater, and ranking and management of hazardous land use activities.[19]

[19] Minnesota Board of Water and Soil Resources: http://www.bwsr.state.mn.us/planning/groundwater.html

The Hennepin County Environment & Energy Department provides education, outreach, and funding to individuals and organizations as well as fulfilling the role of a Soil and Water Conservation District. In the 1930s, Soil and Water Conservation Districts were created in response to national concern over erosion and floods. These Districts were organized along county boundaries with the purpose of managing and directing conservation programs and assisting landowners in conserving soil and water resources. The Hennepin Soil and Water Conservation District was established in 1949 and gave technical assistance to residents, local government units, watershed organizations, and other agencies. These functions are now performed by the Hennepin County Environment & Energy Department and are funded through county allocation, grants, contracts with local government units, contracts with watershed organizations, and state and federal cost-share.

3.4 Metropolitan Council

Established by the Minnesota Legislature in 1967, the Metropolitan Council is the regional planning organization for the Twin Cities' seven-county area. The Metropolitan Council manages public transit, housing programs, wastewater collection and treatment, regional parks and regional water resources. The Governor of Minnesota appoints Metropolitan Council members.

The Metropolitan Council reviews municipal comprehensive plans, including this local surface water management plan. The Metropolitan Council adopted the 2040 Water Resources Management Policy Plan in 2015, establishing the expectations to be met in local surface water management plans. The Metropolitan Council's goal is "to protect, conserve, and utilize the region's groundwater and surface water in ways that protect public health, support economical growth and development, maintain habitat and ecosystem health, and provide for recreational opportunities, all of which are essential to our region's quality of life." [20]

3.5 Watershed Management Organizations

In 1982, the legislature approved the Metropolitan Surface Water Management Act, Chapter 103B of Minnesota Statutes. This act required all metro area local governments to address surface water management through participation in a Watershed Management Organization (WMO). A WMO can be organized as a watershed district, as a Joint Powers Agreement among municipalities, or as a function of county government. The state considers watershed organizations as local units of government.

Robbinsdale is divided into multiple drainage basins that flow to separately managed Watershed Management Commissions, Shingle Creek and Bassett Creek. Figure 2.2 shows the boundaries of the two Watershed Management Commissions with jurisdiction in Robbinsdale. These agencies have authority for review and approval of this local surface water management plan.

[20] Metropolitan Council, Water Resources Management Policy Plan, 2015, pg. 20

3.5.1 Shingle Creek Watershed Management Commission (SCWMC)

SCWMC was formed in 1984 and incorporates the northern and middle portion of Robbinsdale, thus covering the City's storm sewer and surface flow discharge to Crystal Lake and the Twin Lakes/Ryan Lake system. The jurisdictional boundary for the SCWMC within Robbinsdale includes approximately 1,474 acres (Figure 2.2).

3.5.2 Bassett Creek Watershed Management Commission (BCWMC)

In 1984, the existing Bassett Creek Flood Control Commission (formed in 1968) revised its joint powers agreement and formed the BCWMC. The BCWMC includes the southernmost portion Robbinsdale and thus incorporates the City's storm water release to the Bassett Creek system via Grime Pond and Rice Lake, which drain to Bassett Creek. The jurisdictional boundary for the BCWMC within Robbinsdale includes approximately 425 acres (Figure 2.2).

3.6 Minnesota Board of Water and Soil Resources (BWSR)

The Minnesota Board of Water and Soil Resources (BWSR) was created in 1987, when the Minnesota Legislature combined the Soil and Water Conservation Board with two other organizations with local government and natural resources ties: the Water Resources Board (established in 1955) and the Southern Minnesota Rivers Basin Council (established in 1971). The board consists of 20 members, which are appointed by the governor to four-year terms. Staff members are located in nine field offices throughout the state to help provide local governments' technical and financial assistant to plan and implement agency policy on private lands.[21]

The Minnesota Board of Water and Soil Resources works through local government agencies to implement Minnesota's water and soil conservation policies. BWSR is the administrative agency for Soil and Water Conservation Districts (SWCDs), watershed districts, county water managers, and WMOs. BWSR is responsible for implementation of the Metropolitan Surface Water Management Act (Minnesota Statutes 103B.201 to 103B.253) and the Wetland Conservation Act. The majority of the funds from BWSR come from the State's General Fund, although they have received dollars through funds established by the Clean Water, Land and Legacy Amendment (approved by voters in 2008). [22]

BWSR serves as a technical expert to Local Government Units (LGU) in the administration of the Wetland Conservation Act, and thus has oversight over BCWMC and SCWMC as they currently have responsibility as the LGU for Robbinsdale. The BCWMC and SCWMC will continue in their role as the

[21] Minnesota Board of Water and Soil Resources website: www.bwsr.state.mn.us/aboutbwsr/index.html
[22] Minnesota Board of Water and Soil Resources website: www.bwsr.state.mn.us/aboutbwsr/index.html

LGU and will thus have an ongoing responsibility to the Board to properly administer the requirements of Wetland Conservation Act.

3.7 Minnesota Pollution Control Agency (MPCA)

The Minnesota Pollution Control Agency is the state's lead environmental protection agency. Created by the State Legislature in 1967, the MPCA is responsible for monitoring environmental quality, offering technical and financial assistance, and enforcing environmental regulations. The MPCA has seven offices throughout the state of Minnesota.

The MPCA is the permitting authority in Minnesota for the National Pollutant Discharge Elimination System (NPDES), the federal program administered by the Environmental Protection Agency to address polluted stormwater runoff. Robbinsdale was included on the list of entities required to obtain a Municipal Separate Storm Sewer System (MS4) Permit coverage starting in 2003. The MS4 Permit requires the City to develop a Storm Water Pollution Prevention Plan (SWPPP) to address the following six minimum control measures. A copy of Robbinsdale's most current SWPPP can be found on Robbinsdale's website: www.robbinsdalemn.com/city-government/city-departments/engineering.

1. Public Education
2. Public Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Runoff Control
6. Pollution Prevention in Municipal Operations

In addition to the MS4 permit program, the MPCA is required to publish a list of impaired waters (lakes and streams in the state that are not meeting federal water quality standards). For each water body on the list, the MPCA is required to conduct a study to determine the allowable Total Maximum Daily Load (TMDL) for each pollutant that exceeds the standards. A list is generated every two years of water bodies that are considered impaired; the 2018 Impaired Waters List was submitted to the EPA for approval in April, 2018. As discussed in Section 2, impaired waters in Robbinsdale include Middle Twin Lake and Crystal Lake in addition to Bassett Creek and Shingle Creek, which receive water generated within the City of Robbinsdale (see Table 2.7).

3.8 Minnesota Department of Natural Resources (DNR)

The Department of Natural Resources, originally created in 1931 as the Department of Conservation, has regulatory authority over the natural resources of the state. DNR divisions specialize in waters, forestry, fish and wildlife, parks and recreation, land and minerals, and related services. The Division of Ecological and Water Resources administers programs in lake management, shoreland management, dam safety, floodplain management, wild and scenic rivers, groundwater management, the Public

Waters Inventory, and permitting of development activity within public waters. Figure 2.5 shows the location of Public Waters in Robbinsdale.

3.9 Minnesota Department of Health (MDH)

The Minnesota Department of Health manages programs to protect the public health, including implementation of the Safe Drinking Water Act. The MDH has regulatory authority for monitoring water supply facilities such as water wells, surface water intakes, water treatment, and water distribution systems. The MDH also is responsible for the development and implementation of the wellhead protection program.

3.10 Minnesota Environmental Quality Board (EQB)

The Environmental Quality Board is made up of a Governor's representative, nine state agency heads and five citizen members that play an important role in Minnesota's environment and development. They provide leadership and coordination across agencies on priority environmental issues as well as develop opportunities for public access and engagement. The Board's actions are directed by Minnesota Statutes Chapter 103A, 103B, 116C, 116D, and 116G.[23]

3.11 Minnesota Department of Transportation (MNDOT)

The Minnesota Department of Transportation is the state agency responsible for the planning, improvement, and maintenance of the state's highway system. MNDOT approval is required for any construction activity within State Right of Way. MNDOT also administers funding for qualifying City transportation projects.

3.12 The United States Environmental Protection Agency (EPA)

The U.S. Environmental Protection Agency develops and enforces the regulations that implement environmental laws enacted by Congress. However, in the State of Minnesota the MPCA bears responsibility for implementing many of the programs within Minnesota. The NPDES program and the Impaired Waters List are both the result of the Clean Water Act, administered by the EPA and funneled down to the MPCA for compliance and enforcement.

3.13 The United States Army Corp of Engineers (USACE)

The U.S. Army Corp of Engineers is an agency within the Department of Defense that employs both civilians and soldiers to work on public engineering, design, and construction management projects within the nation as well as countries worldwide. The USACE is involved in the planning, design,

[23] Minnesota Environmental Quality Board website: www.eqb.state.mn.us

building, and operation of locks and dams as well as providing hydropower capacity, flood protection, and outdoor recreation opportunities to the public. They also regulate excavation in wetlands under Section 404 of the Clean Water Act.

3.14 Federal Emergency Management Agency (FEMA)

The Federal Emergency Management Agency manages federal disaster mitigation and relief programs, including the National Flood Insurance Program (NFIP). This program includes floodplain management and flood hazard mapping. FEMA updated the Flood Insurance Rate Maps (FIRM) for Hennepin County in 2016 which included flood insurance information for Robbinsdale.

3.15 Natural Resources Conservation Service (NRCS)

The Natural Resources Conservation Service is a division of the Department of Agriculture. Formerly named the Soil Conservation Service, the NRCS provides technical advice and engineering design to local conservation districts across the nation. The NRCS houses Hennepin County soil survey information through their Web Soil Survey online tool, with yearly refreshes of official soil data.[24] The NRCS also developed hydrologic calculation methods that are widely used in water resources design.

3.16 The United States Geological Survey (USGS)

The U.S. Geological Survey is a division of the Department of the Interior and provides mapping and scientific study of the nation's landscape and natural resources, including groundwater, ecosystems, environmental health natural hazards, and climate and land use change.[25] Maps created by the USGS provide information for many local resource management efforts.

3.17 The United States Fish and Wildlife Service (USFWS)

The USFWS works to conserve and protect the nation's fish, wildlife, plants, and habitat. The USFWS developed the National Wetlands Inventory (NWI) in 1974 to support local, state, and federal wetland management work.

[24] Natural Resources Conservation Services – Soils: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/
[25] United States Geological Survey website: https://www.usgs.gov/about/about-us

Section 4 – Related Studies, Plans, and Reports

This section of the Robbinsdale Local Surface Water Management Plan describes pertinent plans, studies, and reports used in the creation of this plan. These reports provide background information to understand the context for managing Robbinsdale's surface water resources. Some of these resources identify implementation items which Robbinsdale considered in formulating its own implementation plan.

4.1 Robbinsdale Comprehensive Plan 2040

The City of Robbinsdale is in the process of updating its Comprehensive Plan. The plan is the City's long range vision for guiding growth, development, and change over a 20-year planning period and is updated every 10 years as required by the Metropolitan Land Planning Act. The Robbinsdale Comprehensive Plan 2040 is currently under review by the Metropolitan Council. Much of the Plan's information is included in this Local Surface Water Management Plan.

An electronic version of the Robbinsdale Comprehensive Plan 2040 can be downloaded from: http://www.robbinsdalemn.com/city-government/city-departments/community-development/comprehensive-plan-2040

4.2 Shingle Creek Watershed Management Commission Watershed Management Plan

The SCWMC Third Generation Watershed Management Plan was jointly prepared with the West Mississippi Watershed Management Commission and adopted in 2013. Through the identification of issues in the watersheds, the Commissions developed five priorities and six goal areas to guide their water resources planning and management functions. Priorities include working aggressively toward achieving TMDL lake and stream goals, retrofit BMPs in developed areas cost-effectively, and develop a whole-watershed sustainable water budget. The six goals are water quantity, water quality, groundwater, wetlands, drainage systems, and commission operations and programming.[26] Storm water management implementation items identified in the SCWMC Watershed Management Plan that affect Robbinsdale are included in Section 6 (Current Assessment), storm water management goals identified are generally incorporated into Section 7 (Goals and Policies), and Section 8 incorporates SCWMC implementation items and/or defines a contributory role for Robbinsdale as it assists watershed implementation efforts

[26] SCWMC Third Generation Watershed Management Plan, Executive Summary

The Plan is periodically revised when alterations are made to the Capital Improvement Program or when a policy change is made. An electronic version of this plan can be downloaded from the SCWMC website: http://www.shinglecreek.org/management-plan.html.

4.3 Bassett Creek Watershed Management Commission Watershed Management Plan

The BCWMC adopted its current Watershed Management Plan in 2015 which sets the guidelines for managing the water resources within the boundaries of the watershed. Their plan provides data and background information, outlines applicable regulations, assesses watershed-wide and resource-specific issues, sets goals and policies for the BCWMC and its members, and lists implementation tasks to achieve the goals. The Commission developed nineteen goals, which include work to reduce stormwater runoff volume and increase storm water quality, provide leadership and assist member cities with coordination of intercommunity stormwaterm runoff issues, minimize the spread of aquatic invasive species, and raise awareness of the impact that individuals, businesses, and organizations have upon water resources. To reach their goals, the BCWMC developed a total of 122 policies that are specific and measureable and include actions the BCWMC will take, along with required actions by member cities and requirements for development and redevelopment projects.[27]

The Watershed Management Plan is required to be updated every ten years, and amendments have been made since the plan was adopted. An electronic version of this plan can be downloaded from the BCWMC website: https://bassettcreekwmo.org/document/wmp-plans.

4.4 SCWMC Shingle Creek Chloride TMDL Five Year Review (2014)

The Shingle Creek Chloride TMDL addresses the chloride impairment in Shingle Creek; chloride in Shingle Creek was first detected in water quality monitoring performed by the USGS and in 1998 the Creek was designated chloride impaired. The initial Shingle Creek Chloride TMDL, approved in 2007, determined that the likeliest source of chloride to the Creek was road salt – sodium chloride – applied to highways, roads, parking lots, and other impervious surfaces in the watershed. A 71% load reduction in chloride was deemed to be necessary, and implementation actions were identified for both the Commission and stakeholders. BMP implementation was reviewed for road authorities in watershed and it was found that most if not all of the BMPs had been implemented, such as:

- Pre-wetting and anti-icing
- Calibration and optimal application rates
- Good housekeeping, training, and storage
- Alternative products
- Keeping abreast of new technologies

[27] BCWMC 2015 – 2025 Watershed Management Plan, Executive Summary

There is no apparent trend of improvement yet in the in-stream chloride concentration of Shingle Creek, but there is also no apparent trend of degradation in the in-stream chloride concentration. It will take a significant effort to meet the State chloride standards as Shingle Creek continues to exceed the chronic chloride standard. Actions and priorities for the next five years are identified to maximize achievable load reduction and reduce conditions that are most harmful to biota.[28]
Electronic versions of the Shingle Creek Chloride TMDL and Implementation Plan and the Five Year Review can be found on the following website: http://www.shinglecreek.org/tmdls.html .

4.5 Twin and Ryan Lakes Nutrient TMDL Five Year Review (2014)

The Twin and Ryan Lakes Nutrient TMDL addressed a nutrient impairment in the Twin Lakes chain of lakes in the cities of Brooklyn Center, Crystal, Minneapolis, and Robbinsdale; the TMDL and associated Implementation Plan were approved in 2007 and implementation actions have been underway since that time. While management actions have reduced loading to the lakes, Upper Twin Lake still consistently exceeds state standards while Middle Twin, Lower Twin, and Ryan Lakes occasionally meet water quality standards. Priorities for the next five years will be:

- Continue to reduce watershed load to the lakes by adding new and enhancing existing treatment BMPs and by increasing infiltration of runoff
- Develop and implement balanced short- and long-term aquatic vegetation and rough fish management plans
- Reduce internal load released by sediments
- Expand and enhance public education and outreach within the drainage area

Commission-sponsored water quality monitoring found that while management actions have reduced loading to the lakes, Upper Twin Lake still consistently exceeds state standards while Middle Twin occasionally meet water quality standards.[29] Lower Twin and Ryan Lakes met state standards enough to be delisted for nutrient/eutrophication biological indicators in 2014 by the MPCA. This was due to a water quality standards rule revisions that designated different eutrophication standards for ecoregions and lake types. For the North Central Harwood Forest ecoregion, where the City of Robbinsdale lies, deep lakes have a limit of 40 µg/L while shallow lakes (such as Lower Twin and Ryan Lakes) have a limit of impairment at 60 µg/L.[30]

Electronic versions of the Twin and Ryan Lakes Nutrient TMDL and Implementation Plan and the Five Year Review can be found on the following website: http://www.shinglecreek.org/tmdls.html.

[28] SCWMC Shingle Creek Chloride TMDL Five Year Review, December 2014 (Wenck Associates, Inc.)
[29] Twin and Ryan Lakes Nutrient TMDL Five Year Review, December 2014 (Wenck Associates, Inc.)
[30] MPCA Archive: Revisions to water quality standards - https://www.pca.state.mn.us/water/archive-revisions-water-quality-standards-rules#currentrules

4.6 Crystal Lake Nutrient TMDL Five Year Review (2016)

The Crystal Lake Nutrient TMDL addresses a nutrient impairment in Crystal Lake; the TMDL and associated Implementation Plan were approved in 2008 and 2009, respectively, and implementation actions have been underway since this time. One of these implementation actions included the construction of a flocculation facility on Crystal Lake, where water from the hypolimnion layer is mixed with an alum chemical treatment and allowed to flocculate after which the clean water is returned to the lake, with the waste sludge being discharged to the sanitary sewer. Total phosphorus, chlorophyll-a, and transparency do not consistently meet state standards in Crystal lake; monitoring will need to continue in Crystal Lake to evaluate water quality trends and success of the watershed BMPs and flocculation facility.

Priorities for the next five years will be:

- Continue to implement BMPs as opportunities arise
- Target the flocculation plant treatment to hypolimnetic withdrawals to maximize annual load reduction
- Work with the DNR to get an updated fish survey and, as water clarity improves, to develop a vegetation management plan to address any invasive aquatic vegetation[31]

Electronic versions of the Crystal Lake Nutrient TMDL and Implementation Plan and the Five Year Review can be found on the following website: http://www.shinglecreek.org/tmdls.html.

4.7 Upper Mississippi River Bacteria TMDL Implementation Plan (2016)

The Upper Mississippi River Bacteria TMDL Implementation Plan was created to assist local partners in implementation efforts to reduce bacteria concentrations in Mississippi River tributaries. Shingle Creek and Bassett Creek are reviewed in this study, and while neither creek runs directly through the City, Robbinsdale is part of the subwatersheds for both creeks. Both Shingle and Bassett Creek are considered impaired for aquatic recreation due to fecal coliform and/or *E. coli*. According to bacteria source assessment findings, the largest source of *E. coli* in Shingle and Bassett Creek is likely pet waste. Target goals and priority actions are listed for each subwatershed. Further information can be found on the following website: https://www.pca.state.mn.us/water/tmdl/upper-mississippi-river-bacteria-tmdl-project

4.8 Rice and Grimes Pond (1997 & 2013)

The North Rice, South Rice, and Grimes Ponds Watershed and Lake Management Plan prepared for the BCWMC outlined water quality and provided guidelines to meet water quality goals for the cities of Robbinsdale, Golden Valley, and Crystal, the BCWMC, and local residents. The 2013 Lake Water Quality Study including North Rice Pond and South Rice Pond gave additional water quality information and

[31] Crystal Lake Nutrient TMDL Five Year Review, June 2016 (Wenck Associates, Inc.)

recommendations. While these waterbodies are not listed as priority waterbodies in the 2015 BCWMC Watershed Management Plan, Cities could choose to implement items aimed at improving the water quality in the Rice and Grimes Ponds, including macrophyte harvesting and removal, in-pond alum treatments, and beetle control of invasive purple loosestrife.[32]

4.9 Crystal Lake Feasibility Study (2009)

The Crystal Lake Feasibility Study was prepared to develop options for addressing the internal load in Crystal Lake, which was one of the directives of the 2009 Crystal Lake Nutrient TMDL and Implementation Plan. Three internal load control methods were evaluated: alum treatment, hypolimnetic aeration, and hypolimnetic withdrawl. Although watershed loads are significant, the focus of this plan was to reduce the internal load because water quality standards cannot be met for Crystal Lake without significant reduction of internal loads.

Findings from this plan lead to the construction of the Crystal Lake flocculation facility where water from the hypolimnion layer is mixed with an alum chemical treatment and allowed to flocculate after which the clean water is returned to the lake, with the waste sludge being discharged to the sanitary sewer.

4.10 Crystal Lake Subwatershed Assessment

In 2010 the Hennepin Conservation district in partnership with the Metro Conservation District and the SCWMC undertook a subwatershed assessment for Crystal Lake drainage area. The goal of the study was to identify and prioritize retrofit treatment practices. Potential BMPs in 10 of the 17 catchments were identified and modeled, and if all were implemented by the City would reduce the annual TP load from the watershed by an estimated 51 pounds per year.[33]

[32] 2013 Lake Water Quality Study: Northwood Lake, North Rice Pond, and South Rice Pond, April 2014
[33] SCWMC Crystal Lake Nutrient TMDL Five Year Review

Section 5 – Water Resources Related Agreements

This section references and provides brief summaries of water resource related agreements to which Robbinsdale is a party. The appendices include actual copies of the agreements referenced here.

5.1 SCWMC Joint Powers Agreement

In 1984, nine cities with land in the Shingle Creek Watershed entered into a joint powers agreement to form the SCWMC: Brooklyn Center, Brooklyn Park, Crystal, Maple Grove, Minneapolis, New Hope, Osseo, Plymouth, and Robbinsdale. The joint powers type of organization was selected because the cities believed it provided the best balance for the establishment of watershed-wide policies and strategies for meeting watershed management requirements while at the same time retaining the most flexibility and local input at the lowest cost.

In 2006, the member cites adopted an amendment to the original joint powers agreement that set an assessment cap for general purpose funds. The joint powers agreement was amended again in 2015 to extend the duration of the agreement to January 1, 2025. A copy of the agreement and amendments can be found in Appendix A.

5.2 BCWMC Joint Powers Agreement

In 1969, the Bassett Creek Flood Control Commission was formed by the adoption of a joint powers agreement between the nine communities in the Bassett Creek Watershed: Crystal, Golden Valley, Medicine Lake, Minneapolis, Minnetonka, New Hope, Plymouth, Robbinsdale, and St. Louis Park. In accordance with provisions of the 1982 Metropolitan Surface Water Management Act, the Bassett Creek Flood Control Commission revised its joint powers agreement and created the BCWMC. Its mission is to control flooding and to maintain and enhance the quality of the surface and ground water resources in the watershed. A copy of the revised joint powers agreement can be found in Appendix A.

5.3 City of Crystal Storm Water Agreement

The Cities of Crystal and Robbinsdale entered into an agreement in 1962 that allows Crystal to dispose of storm water into the Twin Lakes chain from Gaulke's Pond. This is done via storm sewer located in Robbinsdale at 40th Ave N and Adair Ave N that then transports water to the Twin Lakes. This was done to maintain the water level in Twin Lakes. A storm sewer and lift station was constructed by Crystal which conveyed the storm water towards Robbinsdale. A copy of the agreement can be found in Appendix B.

5.4 Crystal Lake Water Level Control DNR Permit

The MN DNR approved a Protected Waters Permit (#92-6123) for the City of Robbinsdale which authorizes installation of a permanent pumped outlet control system to prevent flooding around Crystal Lake. Crystal Lake does not have a natural outlet, so through this permit a pumping station located at Chowen Ave N & 42nd Ave N is used to pump water under high water conditions. The pump system operates during the months of March through November and aims to maintain a water level in Crystal Lake at or below the ordinary high water level (847.5 ft). Water is pumped into the City of Minneapolis storm sewer system, which discharges into Shingle Creek and ultimately the Mississippi River. The pumping is coordinated with the Shingle Creek Watershed Management Commission and City of Minneapolis, and the pumping has to cease if there is high water downstream of Crystal Lake that pumping will exacerbate. A copy of the agreement can be found in Appendix B.

5.5 Crystal Lake Flocculation Treatment Facility MPCA Permit

The MPCA permit for the Crystal Lake Flocculation Treatment Facility is a National Pollutant Discharge Elimination System/State Disposal System permit facilitated by the MPCA and authorizes the Permittee (the City of Robbinsdale) to operate a disposal system at the facility and to discharge from the facility to Crystal Lake. The facility provides phosphorus removal from lake water to assist in reduction of phosphorus nutrient loads within the lake. The discharge is routed to Crystal Lake directly or through a series of connected storm water ponds that eventually drain into Crystal Lake, with solids being transferred via sanitary sewer lines to another facility for final disposal. The most recent iteration of the permit was issued in February 2017 and will expire in January 2022. It outlines MPCA requirements for the facility such as monitoring, record-keeping, reporting, and facility maintenance and operation. A copy of the agreement can be found in Appendix B.

5.6 MCES Industrial Discharge Permit Special Discharges

The Metropolitan Council Environmental Services (MCES) entered into an agreement with the City of Robbinsdale to allow aluminum phosphate flocculation sludge to be discharged from the Crystal Lake Flocculation Facility into the Metropolitan Council's Metropolitan Wastewater Treatment Plant. The effective date of the permit is January 2017 and expires December 2019. Specific permit conditions are contained within the permit, including discharge limitations, monitoring, sampling, and reporting requirements. A copy of the agreement can be found in Appendix B.

Section 6 – Current Assessment

Previous sections of this Local Surface Water Management Plan provide background on the physical and regulatory forces shaping surface water management in Robbinsdale. This section describes the current assessment of specific waters, neighborhoods, or programs identified by the City, Watershed Management Commissions, and other organizations.

6.1 Official Control Assessment

Codes and ordinances (official controls) are necessary tools supporting implementation of this Local Surface Water Management Plan. The intent of assessing the City's existing official controls is to identify the adequacy of these controls to address current regulatory requirements. As a basis for this assessment, the City's MS4 permit documents include a summary of ordinances required to comply with NPDES requirements.

After the adoption of this Local Surface Water Management Plan, all applicable portions of city code will need to be updated to achieve consistency with local watershed plans. In addition, codes must updated periodically to remain consistent with city goals, policies, and practices. Table 6.1 presents an assessment of city codes related to surface water management as listed in Table 3.1 in Section 3.

6.2 Storm Water Management Issues and Possible Corrective Actions

The following list of items presented in Table 6.2 represent current storm water management issues or concerns as identified by the documents included in Section 4 of this plan. It is not the intent of this list to include all of the current storm water management issues identified in the watershed documents in Section 4, only those issues with a possible corrective action that directly affects the City. The implementation of the possible corrective actions will be addressed in the Implementation Section (Section 8).

6.3 Wetland Management

Wetlands play an important role as a natural storm drainage system by helping to maintain water quality, reduce flooding and erosion, provide food and habitat for wildlife, and provide open spaces and natural landscapes for residents to enjoy. Protecting wetlands is an important element to any surface water plan.

The City defers the administration and enforcement of the Wetland Conservation Act to the SCWMC and BCWMC for the portions of the City within their jurisdiction. The City will continue to coordinate wetland management issues with these Commissions. In addition, Robbinsdale intends to update City Code to include wetland management requirements, which reflect consistency with SCWMC and BCWMC rules and specifically reference the role of these Commissions in Wetland Conservation Act administration in the City.

6.3.1 Wetland Functions and Values Assessment

In the SCWMC Second Generation Watershed Management Plan, one of the Commission's goals was to assess the function and values of all high priority wetlands within the watershed. The City of Robbinsdale, in conjunction with the SCWMC, contracted Wenck Associates, Inc. to complete a functional values assessment of the wetlands within the City using the Minnesota Routine Assessment Method (MnRAM). MnRAM is a structured tool for evaluating wetland function and value that was developed by BWSR, and version 3.3 was used for the assessment. The MnRAM contains many wetland characteristics that can be evaluated, and the Commission identified five functional value categories that would summarized for Robbinsdale wetlands: vegetative diversity, wildlife habitat, wetland water quality, aesthetics and recreation, and flood attenuation.

The wetland functional values assessment for Robbinsdale was completed in 2010. Wetlands associated with Ryan Lake, Lower Twin Lake, and Crystal Lake were assessed as well as the unnamed wetland between Ryan Lake and Lower Twin Lake on Ryan Creek (see Figure 2.6 for reference). The scores for the five functional value categories were calculated individually and then averaged to attain an overall average score and rating for each of the four wetlands (See Table 6.3). All four of the wetlands assessed within the City resulted in an average rating of moderate, with the Crystal Lake fringe wetland community having the highest average score and the Lower Twin Lake fringe wetland community having the lowest average score.[34]

6.3.2 Wetland Buffers

A buffer of undisturbed vegetation around a wetland can provide a variety of benefits. The vegetated buffer can consist of trees, shrubs, grasses, wildflowers, or a combination of plant types. Buffers reduce the impacts of surrounding land use on wetland functions by stabilizing soil to prevent erosion, filtering pollutants, and moderating water level fluctuations during storms. They also provide essential habitat for feeding, roosting, breeding, and rearing of young birds and animals as well as cover for safety, movement, and thermal protection for many species of birds and animals. Buffers can reduce problems related to human activities by blocking ambient city noise and artificial light. They are most effective where made continuous in order to connect desirable wetland and upland habitats.

[34] Wetland Functional Values Assessment (2010), Wenck Associates, Inc.

Cutting vegetation, dumping grass clippings or other debris, and trampling should be avoided in buffer areas. If a path is desired through the buffer, it should be mown only as wide as necessary for walking, and the path should gently meander so that it does not encourage erosion.[35]

Robbinsdale adopted the recommended wetland buffer standards as presented in the Comprehensive General Guidance Manual using Minnesota Routine Assessment Method, version 3.0, in its previous LSWMP. A copy of these wetland standards is included in Appendix C. According to this guidance, buffer standards for a particular wetland are based on specific management classifications. This management classification is determined by a function and value assessment of the wetland that was described in the previous section. These City standards may need to be updated to meet watershed buffer requirements.

6.3.3 Storm Water Susceptibility

The wetland's sensitivity to storm water input is dependent on the wetland community type and the quality of its plant community. Some wetlands (e.g., sedge meadows with Carex species) are sensitive to disturbance and will show signs of degradation unless water quality, bounce, and duration are maintained at pre-existing conditions post-construction. On the other hand, there are other wetlands (e.g., floodplain forests) which are better adapted to handle the fluctuating water levels and influx of sediment often associated with storm water.[36]

To address the issue of a wetland's susceptibility to storm water inputs, Robbinsdale adopted the recommended storm water susceptibility standards as presented in the Comprehensive General Guidance Manual using Minnesota Routine Assessment Method (MnRAM), version 3.0, in the previous LSWMP. A copy of these wetland standards is included in Appendix C. This storm water susceptibility information identifies management criteria developed to limit the negative impacts of storm water discharges on wetland resources. As with wetland buffers, the management criteria are based on a wetland's management classification, as determined by a wetland function and value assessment.

6.4 MS4 Permit

The Minnesota Pollution Control Agency (MPCA) has designated Robbinsdale Robbinsdale as an NPDES Phase II MS4 Community (MN Rules 7090). Robbinsdale's most recent MS4 Permit was effective starting on August 1, 2013 and the City is in the process of applying for continued coverage with Phase I being completed on March 1, 2018. Until the new General Permit is approved, the MPCA has directed Robbinsdale to operate under the terms of the existing MS4 General Permit.

[35] Excerpts from the Comprehensive General Guidance Manual
[36] Excerpts from the Comprehensive General Guidance Manual

As part of the MS4 General Permit, Robbinsdale has a Stormwater Pollution Prevention Plan (SWPPP) that addresses six minimum control measures[37]:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Beyond the six minimum control measures, the MS4 Permit has limitations on permit coverage for sites with non-stormwater discharge, endangered or threated species, historic or archeological items, and those requiring environmental review.[38]

6.5 Impaired Waters and Total Maximum Daily Loads

The list of Impaired Waters is known as the 303(d) list from the applicable section of the Federal Clean Water Act and includes waters that do not currently meet their designated use criteria 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 the list. At some point a strategy would be developed by the MPCA or a delegated agent (WMO, JPO, Coorperative Parternship, etc.) that would lead to attainment of the applicable water quality standard. The process of developing this strategy is commonly known as the Total Maximum Daily Load (TMDL) process and involves the following phrases:

1. Assessment and listing
2. TMDL study
3. Implementation plan development and implementation
4. Monitoring of the effectiveness of implementation efforts

As delegated by the Environmental Protection Agency, the Minnesota Pollution Control Agency is responsible for implementing the requirements of the Federal Clean Water Act. Information on the MPCA program can be obtained at the following web address:
https://www.pca.state.mn.us/water/total-maximum-daily-load-tmdl-projects

Ryan Lake and Lower Twin Lake were both delisted from the Impaired Waters list in 2014 for nutrient/eutrophication biological indicators. Lower Twin Lake is still on the list for other impairments, as well as Middle Twin Lake and Crystal Lake. In addition, two other waterbodies in adjacent communities receiving discharge from Robbinsdale are on the Impaired Waters list, Bassett Creek and Shingle Creek. Table 2.5 identifies the current TMDL status of all the impaired waters in the City.

[37] Excerpts from MS4 Permit, Permit No. MNR040000
[38] Excerpts from MS4 Permit, Permit No. MNR040000

Regarding the City's role in future TMDLs and TMDL Implementation Plans, the City recognizes that the responsibility for completion and implementation of the TMDL studies lies with the primary stakeholders contributing to the impairment. The City intends to cooperate with the lead entities in the development of the TMDL studies, acknowledging that these lead entities will perform these studies. It is the intention of the City to fully implement the recommendations identified in existing and future TMDL Implementation Plans and designate funding as affordable and available toward these efforts.

6.6 Comparison of Regulatory Standards

Development and redevelopment within Robbinsdale is subject to review by either the SCWMC or the BCWMC when certain project thresholds are met (i.e. area). The City is held responsible for ensuring that projects meeting the review requirements identified by each of the Commissions obtain a permit complying with the applicable City and Commission standards.

Each Commission has established requirements governing storm water management and protection of natural resources in their jurisdiction. Commission requirements overlap Robbinsdale's standards in some respects but also have certain areas that are not covered by the City. Ultimately, it is not the goal of Robbinsdale's Local Surface Water Management Plan that Commission and Robbinsdale regulatory programs to be identical. Rather, it is the goal of this plan that the regulatory programs are compatible and that it be understood that if one entity's regulations are silent on a subject another entity's may not be.

Project proposers should take care that all standards are considered. In all cases, where rules or ordinance diverge, the more restrictive will be used by Robbinsdale.

Each Commission has established standards governing storm water management and protection of natural resources. The governing document for these standards for each Commission is identified as follows:

- Shingle Creek and West Mississippi Watershed Management Commissions Rules and Standards (Amended July 11, 2013)

- Bassett Creek Watershed Management Commission Requirements for Improvements and Development Proposals (Revised August 2017)

A comparison of current Commission standards, per the governing documents identified above, and the current city storm water management standards are included in Appendix D. Where the City's standards are not consistent with Commission standards, recommended actions to bring the City's standards into alignment are provided.

Section 7 – Goals and Policies

7.1 General

This section outlines the City's goals and policies for storm water management. The goals identified in this section represent broad storm water management categories aimed at addressing the purposes of storm water management planning identified in Minnesota State Statute 103B.201, as follows[39]:

(1) Protect, preserve, and use natural surface and groundwater storage and retention systems;

(2) Minimize public capital expenditures needed to correct flooding and water quality problems;

(3) Identify and plan for means to effectively protect and improve surface and groundwater quality;

(4) Establish more uniform local policies and official controls for surface and groundwater management;

(5) Prevent erosion of soil into surface water systems;

(6) Promote groundwater recharge;

(7) Protect and enhance fish and wildlife habitat and water recreational facilities; and

(8) Secure the other benefits associated with the proper management of surface and ground water.

The specific policies under each goal will guide implementation of the Local Surface Water Management Plan to achieve the particular storm water management goal and provide consistency between the City's policies, the two watersheds with jurisdiction within the City, and any items identified as a result of an approved TMDL implementation plan.

7.2 Storm Water

Goal 1: Control the rate of storm water runoff from development, redevelopment, and site expansion projects to minimize the impact on downstream structures and water resources.

- Policy 1.1: In accordance with the City's SWPPP, Robbinsdale will review and update City Code periodically to address storm water quality and keep code consistent with current water quality regulatory requirements.

[39] 103B.201 Metropolitan Water Management Program Purpose, https://www.revisor.mn.gov/statutes/cite/103b.201

- Policy 1.2: Peak storm water runoff rates from new development, redevelopment, and site expansion projects must not exceed the existing rates for the 2-year, 10-year, and 100-year storm events, overload the capacity of downstream conveyance facilities, or contribute to downstream flooding.

- Policy 1.3: New storm sewer conveyance systems must be sufficient for the 5-year recurrence design storm over their direct drainage as determined by the rational method or other method approved by the City Engineer. However, where existing downstream systems are not sufficiently sized for this conveyance capacity then a lesser conveyance system design capacity must be used.

- Policy 1.4: In addition to the 5-year storm sewer design criteria of Policy 1.2, storm sewer systems must be designed to convey the 100-year ponded outflow from any tributary pond, wetland, lake, or other storm water storage facility. This 100-year ponded conveyance capacity is added to the 5-year direct drainage capacity to generate the total design conveyance rate.

- Policy 1.5: The City will seek opportunities to upgrade existing systems to provide the conveyance capacity described in above policies. However, limitations in downstream storm sewer capacity may preclude this.

- Policy 1.6: All drainage system analyses and designs should be based on proposed full development land use patterns.

7.3 Flood Control

Goal 2: Provide a reasonable level of storm water flood protection within the City to minimize property damage and limit public capital and maintenance expenditures due to storm water flooding.

- Policy 2.1: Robbinsdale will review and update the Floodplain Management District (Section 530.01) section of City Code as required by FEMA and the Minnesota DNR, or as needed for compliance with Commission standards, to ensure adequate protection for structures and eligibility for flood insurance programs.

- Policy 2.2: The City will continue to review development, redevelopment, or site expansion proposals for conformance with standards from the City's Floodplain Management District.

- Policy 2.3: Robbinsdale will require that low floor elevations of new structures adjacent to a storm water basin or facility be a minimum of 1 foot (2 feet within the jurisdiction of the BCWMC[40]) above the established 100-year High Water Level of the basin or facility in question.

- Policy 2.4: Wherever feasible, overflow routes from storm water basins and low areas shall be established and maintained to provide relief during storms which exceed design conditions.

- Policy 2.5: The City will not allow encroachment into City storm water facilities (or other key storage areas identified by the jurisdictional watershed) that reduces flood storage volumes without compensatory storage being provided. The City will seek to preserve natural storage on the landscape when this storage is not otherwise protected by existing ordinance, rules, or law.

- Policy 2.6: Robbinsdale will permanently secure access to storm water ponds and other components of its drainage system by requiring the dedication of land and/or protective easements.

- Policy 2.7: Robbinsdale recognizes the official 100-year floodplain elevations in NAVD88 datum for Grimes Pond (836.4 ft), North Rice Pond (836.4 ft), and South Rice Pond (834.3 ft) as identified in Section 2.6.4 of the BCWMC Watershed Management Plan.

- Policy 2.8: Robbinsdale will require compensating storage to mitigate floodplain fill in accordance with the requirements of the jurisdictional watershed.

- Policy 2.9: Robbinsdale will enforce the permitted use defined in the Floodplain Management District of the City Code (Section 530.01 Floodplain Management District Ordinance).

7.4 Water Quality

Goal 3: Improve the quality of storm water runoff discharging to the City's lakes, streams, and wetlands.

- Policy 3.1: In accordance with the City's SWPPP, Robbinsdale will review and update City Code periodically to address storm water quality, consistent with current water quality regulatory requirements.

- Policy 3.2: The City is committed to reviewing new development, redevelopment, and site expansion projects in the context of non-degradation, and will require BMPs necessary to maintain or reduce existing total phosphorus, total suspended solids, and storm water runoff volume loads discharging to public waters and watercourses, where feasible.

[40] BCWMC Requirements for Improvements and Development Proposals (Revised August 2017)

- Policy 3.3: Water quality BMPs shall provide an aggregate water quality volume that meets the permanent water quality volume requirements of the NPDES construction site permit. Where water quality ponds are used for all or a portion of this water quality volume, the permanent pool volume equal to the runoff from a 2.5-inch rainfall shall supersede the construction site permit requirements only when the City standard leads to a larger permanent pool volume.

- Policy 3.4: For sites that do not trigger the permanent storm water management controls of the NPDES construction site permit, BMPs must be used to accomplish no increase in pollutant loading or water volume loading over existing conditions.

- Policy 3.5: Consistent with both SCWMC and BCWMC design standards, new water quality ponds shall be designed to maintain an average depth of 4 feet or greater for large ponds, or 3 feet or greater for ponds with less than 3 acre-feet of wet volume, with a maximum depth of 10 feet.

- Policy 3.6: The BCWMC and SCWMC have their own water quality standards and thresholds for projects that fall under these standards. When considering the use of BMPs to meet NPDES, City, or Commission standards, all three performance standards must be reviewed. The standard that leads to the highest level of water quality (typically defined as the higher phosphorus reduction capacity) shall be the applicable standard for that particular project.

- Policy 3.7: Development and redevelopment projects must include BMPs that provide pollutant load reductions for total phosphorus and total suspended solids based on the MPCA's Minimal Impact Design Standards. For the BCWMC, if the MIDS performance goal is not feasible and/or not allowed for a proposed project, then the project must implement the BCWMC flexible treatment options.[41] Stormwater ponds have been the most common water quality treatment BMP in Robbinsdale used to meet this requirement, although bioretention features such as raingardens are becoming a more common water quality BMP option. The use of other water quality BMPs to meet this requirement include:
    - Impervious surface reduction
    - Infiltration/filtration features
    - Underground infiltration/filtration features
    - Storm water capture and reuse (i.e. cisterns, rain barrels)
    - Storm water wetlands
    - Structural treatment devices

[41] BCWMC Requirements for Improvements and Development Proposals, Appendix A (Revised August 2017)

Additional information regarding these BMPs as well as other strategies that will minimize future impacts to water resources can be found in the Minnesota Storm Water Manual, at https://stormwater.pca.state.mn.us/index.php/Stormwater_Manual_Table_of_Contents.

- Policy 3.8: Redevelopment projects that propose to increase the existing impervious area by any amount shall provide water quality treatment for all areas of site disturbance in conformance with SCWMC and/or BCWMC standards. The BCWMC requires all stormwater to be treated in accordance with the MPCA's Minimal Impact Design Standards (BCWMC WMP, Section 4.2.1: Water Quality Policies). SCWMC requires that development and redevelopment projects meet Commission water rate, quality, and volume requirements for the entire site, depending on the size of the project (SCWMC Third Generation WMP, Section 4.3.1: Rules and Standards and Project Reviews).

- Policy 3.9: Linear projects creating one or more acres of new impervious surface will require a project review by the SCWMC and linear projects disturbing one or more acres shall be submitted to the BCWMC for review to make sure rules and standards are met within respective watershed jurisdictions. Proposed linear projects disturbing more than five acres require action at a BCWMC meeting. Additionally, the BCWMC needs an erosion and sediment review for one or more acres of linear project land disturbance as well as water quality review for linear projects that create one or more acres of net new impervious surface.

- Policy 3.10: Storm water detention facilities and other BMPs used to meet the storm water management policies and ordinances of Robbinsdale shall be designed according to the most current guidance as reflected in the MPCA's "Protecting Water Quality in Urban Areas" and their Minnesota Storm Water Manual.

- Policy 3.11: Seek to incorporate water quality BMPs, such as Continuous Deflective Separation (CDS) units, into City infrastructure projects, specifically street and parking lot reconstruction projects, where feasible.

7.5 Volume Management

Goal 4: Reduce pollutant loads to waterbodies and encourage groundwater recharge and protection by reducing the volume of storm water runoff from development, redevelopment, and street reconstruction projects.

- Policy 4.1: In accordance with the City's SWPPP, Robbinsdale will review and update City Code periodically to address storm water volume management, consistent with current regulatory requirements.

- Policy 4.2: Development and redevelopment projects must include BMPs that provide volume reduction for various BMPs based on the MPCA's MIDS performance goal. This includes retention of 1.1 inches of runoff from impervious surfaces for development or redevelopment creating one or more acres of net new impervious surface.[42] For the BCWMC, if the MIDS performance goal is not feasible and/or not allowed for a proposed project, then the project must implement the BCWMC flexible treatment options.[43]

- Policy 4.3: The SCWMC requires that the infiltration rate from net new impervious surface must be at least one inch in 48 hours.[44]

- Policy 4.4: As a means of meeting volume management standards, the City will encourage the minimization of impervious surface, disconnection of hard surfaces, and preservation of natural vegetation.

- Policy 4.5: Seek to incorporate volume management BMPs into City infrastructure projects, specifically street and parking lot reconstruction projects, where feasible.

7.6 Groundwater

Goal 5: In an effort to recharge groundwater, the City will also take efforts to prevent pollutants from entering the groundwater system.

- Policy 5.1: The City's Wellhead Protection Plan will serve as a guide to protecting groundwater resources and the quality of the City's municipal water system.

- Policy 5.2: Follow the guidance identified in the Minnesota Storm Water Manual for the proper siting of infiltration systems to protect groundwater resources.

- Policy 5.3: Periodically review the City's current Spill Response Plan (identified in SWPPP BMP 6a-4) and update the plan as appropriate.

7.7 Erosion and Sediment Control, Monitoring, and Maintenance

Goal 6: Prevent construction site sediment from entering the City's surface water resources.

- Policy 6.1: In accordance with the City's SWPPP, Robbinsdale will review and update City Code periodically to address construction site and land disturbance runoff control, consistent with current regulatory requirements.

[42] BCWMC 2015-2025 Watershed Management Plan, 4.2.2
[43] BCWMC Requirements for Improvements and Development Proposals, Appendix A (Revised August 2017)
[44] SCWMC Third Generation Watershed Management Plan, 4.3.1

- Policy 6.2: Robbinsdale requires that erosion and sediment control practices be consistent with the standard identified in the current MPCA Construction General Permit and the most current version of the Minnesota Storm Water Manual.

- Policy 6.3: Require that all land disturbing activities of 1 acre or more obtain an NPDES construction storm water permit from the MPCA, and prepare erosion control plans.

Goal 7: Maintain the function and effectiveness of storm water management structures through monitoring and maintenance.

- Policy 7.1: As per the City SWPPP, Robbinsdale will inspect and perform the following maintenance actions, as follows:
    - 6a-2: All City streets and parking lots swept at least 2 times throughout the year
    - 6a-2(2): Streets swept as early as possible in late winter to remove residual product prior to spring rains
    - 6b-2: All structural pollution controls inspected annually and followed up with repair/maintenance on inspected items
    - 6b-3: A minimum of 20% of MS4 outfalls, sediment basins, and ponds inspected annually on a rotating basis and undertake repairs/maintenance on inspected items as found necessary
    - 6b-4: all exposed stockpiles, storage, and material handling areas will be inspected annually and within 30 days undertake corrections found necessary to prevent erosion and/or the passage of non-storm water into the system

7.8 Recreation, Fish, and Wildlife Habitat

Goal 8: To protect and enhance opportunities for water recreation.

- Policy 8.1: Coordinate efforts with state, county, jurisdictional watersheds, and neighboring municipalities to enhance water-based recreation to the extent practical.

Goal 9: To protect and enhance fish and water related wildlife habitats.

- Policy 9.1: Preserve protected waters and wetlands that provide habitat for fish spawning and wildlife.

- Policy 9.2: In conformance with the SCWMC and BCWMC, the City will coordinate efforts to protect threatened and endangered species with the Minnesota DNR.

- Policy 9.3: In conformance with the SCWMC and BCWMC, the City will coordinate efforts to protect areas of significant natural communities with the Minnesota DNR.

- Policy 9.4: Management practices shall promote and encourage the use of streams and lakes as wildlife corridors.

- Policy 9.5: The City will cooperate with the jurisdictional watersheds to encourage the restoration of shoreline by the establishment of native shoreline buffers and stabilizing eroding shorelines.

7.9 Wetland, Lake, and Creek Management

Goal 10: Protect and preserve wetlands to maintain or improve their function and value.

- Policy 10.1: The City will defer the administration of WCA responsibilities to the SCWMC and BCWMC within their respective jurisdictions. As projects are submitted, the City will continue to coordinate WCA activities with the Commissions.

- Policy 10.2: The City requires that a delineation of all wetlands within a proposed development, redevelopment, or site expansion project be completed and that a report detailing the delineation findings be provided.

- Policy 10.3: Robbinsdale will require that a functions and values assessment be completed for all wetlands within a proposed development, redevelopment, or site expansion project. This requirement, but not the delineation requirements, will be waived if the City is in possession of a prior functions and values assessment that is no more than five years old.

- Policy 10.4: On public projects, the City will perform a function and values assessment for wetlands within the City and downstream of the project area, unless a prior functions and values assessment exists that is no more than five years old.

- Policy 10.5: The City of Robbinsdale will develop an ordinance to address watercourse and wetland buffers consistent with jurisdictional watershed policies (see Appendix D).

Goal 11: Manage lakes and creeks to improve water quality.

- Policy 11.1: Robbinsdale adopts the waterbody classifications and subsequent water quality management standards developed by the SCWMC and BCWMC.

- Policy 11.2: According to the requirements of its MS4 permit and guidance provided in this Local Surface Water Management Plan, Robbinsdale will make the necessary modifications to its SWPPP to include implementation priorities identified in current and future TMDL Implementation Plans.

- Policy 11.3: Upon approval of a TMDL Implementation Plan for the impaired waters identified in Table 2.7 the City will review whether modifications to the City's SWPPP are warranted to address the TMDL Waste Load Allocations (WLA) identified by the TMDL process. The SWPPP update process to address WLA and implementation activities follows the direction of the City's MS4 Permit. The City intends to coordinate TMDL implementation efforts with outside agencies to address the items identified in the TMDL Implementation Plans.

- Policy 11.4: Storm water runoff must be pretreated prior to discharging into lakes or streams in the City.

Goal 12: Conserve and protect shoreland areas within the City.

- Policy 12.1: New development and redevelopment proposals must be consistent with DNR Shoreland Protection Regulations, where applicable.

- Policy 12.2: Robbinsdale will develop a shoreland ordinance consistent with the DNR Shoreland Protection Regulations and any additional shoreland regulations of the local watershed management commissions.

7.10 Public Participation, Coordination, and Education

Goal 13: Coordinate the implementation of storm water management efforts with the two watershed management commissions, adjacent municipalities, and City residents according to the commitments made in Robbinsdale's SWPPP.

- Policy 13.1: Coordinate on-going public education and outreach programs with the local watershed management commissions and other governmental agencies designed to bring awareness to the City's storm water management goals and policies and possibly participate in resource management plans and studies that benefit water and natural resources. This policy is consistent with BMPs 1a-1, 1b-1, 1c-1 through 3, and 1d-1 in the City's SWPPP.

- Policy 13.2: Increase public awareness and understanding of stormwater issues as they relate to construction site runoff and post construction management in development and redevelopment areas. This policy is consistent with BMPs 1c-4, 1c-5, and 1c-6 in the City's SWPPP.

- Policy 13.3: Provide opportunity for residents to make written or verbal comments on the appropriateness of the City's SWPPP and conduct an annual public meeting at City Hall to

receive public opinion on the adequacy and effectiveness of the SWPPP program components. This policy is consistent with BMPs 1e-1, 2a-1, 2b-1, and 2c-1 in the City's SWPPP.

- Policy 13.4: Continue the training program for City staff regarding threats to water quality and best methods to address concerns. This policy is consistent with BMPs 1c-6, 3d-1, and 6a-1 in the City's SWPPP.

- Policy 13.5: Coordinate with the SCWMC and BCWMC regarding the implementation, schedule, and funding of the storm water management improvements identified in this plan.

- Policy 13.6: Work with adjacent municipalities and the watersheds in planning and implementing mutually beneficial regional storm water management improvements.

- Policy 13.7: Promote citizen and volunteer efforts to protect, restore, and enhance local water and natural resources. This policy is consistent with BMP 1c-2 of the City's SWPPP.

- Policy 13.8: Use available opportunities through the newsletter, website, Comprehensive Plan, public meetings, or interpretive elements at parks and open spaces sites to inform residents about the value of local water resources, potential negative effects of storm water runoff, and opportunities for stewardship of water and natural resources. This policy is consistent with BMPs 1a-1, 1c-1, and 1c-3 through 5 of the City's SWPPP.

- Policy 13.9: Robbinsdale will continue to appoint a technical advisor to the BCWMC and SCWMC Technical Advisory Committees. This policy is consistent with 4.2.10 in the BCWMC Watershed Management Plan and 3.2.1 in the SCWMC Watershed Management Plan.

- Policy 13.10: Robbinsdale will continue to coordinate project reviews with the jurisdictional watershed, informing the applicant of the applicable storm water management requirements, and forward development of proposals to the respective watershed management commission.

7.11 Pollution Prevention

Goal 14: Detect and address urban pollutants discharged to storm sewers.

- Policy 14.1: In accordance with the City's MS4 Permit, Robbinsdale will review and update City Code periodically to address illicit discharge and illicit connection, consistent with current regulatory requirements.

- Policy 14.2: In accordance with SWPPP BMPs 1c-3, 1c-6, 3b-1, 3c-1, 3d-1, and 3e-1, the City will address illicit discharge and illicit connection through enforcement of City Code, employee training, and public education.

- Policy 14.3: In accordance with SWPPP BMPs 1c-4, 4a-1, 4b-1, and 4c-1, the City will address construction site and land disturbance runoff control through enforcement of City Code, employee training, and public education.

- Policy 14.4: In accordance with SWPPP BMPs 1c-5, 5a-1, and 5b-1, the City will address post construction site runoff control through development and enforcement of City Code, employee training, and public education.

- Policy 14.5: Conduct inspection and maintenance of both public and private BMPs on a regular basis to ensure correct functioning of the BMP. This policy is consistent with BMP 5c-1 of the City's SWPPP.

- Policy 14.6: The City will prohibit the discharge of foreign material into the storm water system. Such material shall include, but is not limited to, waste oil, paint, grass clippings, leaves, and ecologically harmful chemicals.

- Policy 14.7: Per City SWPPP BMP 3b-1, the City will review and update as necessary City Code Section 1145 to address the proper application of pesticides, herbicides, and fertilizers through internal City staff training and public education.

7.12 Funding

Goal 15: Secure adequate funding to support implementation of the Local Surface Water Management Plan.

- Policy 15.1: Fund implementation of the plan with revenue from the storm sewer utility and periodically review the storm sewer utility rates to determine if the revenues are adequate.

- Policy 15.2: Seek grant funds or other resources to assist with special projects or implementation of Local Surface Water Management Plan goals and policies.

Section 8 – Implementation

8.1 Overview

Section 6, Current Assessment, identifies the water resource management challenges faced by Robbinsdale. Section 7, Goals and Policies, sets general policy direction and City aspirations towards meeting these challenges. This section of the Local Surface Water Management Plan describes specific implementation actions the City can use to accomplish substantive improvements in its surface water discharge and thus directly address its water resource management challenges in conformance with its stated goals and policies.

This implementation section reflects the needs and concerns of many stakeholders including the City Council, City staff, citizens, and the jurisdictional watershed management commissions. The City's implementation activities can be grouped into the following categories:

- Official Controls
- MS4 Permit Compliance
- TMDL Implementation
- Agency Compliance
- Operation and Maintenance

Each proposed implementation action associated with the implementation categories identified above have a specific impetus discussed blow. Costs for each implementation action are identified in Table 8.4. It should be noted that estimated costs presented in this section are preliminary only and are presented for long-term budget planning purposes.

8.2 Official Controls

Official controls are necessary tools to help support implementation of this plan. Official controls can come in the form of City code and ordinances as well as watershed and state and federal agency recommendations and regulations Based on the assessment of current controls (Table 6.1) as well as anticipated official control implementation actions (Table 8.1), Robbinsdale will need to update code and ordinances relating to shoreland management, groundwater, and wetlands and public waters. Robbinsdale has a responsibility to follow through with the implementation items and policies described in this plan. Per Minnesota Statute 103B.235 Subd. 4, the City shall amend its official controls

as laid out in Table 8.1 within 180 days after adoption of this plan. Once official controls are revised, the city is to notify the BCWMC within 30 days of the adoption of the amended or new official controls.[45] The official controls that are required to be updated only related to the BCWMC, so they will be the only Commission to be notified.

8.3 MS4 Permit Compliance

As discussed in Section 6.4, Robbinsdale is designated as an NPDES Phase II MS4 community. As part of Robbinsdale's application to obtain MS4 Permit coverage, the City's SWPPP identifies many specific implementation items related to surface water management. While it is not the City's intent to reproduce the specific implementation items from their SWPPP in this Local Surface Water Plan, the specific items identified in the SWPPP can be lumped into implementation categories, identified below:

MS4 Permit Implementation Items

- General ongoing SWPPP implementation items, including: system inspections, educational materials, website updates, etc.
- Ordinance updates, specifically: illicit discharge and illicit connection, construction site and land disturbance runoff control, and post construction site runoff control
- Plan review procedures and standards
- NPDES Annual Report
- Impaired waters review
- Surface water system map

The cost for implementing the items listed above will vary from year to year, but for budgeting purposes estimated costs for these items are included in Table 8.4. A copy of the current SWPPP can be found on the City's website at: http://www.robbinsdalemn.com/city-government/city-departments/engineering

8.4 TMDL Implementation

As discussed in Section 6.5, the City recognizes that the responsibility for completion and implementation of the TMDL studies lies with the primary stakeholders contributing to the impairment. The City intends to cooperate with the lead entities in the development of the TMDL studies, acknowledging that these lead entities will perform these studies. It is the intention of the City to fully implement the items and actions identified in existing and future TMDL Implementation Plans

[45] BCWMC 2015-2025 Watershed Management Plan, 5.3.1.2

and designate adequate funding for these efforts. The following sections outline Robbinsdale's implementation activities as outlined in the three TMDL Implementation Plans affecting the City.

8.4.1 Shingle Creek Chloride TMDL

In 1996, Shingle Creek was the first stream in Minnesota to be designated an Impaired Water for excess chloride. Before that time, streams in Minnesota were rarely monitored for chloride, which is now found at high levels in numerous streams in the Metro area and is an emerging pollutant of concern in waters of the state. The 2007 Shingle Creek Chloride TMDL required a 71% reduction in chloride, mostly from road salt. A TMDL Five Year Review was completed in 2014, which found that while road salt use has been reduced, there has been no improvement in stream water quality.

The activities and BMPs identified in the implementation plan are the result of a series of stakeholder working meetings led by the Shingle Creek Watershed Management Commission. Representatives from cities (including Robbinsdale), MnDOT, Hennepin County, and regulatory agencies met multiple times to discuss the TMDL requirements, BMPs and technologies available to address chloride, public safety, and the feasibility of implementing the activity. As a result of these meetings, Robbinsdale identified their current efforts for managing the City's winter road salt supply and in the TMDL Five Year Review updates were made to current activities and identification of activities that could be considered to address the needed load reductions. These items are listed in Table 8.2 along with Robbinsdale's current and proposed activities.

In addition to chloride BMP implementation measures identified in Table 8.2, pervious pavement was constructed at two intersections to create a physical ice control substitute for road salt. The SCWMC investigated the performance of unsalted pervious pavement in relation to salted traditional pavement during the winter season. The final report came out in 2014 and data shows that porous pavement at low-volume residential intersections could be an effective ice control BMP.[46] The University of Minnesota is now using the area for a Local Road Research Board (LRRB) study.

In accordance with the City's SWPPP, Robbinsdale is committed to tracking and reporting these activities in their annual NPDES report.

8.4.2 Twin and Ryan Lake Nutrient TMDL

The Twin and Ryan Lakes Nutrient TMDL was approved by the US EPA in November 2007 and the Implementation Plan followed. The TMDL Implementation Plan identifies external and internal lake improvements to address the nutrient impairment in the Twin Lake chain of lakes.

[46] Porous Pavement Paired Intersection Study, January 2014, Wenck Associates Inc.

The first lake in the chain, Upper Twin Lake, required a 58% reduction in nutrient loads to the lake to meet nutrient standards, while the other three – Middle Twin, Lower Twin, and Ryan Lakes – require a 12-19% reduction. A TMDL Five Year Review was completed in 2014 and found that nutrient loads from the watershed have been greatly reduced. The focus for the next five years will be on controlling rough fish and invasive aquatic vegetation.

Robbinsdale continues to carry out long-term implementation actions to support reduction of nutrient loads in this chain of lakes and keep Lower Twin and Ryan lakes delisted for excess nutrients. These actions include retrofitting BMPs as redevelopment or new construction project provide opportunities, increase infiltration requirements for new and redevelopment projects, wildlife and aquatic vegetation management, street sweeping, and ongoing system maintenance.

8.4.3 Crystal Lake Nutrient TMDL

The Crystal Lake Nutrient TMDL was approved in 2009, which addressed the nutrient impairment in Crystal Lake. Crystal Lake requires a 72% reduction in nutrient loading to consistently meet state water quality standards. Numerous small projects were completed in the watershed, and in 2013 a flocculation facility became operational on Crystal Lake featuring a hypolimnetic withdrawl system to remove phosphorus; nutrient-rich water is pumped from certain depths in the lake, treated, and returned to the lake. A TMDL Five Year Review concluded that the withdrawl system should continue to target the treatment of water pumped from the lake, and that reductions in nutrient loading from the watershed should continue as opportunities arise.

8.5 Operation and Maintenance

Robbinsdale's existing storm water management system represents a major investment for the City, and the ongoing maintenance of this system is critical to protecting the investment. Generally, storm water system maintenance is funded by the City's storm sewer utility. The maintenance responsibilities are:

1. Street sweeping
2. Cleaning of catch basins
3. Repair of catch basins and manholes
4. Assessing pipe condition (i.e. televising)
5. Inspection of storm sewer inlet and outlet structures
6. Excavation of accumulated sediments in ponds and swales
7. Pumping of structural treatment devices such as sump manholes and grit chambers
8. Maintenance of public raingardens

9. Operation of Crystal Lake Flocculation Facility

The City should continue to evaluate if the existing storm sewer utility rates can adequately fund the maintenance of the existing storm water management system. Table 8.3 provides the City's storm water system maintenance schedule.

8.6 Storm Water System Improvement Activities

Based on the assessment of the City's current surface water management program and the implementation items identified above, a set of storm water system improvement activities have been identified. The system improvements identified range from those being driven by regulatory requirements, to others driven more by the functionality of the City's surface water management system. Table 8.4 presents a summary of recommended surface water management activities. The budget amounts included in this table should be considered planning-level cost estimates, with more specific cost estimates to be determined as the project or activity approaches.

For capital improvement projects, the City will continue to rely on its capital improvement planning process to schedule and plan for funding these projects. This planning process is updated by City staff and reviewed and approved annually by the City Council. The activities listed in Table 8.4 will be used as a reference for particular projects and activities specific to surface water management to be included in the capital improvement planning process. It should be noted that the activities identified in Table 8.4 are not numbered in order of importance or priority; rather they are numbered for reference purposes only.

8.7 Financing

Implementation of the proposed studies, programs, and improvements identified in this plan will affect City finances. To quantify this effect, a review of the ability of the City to fund these studies, programs, and improvements is necessary. Below is a listing of various sources of revenue that the City could utilize to fund storm water management activities:

- Existing storm sewer utility
- Grant monies secured from various agencies
- General fund

- Watershed Management Special Tax Districts provided for under Minnesota Statutes Chapter 473.882
- Special assessments for local improvements performed under authority of Minnesota Statutes Chapter 429
- BCWMC funded projects are to be paid as a levy of an ad valorem property tax by Hennepin County on property within the Bassett Creek Watershed. Per Policy 110 of the 2015 BCWMC Watershed Management Plan,

  "*The BCWMC will consider including projects in the CIP that meet one or more of the following "gatekeeper" criteria.*

  - *Project is part of the BCWMC trunk system*
  - *Project improves or protects water quality in a priority waterbody*
  - *Project addresses an approved TMDL or watershed restoration and protection strategy*
  - *Project addresses flooding concern"*

- Other sources potentially including tax increment financing, tax abatement, state aid, and others

The storm sewer utility is Robbinsdale's primary funding source for storm water related activities. The utility currently generates approximately $580,000 annually. Robbinsdale uses this utility to fund a range of activities related to the operations of Robbinsdale's storm water management system in addition to capital improvements to the system. These funds are combined with other revenue sources, including bonds as necessary, to undertake the program and meet our statutory obligations as adopted by the City Council. Per Policy 15.1, Robbinsdale will periodically review the storm sewer utility rates to determine if the revenues are adequate.

Section 9 – Administration

9.1 Review and Adoption Process

Review and adoption of this Surface Water Management Plan will follow the procedure outlined in Minnesota Statutes 103B.253:

"After consideration but before adoption by the governing body, each local government unit shall submit its water management plan to the watershed management organization[s] for review for consistency with the watershed plan. The organization[s] shall have 60 days to complete its review.

Concurrently with its submission of its local water management plan to the watershed management organization, each local government unit shall submit its water management plan to the Metropolitan Council for review and comment. The council shall have 45 days to review and comment upon the local plan. The council's 45-day review period shall run concurrently with the 60-day review period by the watershed management organization. The Metropolitan Council shall submit its comments to the watershed management organization and shall send a copy of its comments to the local government unit.

After approval of the local plan by the watershed management organization[s], the local government unit shall adopt and implement its plan within 120 days, and shall amend its official controls accordingly within 180 days."

A copy of the approval letters received from the SCWMC and BCWMC as well as the Local Surface Water Management Plan adoption documents are included in Appendix E.

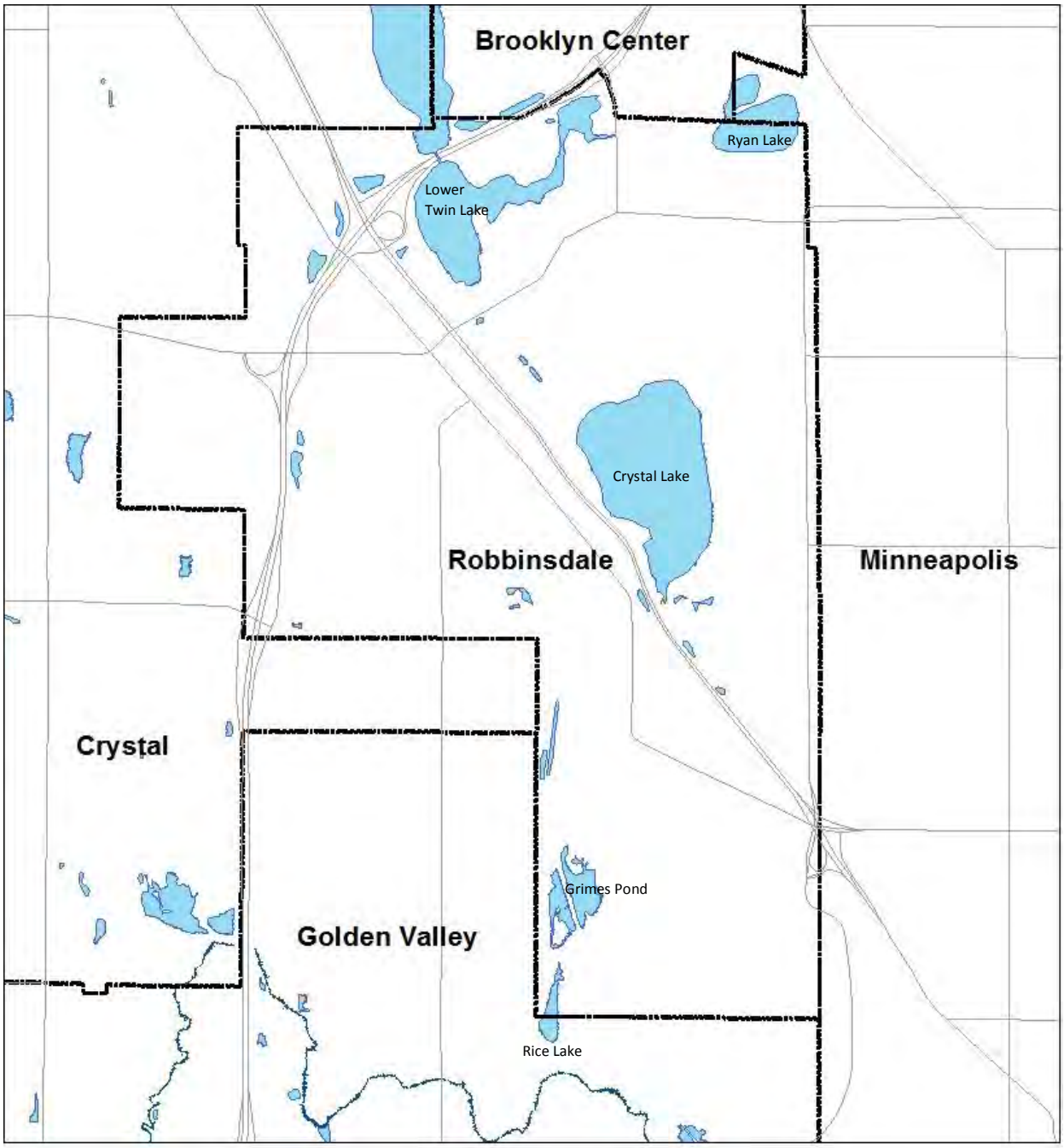
9.2 Amendments to Plan and Future Updates

This Local Surface water Management Plan will be effective through 2028, at which time an updated plan will be required. Periodic plan amendments may be required to incorporate major changed in local practices. In particular, changes in the two applicable Watershed Management Plans may require updates to this plan. Plan amendments will be incorporated by following the review and adoption steps outlined above.

The City views changes in local practice (e.g. modifications to the City's minimum engineering standards, improved storm water system maintenance techniques, etc.) that do not impact the standards or policies identified in this plan as only minor changes in local practice, and thus would not necessitate a plan amendment or update.

Figures

Figure 2.1 – Location of Robbinsdale in Relation to Neighboring Metro Cities



City of Robbinsdale

Robbinsdale and Neighboring Cities

N

0.4 0.2 0 0.4 Miles

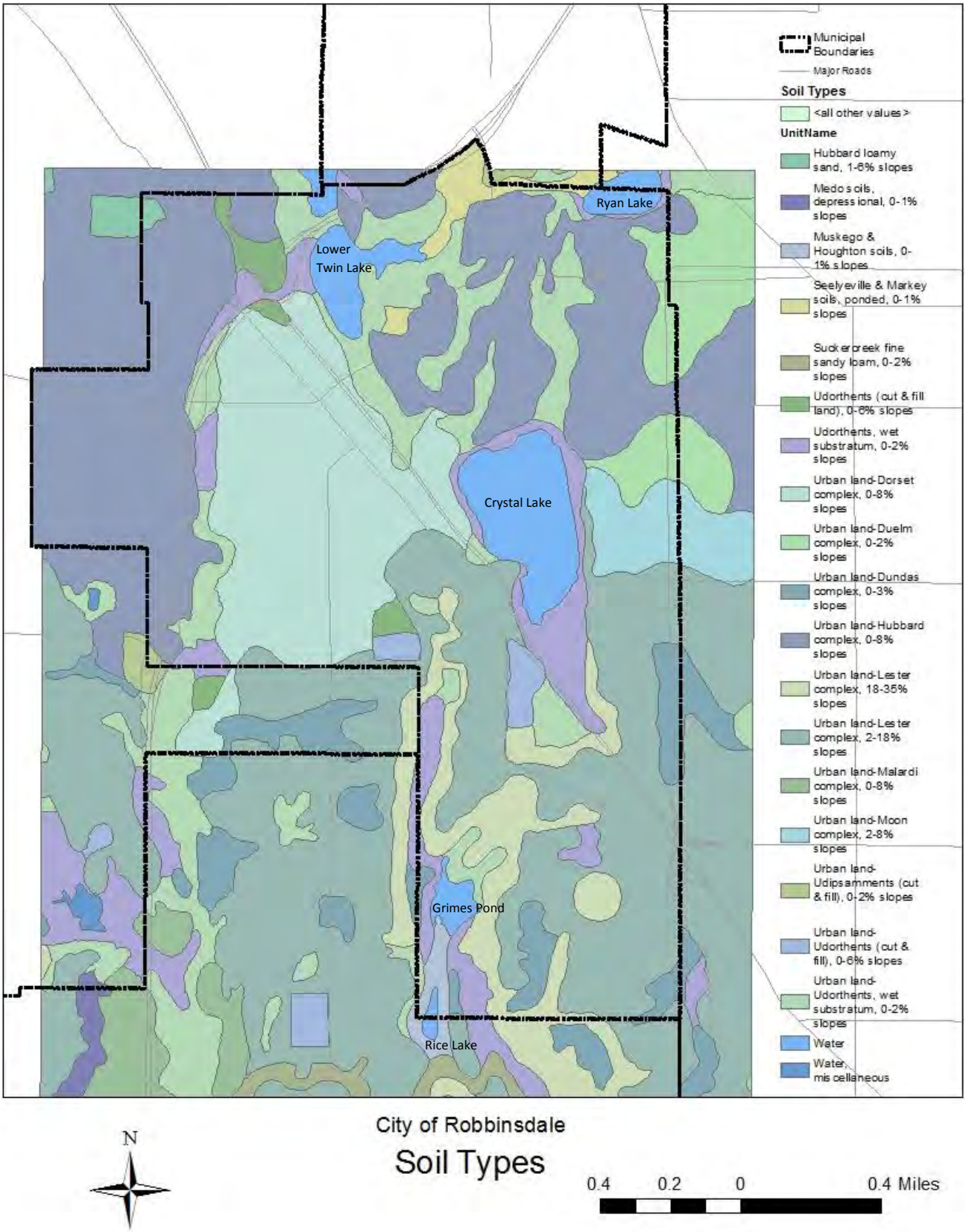
Major Roads
Municipal Boundaries
Lakes & Wetlands

City of Robbinsdale

Figure 2.2 – Watershed Management Organization Jurisdictional Boundaries

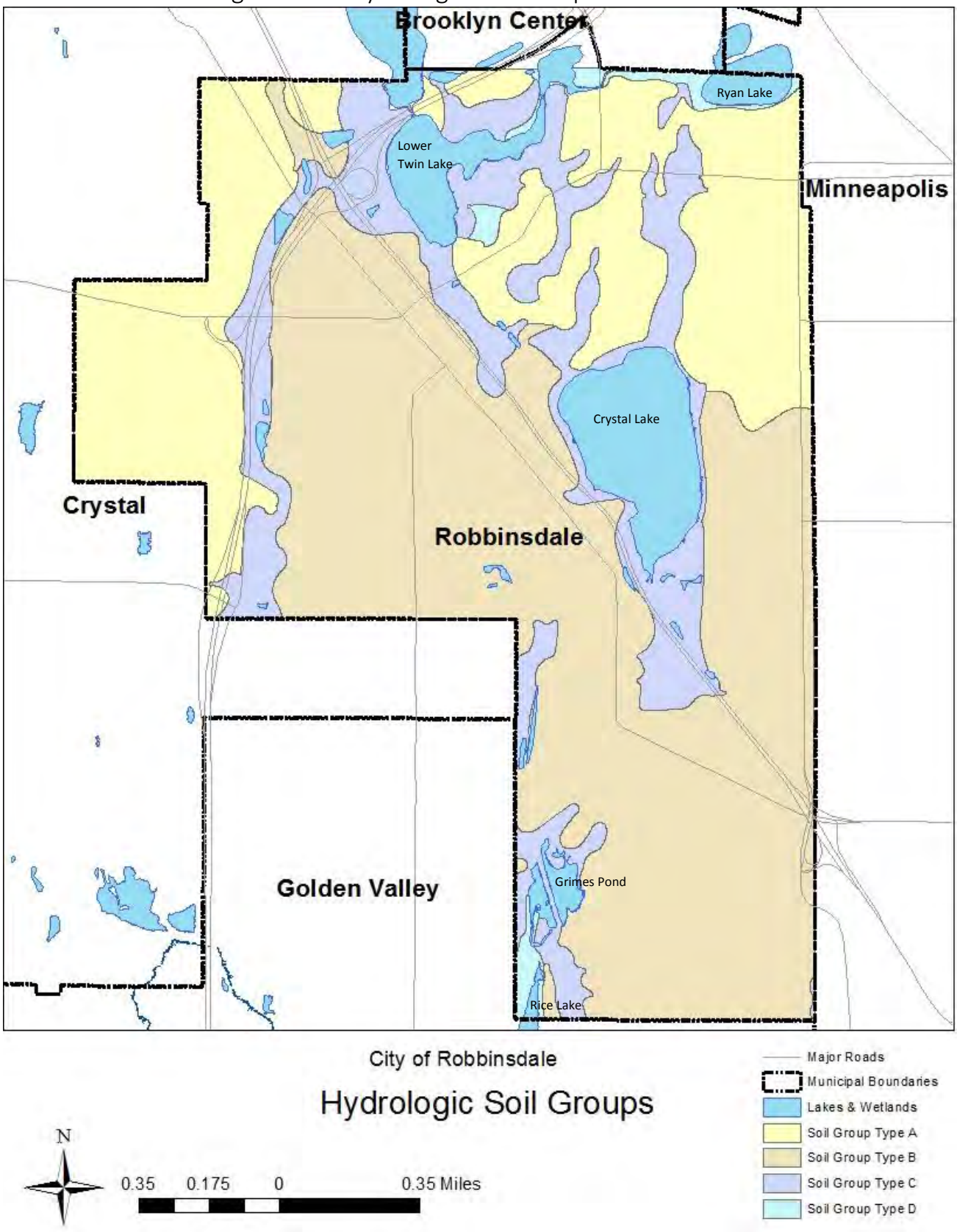
City of Robbinsdale

Figure 2.3 – Soil Types in Robbinsdale



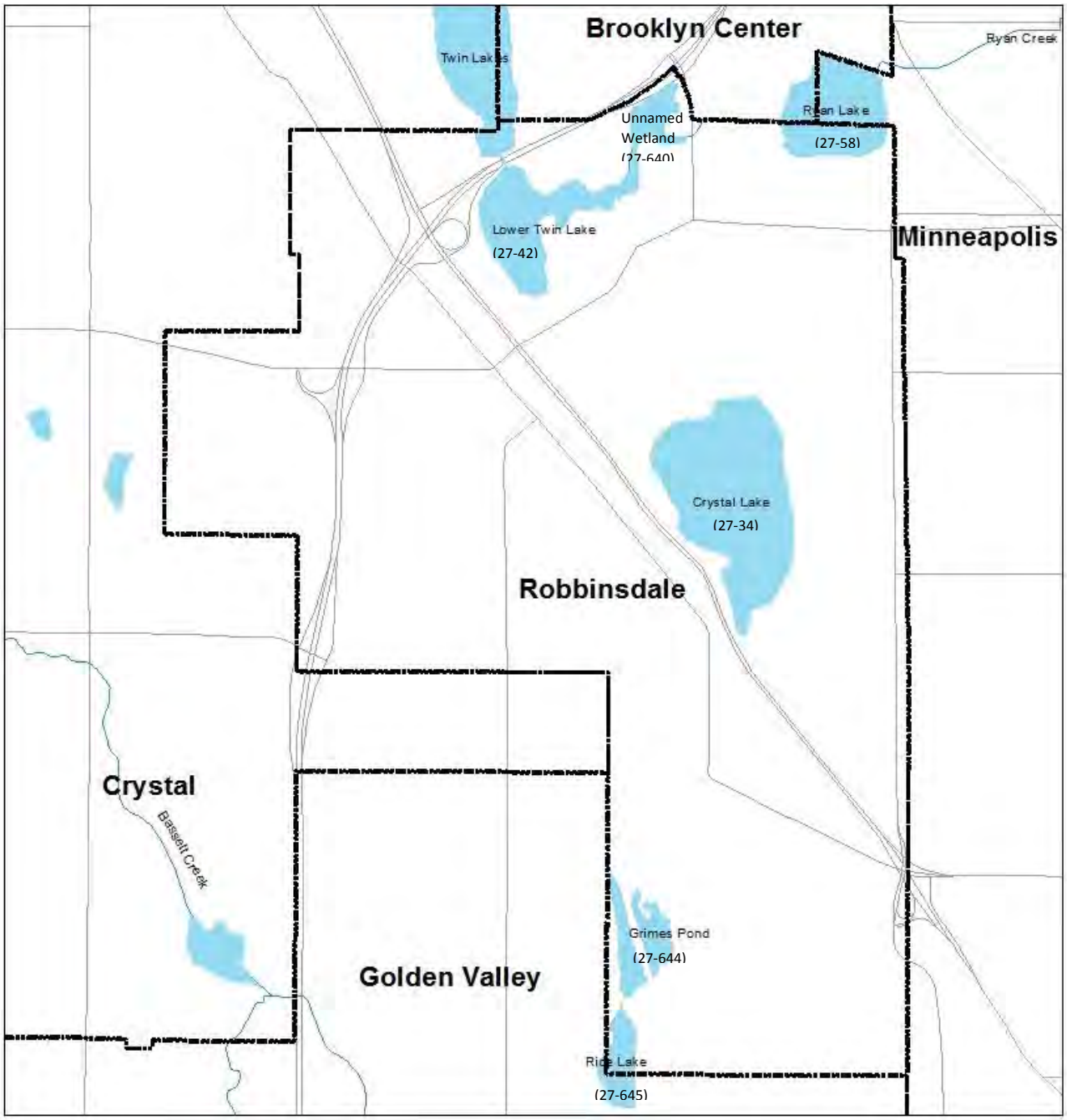
City of Robbinsdale

Figure 2.4 – Hydrologic Soil Group Classifications



City of Robbinsdale

Figure 2.5 – MN DNR Public Waters



City of Robbinsdale

DNR Public Waters

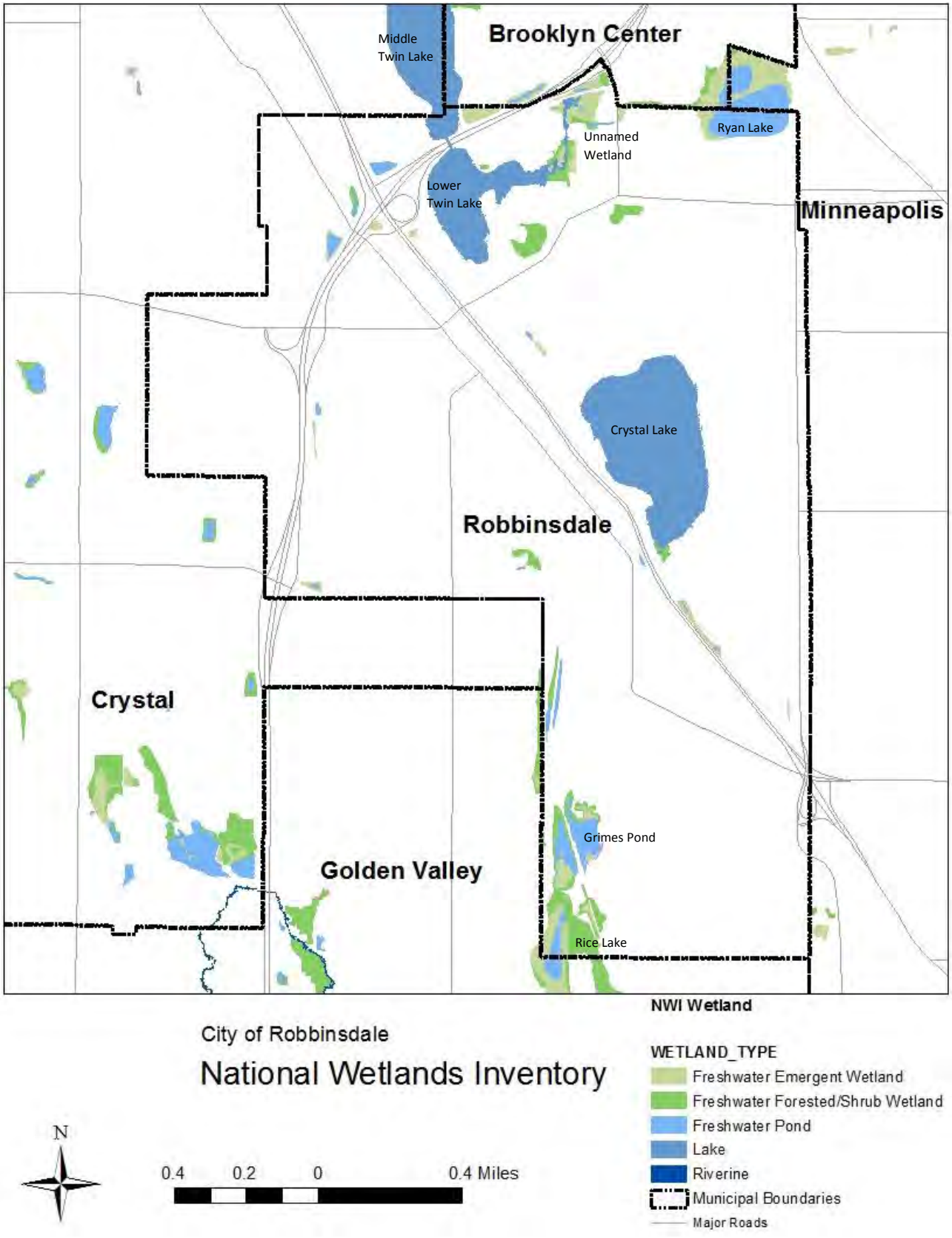
Municipal Boundaries
DNR Public Water Basins
DNR Public Watercourses
Major Roads

N

0.4 0.2 0 0.4 Miles

City of Robbinsdale

Figure 2.6 – National Wetlands Inventory



City of Robbinsdale

Figure 2.7 – FEMA Floodplain

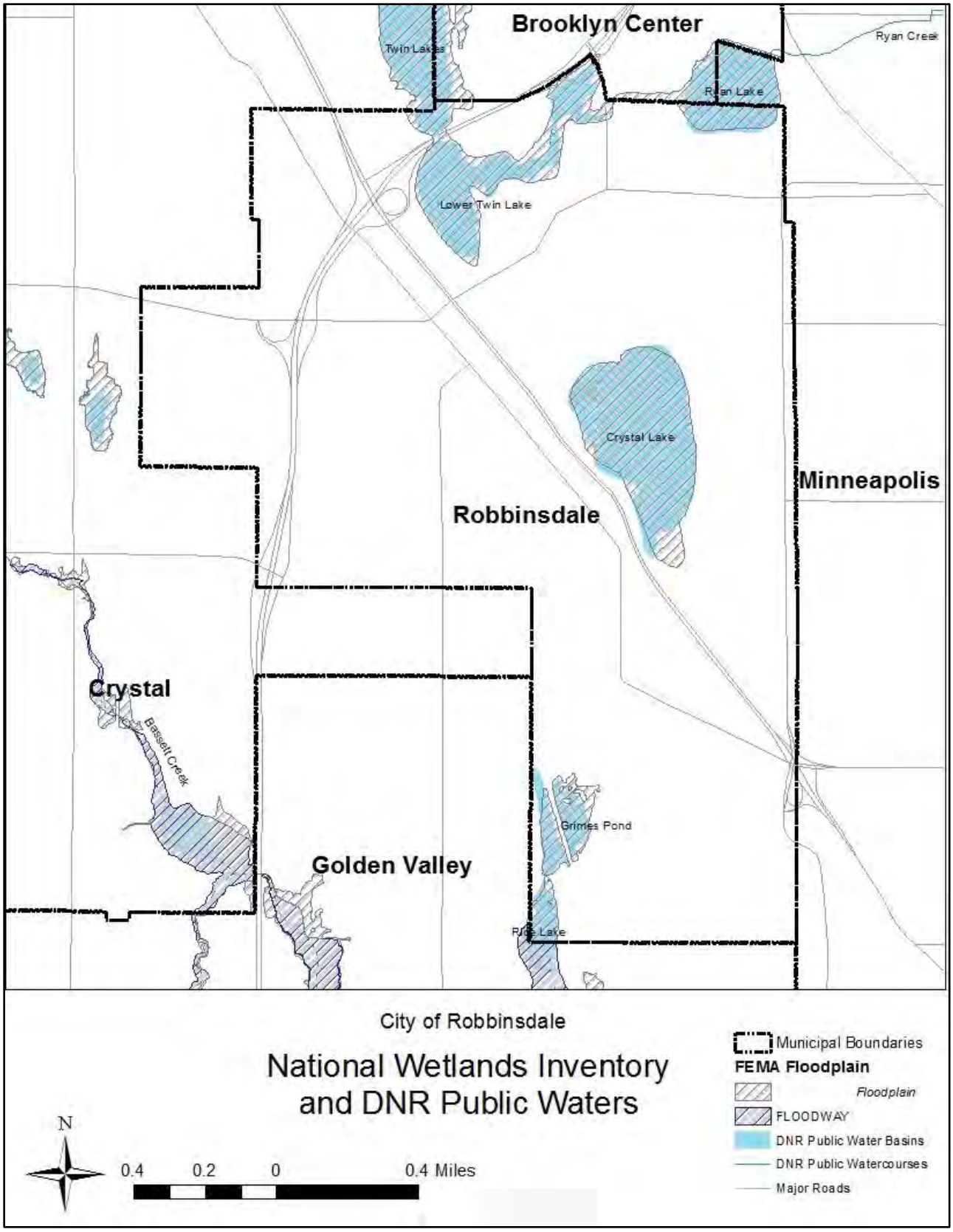
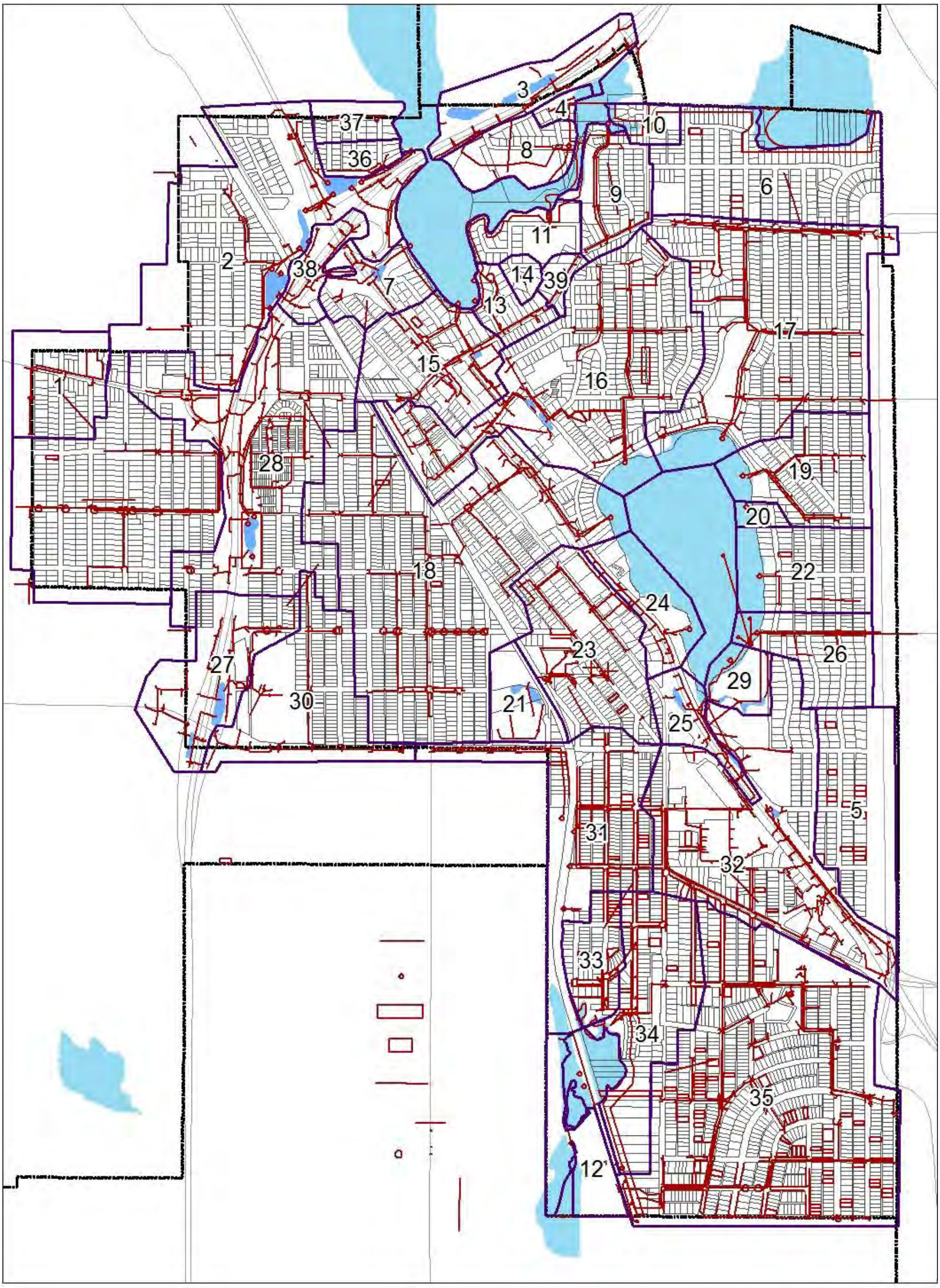
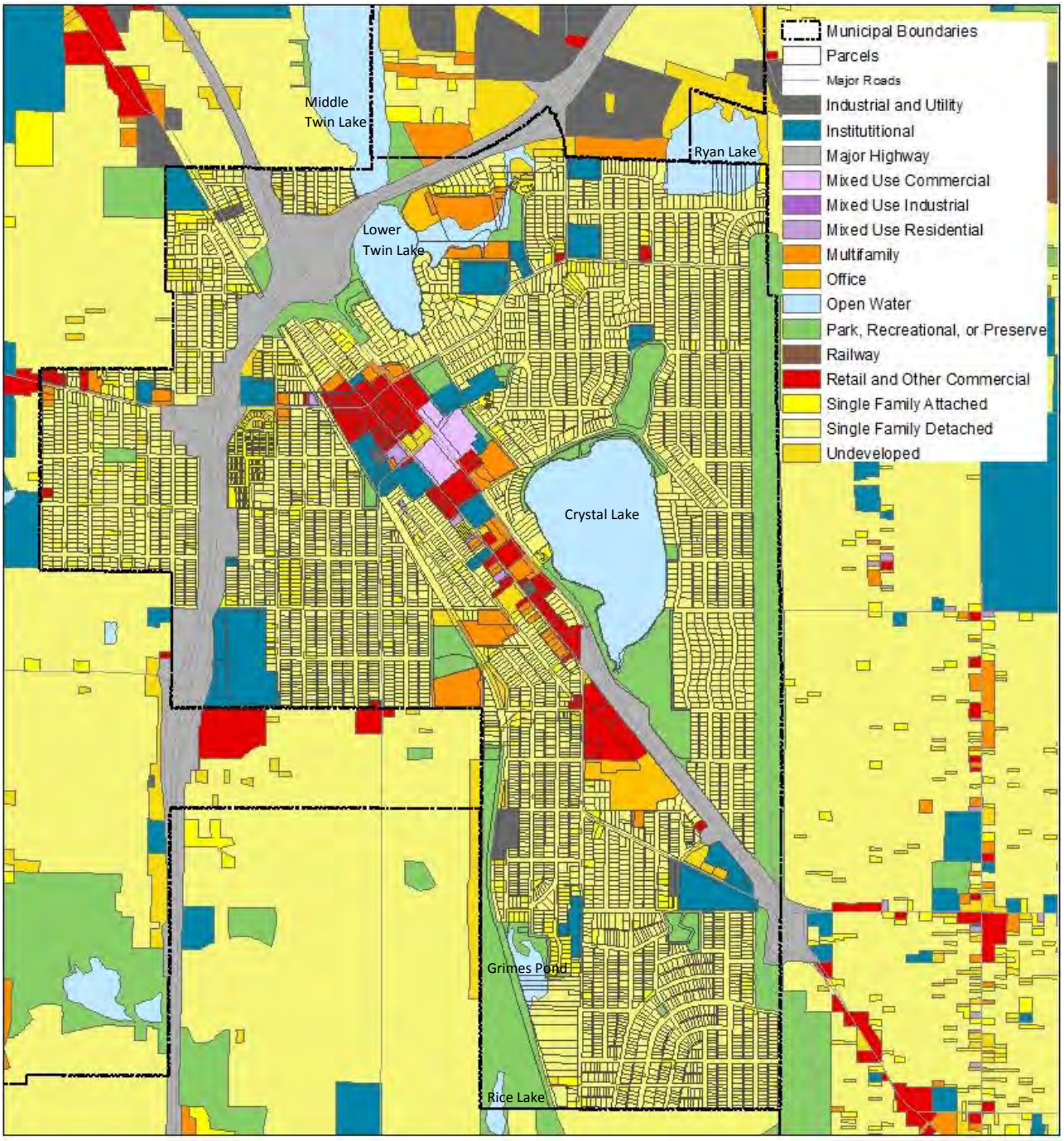


Figure 2.8 – Storm Water System



City of Robbinsdale

Figure 2.9 – 2010 Generalized Land Use



City of Robbinsdale

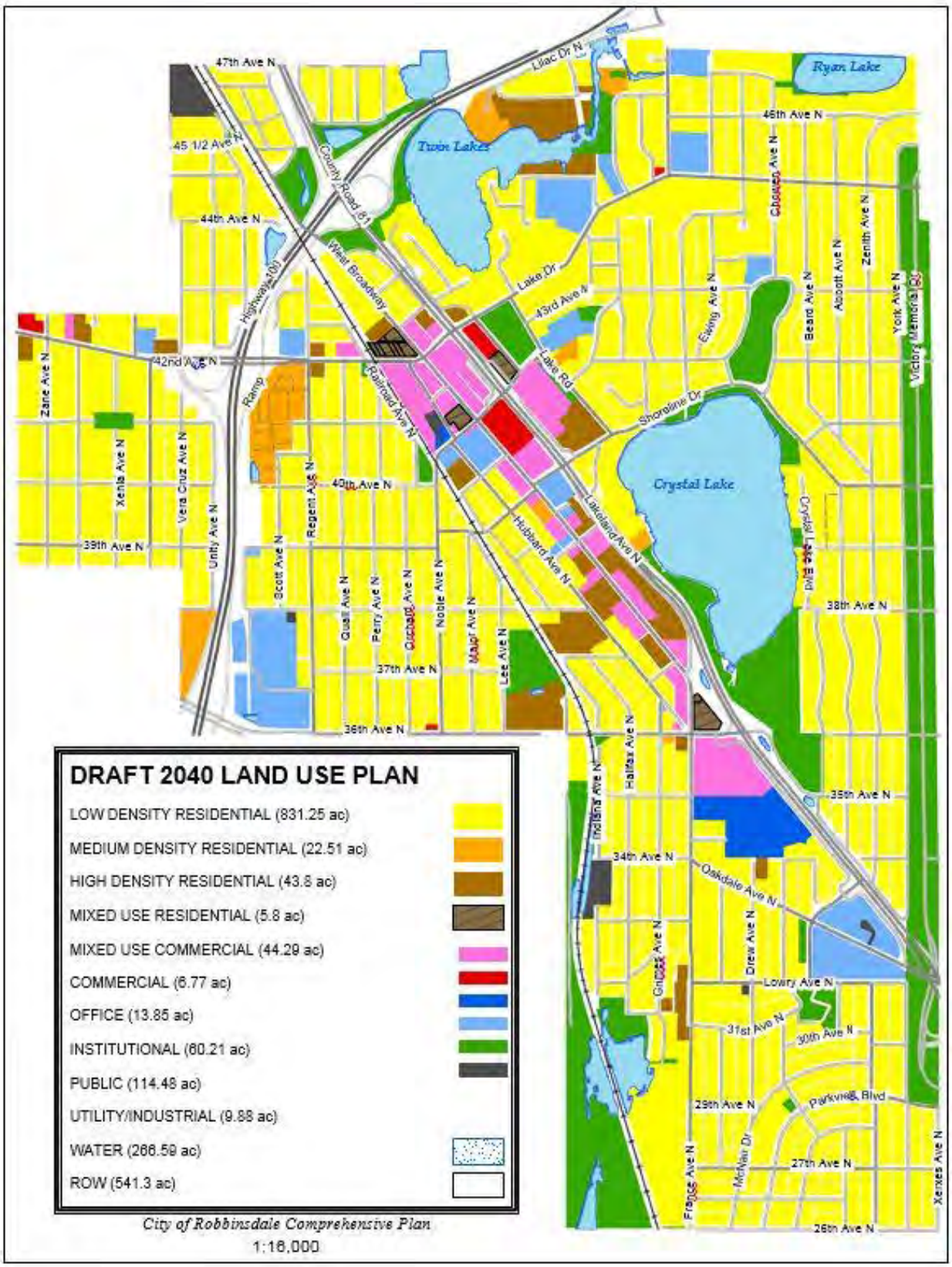
2010 Generalized Land Use

N

0.4 0.2 0 0.4 Miles

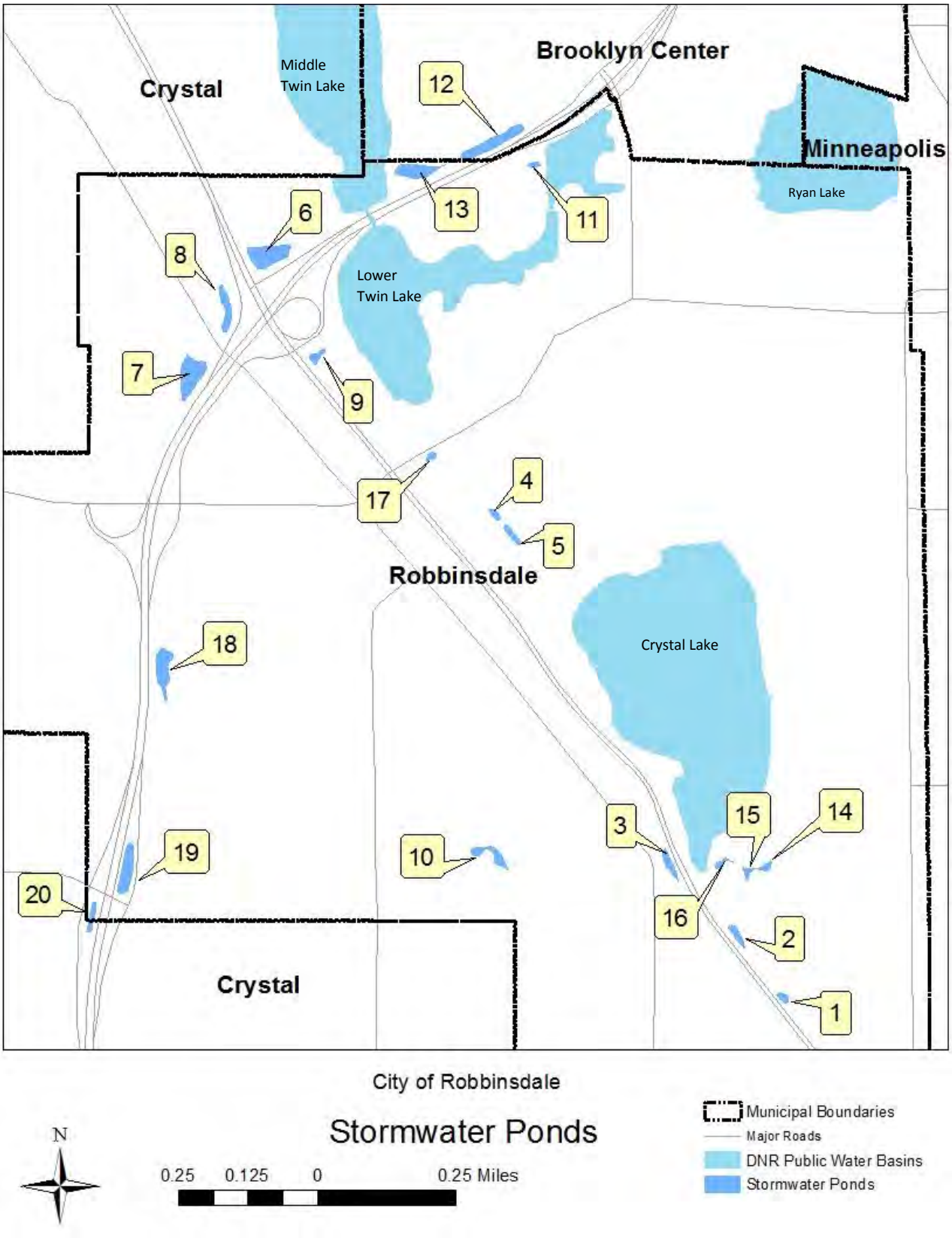
City of Robbinsdale

Figure 2.10 – Draft 2040 Land Use Plan



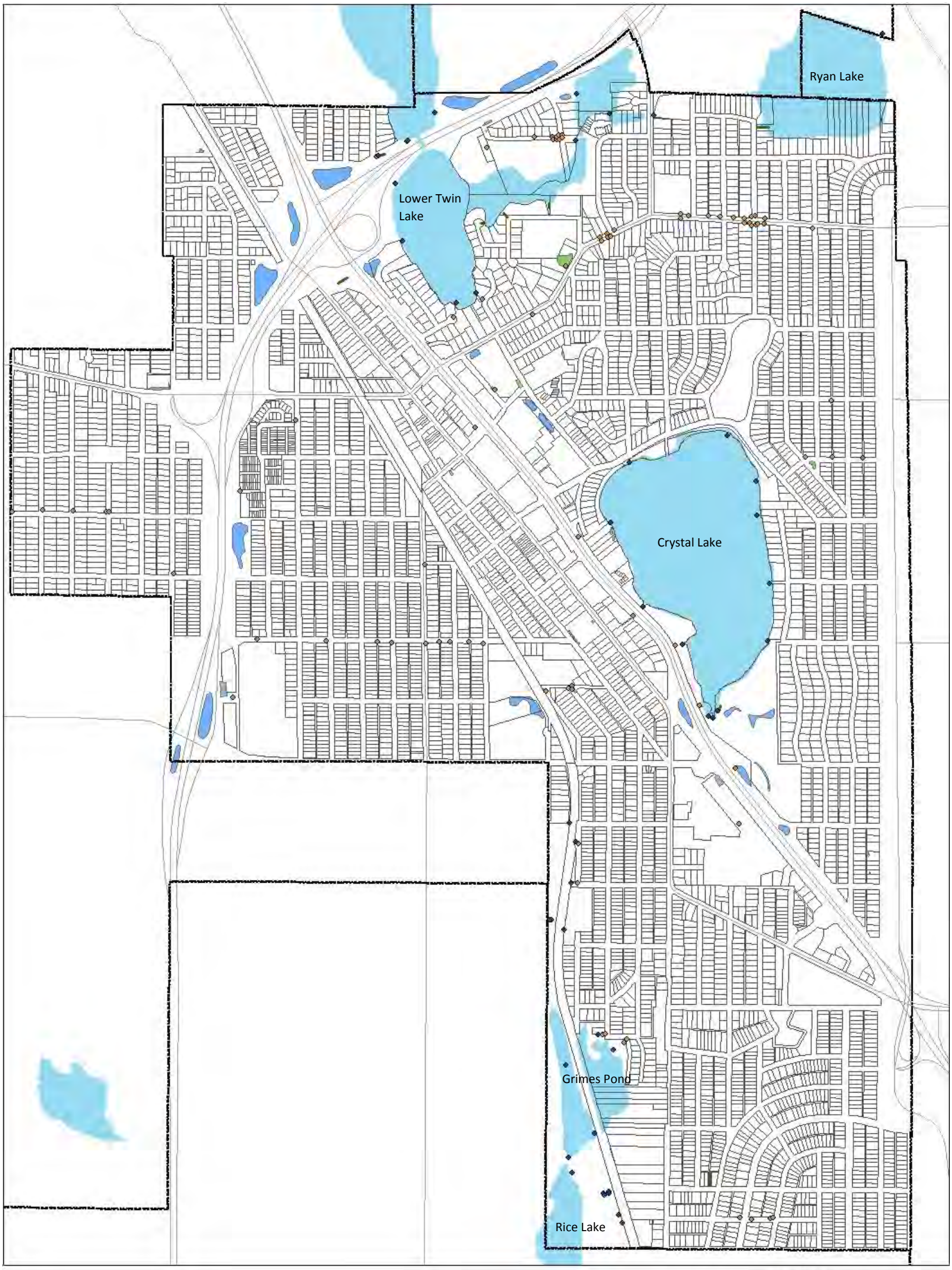
City of Robbinsdale

Figure 2.11 – Storm Water Ponds



City of Robbinsdale

Figure 2.12 – Best Management Practices



Tables

Table 2.1 – Forecasted Population, Households, and Employment

Forecast Year	Population	Households	Employment
2010 (Census)	13,953	6,032	6,858
2020	14,750	6,300	7,000
2030	15,100	6,600	7,100
2040	15,300	6,800	7,200

Data is from Robbinsdale 2040 Comprehensive Plan

Table 2.2 – Well Source and Status

Resource Type	Resource Name	MN Unique Well #	Year Installed	Capacity (gallons per min)	Well Depth (ft)	Status of Normal and Emergency Operations	Dedicated Emergency Power Source?
Groundwater	Well 1	00211995	1937	700	376	Active	Yes
Groundwater	Well 2	00211996	1945	470	413	Active	Yes
Groundwater	Well 3	00200215	1948	600	478	Active	No
Groundwater	Well 4	00211997	1953	600	404	Active	Yes
Groundwater	Well 5	00211998	1956	675	467	Active	No

Data from Robbinsdale 2040 Comprehensive Plan, Appendix A Water Supply Plan

Table 2.3 – Thirty Year Monthly Climate Data, Minneapolis/St. Paul, 1981 – 2010

	Months												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
Average Daily Temperature Maximum (^{o}F)	23.7	28.9	41.3	57.8	69.4	78.8	83.4	80.5	71.7	58.0	41.2	27.1	55.2
Average Daily Temperature Minimum (^{o}F)	7.5	12.8	24.3	37.2	48.9	58.8	64.1	61.8	52.4	39.7	26.2	12.3	37.2
Average Precipitation (in)	0.90	0.77	1.89	2.66	3.36	4.25	4.04	4.30	3.08	2.43	1.77	1.16	30.61
Average Snowfall (in)	12.2	7.7	10.3	2.4	0.0	0.0	0.0	0.0	0.0	0.6	9.3	11.9	54.4

Source: National Climatic Data Center

Table 2.4 – Precipitation Frequency Estimates for 24-hour Rainfall Depths[1]

Recurrence Interval (years)	24-hr Rainfall Depth (in)
1	2.47
2	2.83
5	3.54
10	4.24
25	5.37
50	6.37
100	7.50
200	8.76
500	10.6
1,000	12.1

[1]Preciptation frequency estimates are based on a frequency analysis of partial duration series with 90% confidence intervals.

Source: NOAA Atlas 14, Volume 8, Version 2, Minneapolis/St. Paul Intl Airport

Table 2.5 – Minnesota DNR Public Waters in Robbinsdale

Type	Name	DNR ID
Lakes	Crystal Lake	27-34
	Ryan Lake	27-58
	Twin Lakes	27-42
Watercourses	Ryan Creek	NA
Wetlands	Grimes Pond	27-644
	Rice Lake	27-645
	Unnamed Wetland	27-640

Source: Minnesota DNR Public Waters Inventory

Table 2.6 – Watershed Water Quality Reports

Waterbodies	Watershed Commission	Type of Report	Year
Crystal Lake	Shingle Creek	TMDL 5-Year Review	2016
Grimes Pond	Bassett Creek	Management Plan; Monitoring Report	1997; 2013
Rice Lake	Bassett Creek	Monitoring Report	2013
Twin & Ryan Lakes	Shingle Creek	TMDL 5-Year Review	2014

Source: BCWMC website and SCWMC website

Table 2.7 – Impaired waters receiving discharge from Robbinsdale

Impaired Water	Water ID	Year Listed	Pollutant or Stressor	TMDL Target		Status of TMDL Study
				Start	Completion	
Bassett Creek: Medicine Lake to Mississippi River[1]	07010206-538	2004	Fish bioassessment		2025	
		2008	Fecal coliform	Approved in 2014: Approved TMDL EPA ID #64286		
		2010	Chloride	Approved in 2016: Approved TMDL EPA ID #66254		
Shingle Creek: Headwaters to Mississippi River[1]	07010206-506	1998	Chloride	Approved in 2007: Approved TMDL EPA ID #32032		
		2004	Dissolved Oxygen	Approved in 2011: Approved TMDL EPA ID #41511		
		2006	AMB[2]	Approved in 2011: Approved TMDL EPA ID #41511		
		2014	E. coli	Approved in 2014: Approved in TMDL EPA ID #64286		
Lower Twin Lake	27-0042-03	1998	PCB in fish tissue		2020	
		2010	PFOS[4] in fish tissue		2025	
		1998	Mercury in fish tissue	Approved in 2007: Approved TMDL EPA ID #32414		
Middle Twin Lake	27-0042-02	1998	Mercury in fish tissue	Approved in 2007: Approved TMDL EPA ID #32414		
		1998	PCB[3] in fish tissue		2020	
		2010	PFOS[4] in fish tissue		2025	
		2002	Nutrient / Eutrophication biological indicators	Approved in 2007: Approved TMDL EPA ID #33808		
Crystal Lake	27-0034-00	2002	Nutrient / Eutrophication biological indicators	Approved in 2009: Approved TMDL EPA ID #36008		

[1] Impaired water located in an adjacent community

[2] Aquatic macroinvertebrate bioassessments

[3] Polychlorinated biphenyl

[4] Perflourooctane sulfonate

Source: MPCA 2018 Proposed Impaired Waters List

Table 2.8 – Elevations of Robbinsdale Stormwater Ponds

		Elevation (ft)			Jurisdictional Watershed
#	Pond Name	Bottom	NWL[1]	HWL[2]	
1	35th Ave Pond	869.0	873.0	875.7	Shingle Creek
2	Lakeview Pond	850.0	854.0	857.8	Shingle Creek
3	France Ave Pond	849.0	854.0	857.6	Shingle Creek
4	Nummer Pond 1	850.0		858.0	Shingle Creek
5	Nummer Pond 2	850.0		858.0	Shingle Creek
6	45th Ave Pond	843.0	852.0	858.6	Shingle Creek
7	Scott Ave Pond	844.3	853.3	862.8	Shingle Creek
8	Graeser Pond	846.5	852.5	859.8	Shingle Creek
9	Boat Ramp Pond	853.0	857.0	859.1	Shingle Creek
10	Lee Pond	876.0		880.0	Shingle Creek
11	Hoagie Pond	850.0	855.5	856.6	Shingle Creek
12	North Beach Condo Pond	845.0	852.5	853.3	Shingle Creek
13	South Beach Condo Pond	848.5	851.5	853.1	Shingle Creek
14	LVT Pond 1	847.8	850.0	851.5	Shingle Creek
15	LVT Pond 2	847.8	849.5	851.5	Shingle Creek
16	LVT Pond 3	847.6	849.0	851.0	Shingle Creek
17	Spanjers Park Pond	850.0	852.3	854.0	Shingle Creek
18	Fantasy Woods Pond	861.2		865.5	Shingle Creek
19	East Pond	855.5		860.5	Bassett Creek
20	West Pond	854.3		857.9	Bassett Creek

[1]Normal Water Level

[2]High Water Level (100-year flood elevation)

Table 2.9 – Storm Sewer Zone Hydrology Calculations

Zone #	Area (sq ft)	Area (acres)	Longest Run (ft)	T of C[1] (min)	C[2]	CA[3]	Intensity (in/hr)	Q[4] (cubic ft/sec)
1	1,256,141	28.84	1,620	65	0.75	21.63	2.1	45.42
2	9,486,840	217.79	8,115	90	0.72	156.81	1.6	250.89
3	1,259,758	28.92	3,055	60	0.6	17.35	2.2	38.17
4	163,489	3.75	550	57	0.76	2.85	2.28	2.30
5	2,053,168	47.13	2,300	70	0.6	28.28	1.8	50.90
6	2,626,918	60.31	2,200	90	0.7	42.21	1.6	67.54
7	808,809	18.57	1,261	60	0.76	14.11	2.2	31.05
8 (north)	867,700	19.92	1,039	23		1.29	4.04	5.20
8 (south)				53		3.21	2.45	7.87
9	1,019,450	23.40	2,465	60	0.72	16.85	2.2	37.07
10	311,269	7.15	450	35	0.7	5.00	3.2	16.01
11	658,960	15.13	1,200	60	0.7	10.59	2.2	23.30
12	1,021,080	23.44	1,200	50	0.4	9.38	2.6	24.38
13	479,108	11.00	1,090	30	0.5	5.50	3.25	12.00
14	175,045	4.02	375	20	0.7	2.81	4.1	11.53
15	1,776,641	40.79	2,200	70	0.76	31.00	1.8	55.80
16	4,999,142	114.76	4,463	80	0.72	82.63	1.7	140.47
17	5,067,906	116.34	4,162	70	0.7	81.44	1.8	146.59
18	7,361,385	168.99	5,950	140	0.72	121.68	1.15	139.93
19	1,530,220	35.13	1,683	50	0.72	25.29	2.6	65.79
20	98,434	2.26	570	20	0.7	1.58	4.6	7.28
21	674,860	15.49	880	60	0.5	7.75	2.2	17.04
22	1,208,162	27.74	1,450	35	0.72	19.97	3	20.00
23	2,340,478	53.73	3,977	70	0.76	40.83	1.8	73.50
24	618,150	14.19	1,480	45	0.65	9.22	2.7	24.90
25	596,494	13.69	1,312	30	0.8	10.95	3.3	36.15
26	1,107,536	25.43	1,746	30	0.72	18.31	3.3	60.41
27	1,877,906	43.11	2,950	70	0.8	34.49	1.8	62.08
28	4,814,382	110.52	4,450	140	0.76	84.00	1.15	96.60
29	392,957	9.02	480	30	0.5	4.51	3.25	14.66
30	2,348,462	53.91	3,411	70	0.72	38.82	1.8	69.87
31 (upper)	2,834,400	65.07	4,870	44.8	0.76	49.45	1.92	34.15
31 (lower)				36.8	0.74	48.15	2.95	20.59
32	4,876,055	111.94	4,915	90	0.7	78.36	1.6	125.37
33	782,450	17.96	2,090	30	0.72	12.93	3.3	42.68
34	2,218,621	50.93	2,220	45	0.7	35.65	2.7	96.26
35	8,077,975	185.44	6,571	86	0.62	114.98	1.76	204.00
36	330,770	7.59	1,211	60	0.72	5.47	2.2	12.03
37	440,796	10.12	1,127	30	0.72	7.29	3.3	24.04
38	554,644	12.73	1,425	35	0.8	10.19	3.1	31.58
39	199,700	4.58	480	30	0.76	3.48	3.3	11.50

[1]time of concentration
[2]runoff factor
[3]runoff factor X area
[4]volumetric flow rate of water

Drainage Analysis using Atlas 14 Rainfall Data

Partial Analysis

Estimated

Table 3.1 – Regulatory Control

Official Control Category	Responsibility[47]	Regulatory Mechanisms
Shoreland	City, DNR, BCWMC	• No official City control – code work in progress • DNR shoreland regulations apply
Floodplain	City, SCWMC, BCWMC	• City Code 530.01 – Floodplain Management District • SCWMC – 3.3.3, Third Gen. Watershed Management Plan • BCWMC – 4.2.2, 2015-2025 Watershed Management Plan; 5.0, Requirements for Improvements and Development Proposals"
Wetlands & Public Waters	City, DNR, MPCA, SCWMC, BCWMC	• No official City control • DNR – Public Water Works Permit • MPCA – Section 404 of the Clean Water Act • SCWMC – 2.5.4, 2013 Third Gen. Watershed Management Plan • BCWMC – B.1.1, Requirements for Improvements and Development Proposals; 4.2.6, 2015-2025 Watershed Management Plan
Groundwater	City, County	• City – Wellhead Protection Plan • City – SWPPP BMP 6a-4 • Hennepin County Ordinance 19 – Individual Sewage Treatment System Standards
Illicit Discharge & Illicit Connection	City	• City Code 535.09 – Enforcement and Penalties • City Code 605.03 – Pre-collection and collection • City Code 700.49 – Prohibited Discharges • City – SWPPP BMP 3c-1, 3d-1, 3e-1
Construction Site & Land Disturbance Runoff Control	City, SCWMC, BCWMC	• City Code 510.15, Subd. 4 – Erosion Control Requirements • City Code 535.09 – Enforcement and Penalties • City – SWPPP BMP 4b-1 • SCWMC – 3.3.3, Third Gen. Watershed Management Plan • BCWMC – 3.3, 4.2.4, 2015-2025 Watershed Management Plan; 4.2, 7.0, Requirements for Improvements and Development Proposals"
Post Construction Site Runoff Control	City, SCWMC, BCWMC	• City Code 510.15, Subd. 4 – Erosion Control Requirements • City Code 535.09 – Enforcement and Penalties • City – SWPPP BMP 6a-1, 6a-2, 6b-2, 6b-3 • SCWMC – 3.3.3, Third Gen. Watershed Management Plan • BCWMC – 3.3, 4.2.4, 2015-2025 Watershed Management Plan; 4.0, 5.0, 6.0, Requirements for Improvements and Development Proposals

[47] Acronyms used in this section are defined in Table of Contents and Section 3

Proper application of pesticides, herbicides, & fertilizers	City	• City Code 1145 – Lawn Fertilizer Application Control
Chloride & Deicer Usage	City	• City – SWPPP BMP 6a-3, 6b-4(2), 6a-1(2), 6a-1(3), 6a-2(2), 6a-1(4), 6a-1(5) • SCWMC – Shingle Creek Chloride TMDL • BCWMC – 4.2.1, 2015-2025 Watershed Management Plan

Table 6.1 – Surface Water Management Official Control Assessment

Official Control	City Code Section	Code Content Assessment
Shoreland	-	Ordinance work in progress, DNR regulations apply
Floodplain	530.01	Current code language is sufficient, review and update code as needed
Groundwater	-	No current ordinance
Wetlands and Public Waters	-	No current ordinance, DNR and Wetland Conservation Act regulations apply
Illicit Discharge and Illicit Connection	535.09, 605.03, 700.49	Current code language is sufficient, review and update code as needed
Construction Site and Land Disturbance Runoff Control	510.15, 535.09	Current code language is sufficient, review and update code as needed
Post Construction Site Runoff Control	510.15, 535.09	Current code language is sufficient, review and update code as needed
Proper application of pesticides, herbicides, and fertilizers	1145	Current code language is sufficient, review and update code as needed

Table 6.2 – Storm Water Management Issues and Possible Corrective Actions

Issue ID	Storm Water Issue	Issue Category	Issue Identified by:	Possible Corrective Actions
1	Increased impervious surface in the watershed increases the duration and frequency of bank full conditions	Water Quantity	SCWMC – Watershed Management Plan (WMP)	Encourage the reduction of impervious surface by promoting low impact development principles and strategies for new development and redevelopment projects
				Incorporate BMPs into street and other municipal improvement projects when feasible
				Promote infiltration where appropriate
2	Continue standards that have prevented flooding potential as development has occurred	Water Quantity	SCWMC – WMP	New development or redevelopment projects shall not increase the existing 100-year peak rate from the site
				Protect key flood storage areas, wetlands, ditches, and drainage ways and maintain channel capacity
				Seek opportunity to provide greater rate control to reduce the 100-year peak rates
3	Existing wetlands should be restored and protected from encroachment by development	Water Quality	SCWMC – WMP	Wetland mitigation should be provided within the same subwatershed
				Prioritize wetlands and complete wetland functions and values assessment
				Establish buffer strip requirements adjacent to wetlands and watercourses
				Identify wetland restoration possibilities and construct or encourage the construction of restoration projects
4	General water resource water quality degradation	Water Quality	SCWMC – WMP	Work with SCWMC to develop management plans for affected water resources
5	Crystal Lake water level fluctuations	Water Quantity	SCWMC – WMP	Implement management options identified in the 2002 Crystal Lake Management Study

6	Degraded water quality and stability in Shingle Creek	Water Quality	SCWMC – Shingle Creek Corridor Study	Improvement projects or management strategies shall not increase the 100-year elevation of Shingle Creek nor its tributaries or floodplain storage areas
				Any fill that impacts flood storage in wetlands or floodplains shall by mitigated with compensating storage within the same subreach or reach
				Enact and enforce standards specifying buffer maintenance adjacent to Shingle Creek and its tributaries
				Support the construction of streambank stabilization and habitat restoration projects
7	Degraded water quality in Shingle Creek, impairment for excess chloride	Water Quality	SCWMC – Shingle Creek Chloride TMDL Implementation Plan	Investigate new salt projects and application equipment
				Calibrate salt spreaders annually
				Use weather information to improve application decisions such as the amount and timing of application
				Continue to use new technologies such as pre-wetting and anti-icing
				Investigate and adopt new products where feasible and cost effective
				Maintain good housekeeping practices associated with the handling of road salt to minimize the potential for wash-off
				Provide annual operator training
				Evaluate snow stockpiling practices and stockpile snow away from sensitive areas
8	Degraded water quality in Crystal, impairment for excess nutrients	Water Quality	City – Crystal Lake Nutrient TMDL Implementation Plan	Continue use of flocculation facility to remove phosphorus
				Retrofit water quality BMPs into the watershed as opportunities arise.

				Incorporate infiltration/abstraction and other Low Impact Development strategies into City improvement and redevelopment projects where possible
				Consider upgrading to improved street sweeping technologies and frequencies
				Sweep streets at least twice annually
				Consider other methods of managing internal sources of nutrients
				Continue monitoring and treatment of invasive aquatic vegetation (i.e. curly-leaf pond weed) as necessary
				Work in partnership with the DNR to manage the fishery to maintain a beneficial community
				Seek a cooperative project with Minneapolis to install a sediment trap or grit chamber on the 66-inch trunk sewer outlet under 38th Avenue
				Continue to investigate sedimentation devices
				Encourage vegetated buffer strips between maintained lawns and the Lake
9	Degraded water quality in Grimes Pond and Rice Lake	Water Quality	City	Continue to inspect and maintain outfalls and sump manholes that deliver storm water to Grimes Pond and Rice Lake
10	Degraded water quality in Middle Twin Lake, impairment for excess nutrients	Water Quality	City, SCWMC – Twin and Ryan Lakes TMDL 5-Year Review, CAMP monitoring	Support efforts to keep Lower Twin Lake and Ryan Lake de-listed for eutrophication
				Support watershed's efforts to monitor and remove carp.

11	Local flooding west of the railroad tracks between Noble and Perry Avenues	Water Quantity	City	Perform a detailed analysis of the existing pipe capacity to determine critical segments of the pipe network
				Evaluate upgrading the storm sewer to a five-year design as part of a neighborhood street reconstruction program
				Continue to explore opportunities as they arise to address storm flows using infiltration where possible and improvements to inlet and pipe capacities
12	High lake levels in Ryan Lake	Water Quantity	City, SCWMC – WMP	Pursue a cooperative project with Minneapolis to investigate the opportunity to develop ponding in the area east of Ryan Lake
				Floodproof low lying properties
				Continue to inspect and maintain outfall
13	Insufficient water quality treatment tributary to and degraded water quality in Bassett Creek	Water Quality	BCWMC – WMP	Require wet detention or other techniques (i.e. LID techniques) that provide equal degrees of treatment for all new or redeveloped properties, where applicable
				Provide public education to residents and lake users on practices that would reduce pollutants
				Enforce City ordinances regarding disposal of litter, yard waste, and animal waste
				Place additional garbage cans adjacent to waterbodies to provide more convenient disposal of garbage
				Promote storm water retention and runoff volume reduction (e.g. reduced impervious surfaces) when feasible
				Encourage vegetated buffer strips between maintained lawns and waterbodies
				Support excavation of bottom sediment to remove a nutrient source.

Table 6.3 – Wetland MnRAM Functional Values Assessment Summary Table[48]

		Fringe Wetland Communities			Unnamed Wetland on Ryan Creek
		Ryan Lake	Lower Twin Lake	Crystal Lake	
Vegetative Diversity	Rating	Low	Low	Moderate	Low
	Score	0.10	0.10	0.50	0.10
Wildlife Habitat	Rating	Moderate	Low	Moderate	Moderate
	Score	0.42	0.31	0.37	0.46
Water Quality	Rating	Low	Low	Moderate	Low
	Score	0.3	0.18	0.36	0.25
Aesthetics & Recreation	Rating	High	Moderate	Moderate	High
	Score	0.76	0.54	0.54	0.76
Flood Attenuation	Rating	Moderate	Moderate	High	Moderate
	Score	0.62	0.63	0.72	0.54
Overall Total	Rating	Moderate	Moderate	Moderate	Moderate
	Score	0.44	0.35	0.50	0.42

[48] Data from Wetland Functional Values Assessment (2010), Wenck Associates, Inc.

Table 8.1 – Official Control Implementation Actions

Official Control	Directing Policy from Section 7	Implementation Action
Shoreland	Policy 12.2	Develop a shoreland ordinance
Groundwater	Policy 5.1	Include language in City Code referencing the City's Wellhead Protection Plan
Wetlands and Public Waters (including buffer requirements)	Policy 10.1	Create a new ordinance or include within the Post Construction Site Runoff Control ordinance
Illicit Discharge and Illicit Connection	Policy 14.1	Review and update City Code as necessary
Construction Site and Land Disturbance Runoff Control	Policy 6.1	Review and update City Code as necessary
Post Construction Site Runoff Control	Policies 1.1, 3.1, 4.1	Review and update City Code as necessary
Proper application of pesticides, herbicides, and fertilizers	Policy 14.6, 14.7	Review and update City Code as necessary

Table 8.2 – Shingle Creek Chloride TMDL Implementation Measures

BMP Category	Current Activities	Proposed BMPs/Activities
Product Application Equipment and Decisions	• Pre-wet / Anti-ice • Calibrated equipment • Record information • Track deployment of materials	• Continue to investigate new technologies, methods, and materials
Product Stockpiles	• Salt stored in an enclosed salt storage building	• Inspect and cleanup after salt loading and delivery
Product Type and Quality	• Pre-treated salt	• Investigate new products
Operator Trainings	• Annual operator training	• Evaluate annually
Clean-up/Snow Stockpiling	• Plow as soon as possible • Two areas for stockpiling • Sweep 2 times/year • Review snow stockpiling practices	• Evaluate annually
Ongoing Research into Salt Alternatives	• Staff attendance at workshops advances in de-icing and anti-icing • Permeable pavement intersection study	• Participate in ongoing research and studies • Review new methods and alternative treatments

Table 8.3 – Surface Water System Maintenance Schedule

BMP	Maintenance Schedule
Catch basins	Maintained as needed
Trunk storm sewer	Maintained as needed
Storm water ponds	Inspected annually, maintained as needed
Storm water pond inlets/outlets	Inspected annually, maintained as needed
Structural pollution control devices	Inspected annually, maintained as needed
Street sweeping	2 times annually

Table 8.4 – Storm Water System Improvement Activities

Activity #	Activity Category	Project	Description	Prop. Start	Est. Cost
1	Capital Improvement	Installation of CDS Units	Install CDS units to address specific water quality issues in a downstream waterbody as opportunities arise	2019-2023	$50,000
2	Capital Improvement	Pond Sediment Delta Removal	Remove sediment deltas from ponds identified	2019, 2020, 2022	$70,000
3	Capital Improvement	Crystal Lake Curly Leaf Pondweed Treatment	A Crystal Lake TMDL Implementation Plan activity	2019-2023	$30,000
4	Capital Improvement	France Ave Install CDS Units	Install CDS units to capture and treat runoff to nearby waterbodies	2021	$500,000
5	Capital Improvement	BMP Update & Installation	Incorporate BMPs into street and other municipal improvement projects where feasible	Ongoing	Varies
6	MS4 Permit Compliance	Annual NPDES Reporting	Writing and administering MS4 annual reports	Ongoing	Varies
7	MS4 Permit Compliance	General Inspection and Maintenance Program	General inspection and maintenance of the City's storm water management system, including: street sweeping and inspecting outfalls, storm water ponds, and structural pollution control devices	Ongoing	Varies
8	MS4 Permit Compliance	Staff Training	Continue staff training in the operation, maintenance and inspection of the City's storm water system	Ongoing	Varies
9	MS4 Permit Compliance	Public Education Program	Conduct a public education program in accordance with the City's SWPPP	Ongoing	Varies
10	Agency Compliance	Review and Update City Code	Review and update City Code as necessary to comply with SCWMC, BCWMC, and Met Council requirements	Ongoing	TBD

Appendix A

Joint Powers Agreements

AMENDED JOINT AND COOPERATIVE AGREEMENT FOR THE ESTABLISHMENT OF A BASSETT CREEK WATERSHED MANAGEMENT ORGANIZATION TO PLAN, CONTROL AND PROVIDE FOR THE DEVELOPMENT OF BASSETT CREEK

PREFACE

In 1968, the nine cities with land in the Bassett Creek watershed entered into a joint powers agreement which established the Bassett Creek Flood Control Commission. For the past 25 years the Commission, consisting primarily of citizen volunteers and city staff members who have volunteered their time, have worked long and hard to achieve the goals set forth when the commission was established. An overall watershed management plan was prepared and approved after public hearings. The Commission has received technical advice from the United States Army Corps of Engineers in their planning and has obtained the support and aid of all United States Senators and Congressional Representatives representing the member cities. In 1976 the Commission and the Corps of Engineers were successful in having Bassett Creek included in the 1976 Water Resources Development Act (Section 173 Public Law 94-587). The Board of Engineers for Rivers and Harbors submitted a favorable report to the Secretary of the Army on March 30, 1977. The Secretary of the Army has by letter under date of June 19, 1978 notified the U.S. Congress of the approval of the Chief of Engineers.

The Bassett Creek Flood Control Commission has participated with the Minnesota Department of Transportation, the Federal Highway Administration, the City of Minneapolis and the Corps of Engineers in the planning and construction of a deep tunnel in Minneapolis which is designed to carry Bassett Creek under a portion of the City of Minneapolis. The Commission has held hearings and approved and ordered upstream construction in the cities of Golden Valley, Plymouth, Minneapolis, and

All of the nine communities within the Bassett Creek watershed recognize the aforestated problems. In seeking solutions to the overall drainage problem it becomes apparent that the only way the problems can be solved is by joint planning, joint cooperation, joint financing and a sincere desire on the part of each community to solve the overall drainage problem within the watershed. This means that some agency, commission, district, corporation, political subdivision, or other vehicle must be found to plan and finance improvements to and to control the development of lands within the watershed. Chapter 112 of the Minnesota Statutes provides for the formation of a watershed district with the powers and duties of conserving and controlling water and watercourses within a watershed. The creation of such a district creates a new political subdivision with the power to sue or be sued, to incur debts, liabilities and obligations, to exercise the powers of eminent domain, to provide for assessments, to borrow money and issue bonds and to do all other acts necessary to carry out the powers vested in the district by said Chapter 112. The managers of the district would be appointed by the Minnesota Water Resources Board and subsequent appointments would be by the Board of County Commissioners of Hennepin County. It is the belief of the parties to this agreement that the creation of such a district would remove control one step further from the electorate and the residents of this watershed area who ultimately would pay the costs of the aforesaid improvements. It would also create another political subdivision which would have to plan and work with the individual parties to this agreement to solve the storm water and drainage problems within the watershed.

The purpose of this statement of intent regarding the agreement is to clarify and establish for any court of review or any arbitrator or for the elected successors to the representatives who have entered into this agreement, the reasons and purposes for this joint and cooperative agreement. The parties to this agreement realize that the success or failure of the Bassett Creek Flood Control Commission created by this agreement is dependent upon the sincere desire of each member community to cooperate in the exercise of a joint power to solve a joint problem. Each party to this agreement pledges this cooperation."

It is the intent of this amended agreement to carry forward the same purposes as aforestated and to revise the Joint Powers Agreement to meet the mandates of Minnesota Statutes, Sections 103B.201 through 103B.251 and Minnesota Rules Chapter 8410 relating to "Metropolitan Area Local Water Management". This amended agreement shall continue the existence of a Watershed Management Organization in accordance with the provisions of the Metropolitan Surface Water Management Act as set forth in Minnesota Statutes 1992 Sections 103B.201 to and including 103B.251. The organization hereby created shall have all of the powers and

JOINT AND COOPERATIVE AGREEMENT

The parties to this Agreement are governmental units of the State of Minnesota, all of which have lands which drain surface water into Bassett Creek and all of which have power to construct, reconstruct, extend and maintain storm water management facilities. This agreement is made pursuant to the authority conferred upon the parties by Minnesota Statutes 1992, Sections 471.59 and 103B.201 to and including Section 103B.251.

NAME

I.

The parties hereto create and establish the Bassett Creek Watershed Management Commission.

GENERAL PURPOSE

II.

The general purpose of this agreement is to provide an organization which can investigate, study, plan and control the construction of facilities to drain or pond storm waters, to alleviate damage by flood waters; to improve the creek channel for drainage; to assist in planning for land use; to repair, improve, relocate, modify, consolidate or abandon, in whole or in part, drainage systems within the watershed area; and to do whatever is necessary to assist in water conservation and the abatement of surface water and groundwater contamination and water pollution. In addition to the aforestated purposes, the organization hereby created shall serve as the organization for the Bassett Creek watershed and shall carry out all of the duties and responsibilities outlined in Minnesota Statutes, Section 103B.201 through 103B.251, both inclusive.

ordinance adopted by their respective Councils, to become members:

City of Crystal

City of Golden Valley

City of Medicine Lake

City of Minneapolis

City of Minnetonka

City of New Hope

City of Plymouth

City of Robbinsdale

City of St. Louis Park

(The foregoing list is intended to include all governmental units which are presently partially or entirely within the Bassett Creek Watershed.)

No change in governmental boundaries, structure or organizational status shall affect the eligibility of any governmental unit listed above to be represented on the Commission, so long as such governmental unit continues to exist as a separate political subdivision.

BOARD OF COMMISSIONERS

V.

Subdivision 1. The governing body of the Commission shall be its Board. Each member shall be entitled to appoint one representative on the Board, and one alternate who may sit when the representative is not in attendance and said representative or alternate representative shall be called a "Commissioner".

Subdivision 2. The council of each member shall determine the eligibility or qualification of its representative on the Commission but the terms of each Commissioner shall be as established by this agreement.

Subdivision 3. The term of each Commissioner and Alternate

the Commissioner. A member may remove a Commissioner or an Alternate Commissioner for just cause or for violation of a Code of Ethics established by the Commission or by the Member City or for malfeasance, nonfeasance, or misfeasance. Said hearing shall be held by the Member City Council who appointed the Commissioner. A Commissioner or Alternate Commissioner who is an elected officer of a Member City who is not reelected may be removed by the appointing Member City at the appointing Member's discretion. Any decision by a Member to remove a Commissioner or Alternate Commissioner may be appealed to the Board of Water and Soil Resources. A certified copy of the Council's Resolution removing said Commissioner shall be filed with the Secretary of the Board of Commissioners and shall show compliance with the terms of this section.

Subdivision 5. Each member shall within 30 days of appointment file with the Secretary of the Board of Commissioners a record of the appointment of its Commissioner and Alternate Commissioner. The Commission shall notify the Board of Water and Soil Resources of Member appointments and vacancies within 30 days after receiving notice from the Member. Members shall fill all vacancies within 90 days after the vacancy occurs.

Subdivision 6. Commissioners shall serve without compensation from the Commission, but this shall not prevent a governmental unit from providing compensation for its Commissioner for serving on the Board, if such compensation is authorized by such governmental unit and by law. Commission funds may be used to reimburse a Commissioner or Alternate Commissioner for expenses incurred in performing Commission business and if authorized by the Board.

Subdivision 7. At the first meeting of the Board and in February

Subdivision 4. It may acquire necessary personal property to carry out its powers and its duties.

Subdivision 5. It shall develop an overall plan containing a capital improvement program within a reasonable time after qualifying, and said plan shall meet all of the requirements as established in Minnesota Statutes, Chapter 103B. Said overall plan shall establish a comprehensive goal for the development of Bassett Creek and shall establish a proposed procedure for accomplishing the purposes of the organization as set forth in Article II.

In preparing the overall plan, the Board may consult with the engineering and planning staff of each member governmental unit. It may consult with the Metropolitan Council and other public and private bodies to obtain and consider projections of land use, population growth, and other factors which are relevant to the improvement and development of the Bassett Creek watershed.

Said overall plan shall include the location and adequacy of the outlet or outfall of said Bassett Creek. The plan shall include the quantity of storage facilities and the sizing of an adequate outlet for all branch lateral storm sewers within the Bassett Creek watershed. The plan shall comply with state statutes and regulations promulgated and adopted by the Board of Water and Soil Resources.

Upon completion of the overall plan, or amendments thereto, the Board shall supply each member with a copy of the proposed plan and shall submit the plan for review and comment to Hennepin County, all soil and water conservation districts in Hennepin County and to all statutory and home rule charter cities having territory within the watershed. All governmental units which expect that substantial amendment of its local

members a copy of the plan and all comments of the reviewing authorities. The Commission shall wait for at least 30 days for comments from the members.

The Commission shall adopt the overall plan within 120 days after approval of the plan by the Board of Water and Soil Resources. The Commission shall then implement the approved plan and approved capital improvement program by resolution of the Commission as hereinafter set forth. The adoption of said overall plan shall be only upon a favorable vote of a majority of all eligible votes of the then existing members of the Commission. A copy of the adopted plan shall be filed with the clerk of each member governmental unit. Upon notice and hearing as provided for in adopting the overall plan, said plan may be amended by the Board on its own initiative or on the petition of any member governmental unit.

The review provisions set forth in this section are those required by Minnesota Statutes, Section 103B.231. If the law is amended, approvals shall be as required by law and the provisions contained in this section shall be amended accordingly.

Subdivision 6. It shall make necessary surveys or utilize other reliable surveys and data and develop projects to accomplish the purposes for which the Commission is organized.

Subdivision 7. It may cooperate or contract with the State of Minnesota or any subdivision thereof or federal agency or private or public organization to accomplish the purposes for which it is organized.

Subdivision 8. It may order any member governmental unit or units to construct, clean, repair, alter, abandon, consolidate, reclaim or change the course or terminus of any ditch, drain, storm sewer, or water course, natural or artifical, within the Bassett Creek watershed.

watershed. The use of commission funds for litigation shall be only upon a favorable vote of a majority of the eligible votes of the then existing members of the Commission.

Subdivision 16. It may accumulate reserve funds for the purposes herein mentioned and may invest funds of the Commission not currently needed for its operations, in the manner and subject to the laws of Minnesota applicable to statutory cities.

Subdivision 17. It may collect monies, subject to the provisions of this agreement, from its members, Hennepin County and from any other source approved by a majority of its Board.

Subdivision 18. It may make contracts, incur expenses and make expenditures necessary and incidental to the effectuation of these purposes and powers and may disburse therefor in the manner hereinafter provided.

Subdivision 19. It shall cause to be made an annual audit by a certified public accountant or the state auditor of the books and accounts of the Commission and shall make and file a report to its members at least once each year including the following information:

a. the approved budget;

b. a reporting of revenues;

c. a reporting of expenditures;

d. a financial audit report or section that includes a balance sheet, a classification of revenues and expenditures, an analysis of changes in final balances, and any additional statements considered necessary for full financial disclosure;

e. the status of all Commission projects and work within the

6, 7, 8, 9, and 10, shall be as set forth in this article.

Subdivision 2. The Commissioners shall be the same as those serving as Commissioners and Alternate Commissioners for the predecessor Bassett Creek Water Management Commission. The Board shall immediately proceed to revise the overall plan as set forth in Article VI, Subdivision 5 or as required by state statute. Upon adoption of said overall plan, the Board shall proceed to implement said plan, and this implementation may be ordered by stages.

Subdivision 3. The Bassett Creek Watershed Management Commission shall be the successor to the Bassett Creek Water Management Commission as constituted under the prior Joint Powers Agreement. All personal property, money, bank accounts, records or any other thing of value and on hand with the Bassett Creek Water Management Commission shall be transferred to the Bassett Creek Watershed Management Commission.

Subdivision 4. The location and adequacy of the outlet for Bassett Creek shall be determined and the Commission shall then prepare plans which will provide capacity to outlet the surface waters which will be collected within the Bassett Creek watershed. In determining the necessary capacity for said outlet, the Commission shall take into consideration the quantity of land within the watershed which each member governmental unit has to pond or act as a reservoir for surface waters. It shall consider only lands which are under public ownership or under public control and that will be perpetually dedicated to acting as a reservoir for surface waters. The commission may require from each member governmental unit a commitment in writing of the lands which shall be so dedicated, including a legal description of the gross area and the capacity in acre feet of water storage. No project which will channel or divert additional

Commission.

To order the improvement, in accordance with the powers and duties established in Article VI, Subdivisions 7, 8 and 9, a resolution setting forth the order for a capital improvement project shall require a favorable vote by two-thirds of all eligible votes of then existing Board of the Commission. In all cases other than for capital improvement projects, a majority vote of all eligible members of the Board shall be sufficient to order the work. The order shall describe the improvement, shall allocate in percentages the cost allocation between the member governmental units, shall designate the engineers to prepare plans and specifications, and shall designate the member who will contract for the improvement in accordance with Subdivision 7 of this Article.

After the Board has ordered an improvement or if the hearing is continued while the member governmental units act on said proposal, it shall forward said preliminary report to all member governmental units with an estimated time schedule for the construction of said improvement. The Board shall allow an adequate amount of time, and in no event less than 45 days, for each member governmental unit to conduct hearings, in accordance with the provisions of the aforestated Chapter 429 or the charter requirements of any city, or to ascertain the method of financing which said member governmental unit will utilize to pay its proportionate share of the costs of the improvement. Each member governmental unit shall ascertain within a period of 90 days the method it shall use to pay its proportionate share of the costs.

If the Commission proposes to utilize Hennepin County's bonding authority as set forth in Minnesota Statutes, Section 103B.251, or if the Commission proposes to certify all or any part of a capital improvement to

including counsel fees, incurred in the conduct of the arbitration shall be divided equally between the Commission and the appealing member. Arbitration shall be conducted in accordance with the Uniform Arbitration Act, Chapter 572 of the Minnesota Statutes.

Subdivision 7. Contracts for Improvements. All contracts which are to be let as a result of the Board's order to construct, repair, alter, reclaim or change the course or terminus of any ditch, drain, storm sewer, or watercourse, or to acquire, operate, construct or maintain dams, dikes, reservoirs or their appurtenances or to carry out any of the other provisions of the plan as authorized by Minnesota Statutes, and for which two or more member governmental units shall be responsible for the costs, shall be let in accordance with the provisions of Section 429.041 of the Minnesota Statutes. The bidding and contracting of said work shall be let by any one of the member governmental units, as ordered by the Board of Commissioners, after compliance with the statutes. All contracts and bidding procedures shall comply with all the requirements of law applicable to contracts let by a statutory city in the State of Minnesota.

The Commission shall not have the authority to contract in its own name for any improvement work for which a special assessment will be levied against any private or public property under the provisions of Chapter 429 or under the provisions of any City charter. These contracts shall be awarded by action of the council of a member and shall be in the name of a member governmental unit. This section shall not preclude the Commission from proceeding under Minnesota Statutes, Section 103B.251.

Subdivision 8. Contracts with Other Governmental Bodies. The Commission may exercise the powers set forth in Article VI, Subdivision 7, but said contracts for a capital improvement shall require a favorable vote

included in the improvement costs of the ordered project. The Board in determining the amount of the improvement costs to be assessed to each member governmental unit may take into consideration the land use for which said additional lands are being acquired and may credit the acquiring municipality for said land acquisition to the extent that it benefits the other members of this agreement. Any credits may be applied to the cost allocation of the improvement project under construction or the Board if feasible and necessary may defer said credits to a future project.

If any member unit refuses to negotiate or condemn lands as ordered by the Board, any other member may negotiate or condemn outside its corporate limits in accordance with the aforesaid Chapter 117. All members agree that they will not condemn or negotiate for land acquisition to pond or drain storm and surface waters within the corporate boundaries of another member within the Bassett Creek watershed except upon order of the Board of this Commission.

The Commission shall have authority to establish land acquisition policies as a part of the overall plan. The policies shall be designed to equalize costs of land throughout the watershed. Said policy is contained in the existing watershed management plan and may be continued in any revised overall plan required by Minnesota Statutes.

Subdivision 11. Pollution Control and Water Quality. The Commission shall have the authority and responsibility to protect and improve water quality in the watershed as this is one of the main purposes set forth in the Surface Water Management Act. All member governmental units agree that they will refuse to allow the drainage of sanitary sewage or industrial wastes onto any land or into any watercourse or storm sewer draining into Bassett Creek. The Board may investigate on its own

in accordance with this agreement and in accordance with the procedures as established by law and in the manner as may be determined by the Board. The Board shall designate one or more national or state bank or trust companies, authorized by Chapters 118 and 427 of the Minnesota Statutes to receive deposits of public moneys and to act as depositories for the Commission funds. In no event shall there be a disbursement of Commission funds without the signature of at least two Board members, one of whom shall be the Treasurer or his Authorized Deputy Treasurer. The Treasurer shall be required to file with the Secretary of the Board a bond in the sum of at least $10,000 or such higher amount as shall be determined by the Board. The Commission shall pay the premium on said bond.

Subdivision 2. The members agree to contribute all cash, bank deposits, and other assets held by the Bassett Creek Water Management Commission to the new Bassett Creek Watershed Management Commission to carry out the purposes of the Commission. Each member governmental unit has contributed its proportionate share of said funds based on the net tax capacity and area of all taxable property within the Bassett Creek watershed.

Subdivision 3. Each member agrees to contribute each year to a general fund, said fund to be used for general administration purposes including, but not limited to: salaries, rent, supplies, development of an overall plan, insurance, and bonds, and to purchase and maintain devices to measure hydrological and water quality data. Said funds may also be used for normal maintenance of the facilities, but any extraordinary maintenance or repair expense shall be treated as an improvement cost and processed in accordance with Subdivision 4 of this Article. The annual contribution by each member shall be based fifty percent (50%) on the net

any part of the cost of a capital improvement contained in the capital improvement program of the plan pursuant to the authority and subject to the provisions set forth in Minnesota Statutes, Section 103B.251. The Commission and Hennepin County may establish a maintenance fund to be used for normal and routine maintenance of an improvement constructed in whole or in part with money provided by Hennepin County pursuant to Minnesota Statutes, Section 103B.251. The levy and collection of an ad valorem tax levy for maintenance shall be by Hennepin County based upon a tax levy resolution adopted by a majority vote of all eligible members of the Commission and remitted to the County on or before the date prescribed by law each year. If it is determined to levy for maintenance, the Commission shall be required to follow the hearing process established by Minnesota Statutes, Section 103D.915 and 103D.921 and acts amendatory thereof and in addition thereto. Mailed notice shall be sent to the Clerk of each member municipality at least 30 days prior to the hearing.

Subdivision 5. On or before July 1 of each year, the Board shall adopt a detailed budget for the ensuing year and decide upon the total amount necessary for the general fund. Budget approval shall require a favorable vote by a majority of all eligible votes of the then existing members of the Board.

The Secretary of the Board shall certify the budget on or before July 1 to the clerk of each member governmental unit together with a statement of the proportion of the budget to be provided by each member.

The Council of each member agrees to review the budget, and the Board shall upon notice from any member received prior to August 1, hear objections to the budget, and may, upon notice to all members and after a hearing, modify or amend the budget, and then give notice to the members of

Subdivision 5. Cost Allocation. All capital costs incurred by the Commission shall be apportioned to the respective members on either (1), (2), or (3) of the following bases:

(1) A negotiated amount to be arrived at by the members who have lands in the subdistrict responsible for the capital improvement.

(2) (a) Fifty percent of all capital costs or the financing thereof shall be apportioned to each member on the basis of the real property valuation net tax capacity of each member within the boundaries of the watershed each year to the total real property valuation net tax capacity in the Bassett Creek watershed area governed by this Agreement.

(b) Fifty percent of all capital costs or the financing thereof shall be apportioned to each member on the basis of the total area of each member within the boundaries of the watershed each year to the total area in the Bassett Creek watershed area governed by this Agreement.

(c) Capital costs allocated under the 50% area/50% net tax capacity formula herein set forth may be varied by the Commission by a 2/3rds vote if:

(1) any member community receives a direct benefit from the capital improvement which benefit can be defined as a lateral

allocated or assessed according to the other provisions of this agreement.

Subdivision 4. Each member agrees that it will not directly or indirectly collect or divert any additional surface water to the Mississippi River or its tributaries from any subdistrict or subtrunk without a permit from the Board of Commissioners. Permits may be granted by the Board for a member to proceed with the construction or reconstruction of improvements within the individual corporate members' boundaries and at its sole cost upon a finding:

(a) that there is an adequate outlet; and

(b) that said construction is in conformance with the overall plan; and

(c) that the construction will not adversely affect other members of this agreement.

Subdivision 5. Any member who is more than 60 days in default in contributing its share to the general fund shall have the vote of its Board member suspended pending the payment of its proportionate share.

Any member who is more than 60 days in default in contributing its proportionate share of the cost of any improvement to the contracting member shall upon application of the contracting member have the vote of its Board member suspended, pending the payment of its proportionate share.

Any Board member whose vote is under suspension shall not be considered as an eligible member as such membership affects the number of votes required to proceed on any matter under consideration by the Board.

DURATION

X.

Subdivision 1. Each member agrees to be bound by the terms of this agreement until January 1, 2015, and it may be continued thereafter at the

EFFECTIVE DATE

XII.

This agreement shall be in full force and effect upon the filing of a certified copy of the resolution approving said agreement by all nine members. Said resolution shall be filed with the Chair of the existing Bassett Creek Watershed Management Commission (presently W. Peter Enck of the City of New Hope), who shall notify all members in writing of its effective date and shall set the date for the next meeting to be conducted under this amended Joint Powers Agreement.

IN WITNESS WHEREOF, the undersigned governmental units, by action of their governing bodies, have caused this agreement to be executed in accordance with the authority of Minnesota Statutes Sections 103B.211 and 471.59.

AMENDMENT TO AMENDED JOINT AND COOPERATIVE AGREEMENT ESTABLISHING THE SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION TO PLAN, CONTROL AND PROVIDE FOR THE DEVELOPMENT OF THE SHINGLE CREEK WATERSHED

THIS AGREEMENT is made by and between the cities of Brooklyn Center, Brooklyn Park, Crystal, Maple Grove, Minneapolis, New Hope, Osseo, Plymouth, and Robbinsdale, all of which are Minnesota municipal corporations (the "Member Cities").

WITNESSETH:

WHEREAS, the Member Cities are parties to a joint powers agreement forming the Shingle Creek Watershed Management Commission entitled the AMENDED JOINT AND COOPERATIVE AGREEMENT ESTABLISHING THE SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION TO PLAN, CONTROL AND PROVIDE FOR THE DEVELOPMENT OF THE SHINGLE CREEK WATERSHED (the "Joint Powers Agreement"), the effective date of which was May 1, 1994; and

WHEREAS, the Member Cities wish to amend the Joint Powers Agreement as hereinafter provided;

NOW, THEREFORE, on the basis of the premises and the mutual covenants and agreements contained in the Joint Powers Agreement as hereinafter amended, the parties agree to amend the Joint Powers Agreement as follows:

1. Article VIII. FINANCES is amended to read as follows:

Subdivision 1. The Commission funds may be expended by the Board in accordance with this agreement and in accordance with the procedures as established by law and in the manner as may be determined by the Board. The Board shall designate one or more national or state bank or trust companies, authorized by Chapters 118 and 427 of the Minnesota Statutes to receive deposits of public moneys and to act as depositories for the Commission funds. In no event shall there be a disbursement of Commission funds without the signature of at least two Board members, one of whom shall be the Treasurer or the Treasurer's Authorized Deputy Treasurer. The Treasurer shall be required to file with the Secretary of the Board a bond in the sum of at least $10,000 or such higher amount as shall be determined by the Board. The Commission shall pay the premium on said bond.

Subdivision 2. Each member agrees to contribute each year to a general fund, said fund to be used for general administration purposes including, but not limited to: salaries, rent, supplies, development of an overall plan, engineering and legal expenses, insurance, and bonds, and to purchase and maintain devices to measure hydrological and water quality data. Said funds may also be used for

normal maintenance of the facilities, but any extraordinary maintenance or repair expense shall be treated as an improvement cost and processed in accordance with Subdivision 5 of this Article. The annual contribution by each member shall be based fifty percent (50%) on the net tax capacity of all property within the Watershed and fifty percent (50%) on the basis of the total area of each member within the boundaries of the watershed each year to the total area in the Shingle Creek Watershed.

Subdivision 3.

(a) An improvement fund shall be established for each improvement project instituted under Article VII, Subdivision 3. Each member agrees to contribute to said fund its proportionate share of the engineering, legal and administrative costs as determined by the Commission as the amount to be assessed against each member as a cost of the improvement. The Board shall submit in writing a statement to each member, setting forth in detail the expenses incurred by the Commission for each project.

Each member further agrees to pay to or contract with the member governmental unit awarding said contract for the improvement, its proportionate share of the cost of the improvement in accordance with the determination of the Board under Article VII, Subdivision 4. The member awarding the contract shall submit in writing copies of the engineer's certificate authorizing payment during construction and the member being billed agrees to pay its proportionate share of said improvement costs within 30 days after receipt of the statement. The member awarding the contract shall advise other contributing members of the tentative time schedule of the work and the estimated times when the contributions shall be necessary.

(b) Notwithstanding the provisions of paragraph (a) of this subdivision, the Commission may by a vote of 2/3rds of all eligible votes of the then existing members of the Commission decide to proceed to fund all or any part of the cost of a capital improvement contained in the capital improvement program of the plan pursuant to the authority and subject to the provisions set forth in Minnesota Statutes, Section 103B.251. It is expressed as a goal of this Agreement that cost sharing of capital improvement costs be assigned and agreed to by members pursuant to Article VIII, Subdivision 7, Subsections 1 and 2 of this Agreement. Without such agreement, all improvements will be constructed pursuant to Minnesota Statutes, Section 103B.251. The Commission and Hennepin County may establish a maintenance fund to

be used for normal and routine maintenance of an improvement constructed in whole or in part with money provided by Hennepin County pursuant to Minnesota Statutes, Section 103B.251. The levy and collection of an ad valorem tax levy for maintenance shall be by Hennepin County based upon a tax levy resolution adopted by a majority vote of all eligible members of the Commission and remitted to the County on or before the date prescribed by law each year. If it is determined to levy for maintenance, the Commission shall be required to follow the hearing process established by Minnesota Statutes, Sections 103D.915 and 103D.921 and acts amendatory thereof and in addition thereto. Mailed notice shall be sent to the Clerk of each member municipality at least 30 days prior to the hearing.

Subdivision 4. On or before July 1 of each year, the Board shall adopt a detailed budget for the ensuing year and decide upon the total amount necessary for the general fund. Budget approval shall require a favorable vote by a majority of all eligible votes of the then existing members of the Board.

The secretary of the Board shall certify the budget on or before July 1 to the clerk of each member governmental unit together with a statement of the proportion of the budget to be provided by each member.

The Council of each member agrees to review the budget, and the Board shall upon written notice from any member received prior to August 1, hear objections to the budget, and may, upon notice to all members and after a hearing, modify or amend the budget, and then give notice to the members of any and all modifications or amendments.

Subject to the limitations of Subdivision 5 below, each member agrees to provide the funds required by the budget. If no objections are submitted to the Board, each member agrees to provide the funds approved by the Board, after the Board has conducted the aforementioned hearing. Modifications or amendments to the original budget require a favorable vote by a majority of all eligible voters of then existing members of the Board.

The schedule of payments by the members shall be determined by the Board in such a manner as to provide for an orderly collection of the funds needed.

Subject to the limitations of Subdivision 6 below, upon notice and hearing, the Board by a favorable vote of a majority of all eligible votes of then existing members may adopt a supplemental budget requiring

additional payments by the members within 60 days of its adoption but in no event shall the budget require any member to contribute in excess of one-half of one percent of the net tax capacity of all taxable property within the watershed or within any member's corporate boundaries in any one calendar year.

Members' attention is drawn to Minnesota Statutes, Section 103B.245, which authorizes a Watershed Management Tax District to be created within each member City to pay the costs of planning and for the purpose of paying capital costs and/or normal and routine maintenance of facilities.

Subdivision 5. Assessments levied against Member Cities for general fund purposes are subject to all of the following limitations:

1. Assessment Cap.

A. Definition. For purposes of this subdivision, the term "Assessment Cap" means the total amount that the Commission may levy against Member Cities for general fund purposes in any year without the consent of a majority of Member Cities. The Assessment Cap for 2004 is $262,750. Thereafter, the Assessment Cap will increase or decrease each year based, pro rata, on the annual change in the consumer price index (U.S. City Average, All Items, All Urban Consumer) to the end of the second quarter of the preceding year. (For example, the Assessment Cap for 2005 will be adjusted on the basis of the change in the CPI from the end of the second quarter of 2003 to the end of the second quarter of 2004.)

B. Limitation and City Consent. The Commission may levy an amount for general fund purposes in excess of the Assessment Cap only with the consent of a majority of Member Cities expressed by resolutions duly adopted by the city councils before September 1st of the preceding year. The Commission may request authority to exceed the Assessment Cap for one or more years.

If a majority of Member Cities do not consent to the levy of an assessment in excess of the Assessment Cap, the Commission may levy an amount up to the Assessment Cap and the Commission will make necessary changes to the budget.

2. Limitation on Increase of Assessment. The Commission may not assess a total levy against Member Cities for general fund purposes in any year in an amount that exceeds 120% of the

previous years' assessment without the consent of a majority of the Member Cities given in the same manner as described in paragraph 1B above.

3. Limitation Based on Tax Capacity. The Commission may not assess a levy or combination of levy and supplemental levies against the Member Cities for general fund purposes in any one year that requires any member to contribute an amount in excess of one-half of one percent of the net tax capacity of that portion of the city lying within the Watershed.

Subdivision 6. Supplemental Budget and Limit on Assessment. The Board may adopt a supplemental budget in accordance with Subdivision 4. However, the amount assessed against the Member Cities for general fund purposes, when added together with other assessments for general fund purposes for the same year, may not exceed the limitations on assessments set forth in Subdivision 5 without the consent of the Member Cities. The consent of the Member Cities shall be secured in the same manner as is provided in Subdivision 5, except that the September 1 deadline for Member City approval does not apply.

Subdivision 7. Cost Allocation for Capital Projects. The Commission shall apportion to the respective members on either (1), (2) or (3) of the following bases:

(1) A negotiated amount to be arrived at by the members who have lands in the subdistrict responsible for the capital improvement.

(2) (a) Fifty percent of all capital costs or the financing thereof shall be apportioned to each member on the basis of the net tax capacity of each member within the boundaries of the watershed to the total net tax capacity in the Shingle Creek Watershed area governed by this Agreement.

(b) Fifty percent of all capital costs or the financing thereof shall be apportioned to each member on the basis of the total area of each member within the boundaries of the watershed each year to the total area in the Shingle Creek Watershed governed by this Agreement.

(c) Capital costs allocated under the 50% area/50% net tax capacity formula herein set forth may be varied by the Commission by a 2/3rds vote if:

(1) any member community receives a direct benefit from the capital improvement which benefit can be defined as a lateral as well as a trunk benefit, or

(2) the capital improvement provides a direct benefit to one or more members which benefit is so disproportionate as to require in a sense of fairness a modification in the 50/50 formula.

(d) Credits to any member for lands acquired by said member to pond or store storm and surface water shall be allowed against costs set forth in Subsections (a), (b) and (c) of this Section.

(3) If agreement is not reached to proceed as set forth in Subsection 1 or 2 of this Subdivision and if the project is constructed and financed pursuant to Minnesota Statutes, Section 103B.251, the members understand and agree that said costs will be levied on all taxable property in the watershed as set forth in the statute.

Section 2. This amendment shall be in full force and effect upon the filing of a certified copy of a resolution approving said amendment by all nine Member Cities. Said resolutions shall be filed with the Chair of the Shingle Creek Watershed Commission, who shall certify the effective date of the amendment in writing to all Member Cities. The effective date of the amendment shall be when approved by all of the Member Cities and when the mayor and other authorized city representatives have executed the amended agreement.

IN WITNESS WHEREOF, the undersigned government units, by action of their governing bodies, have caused this Agreement to be executed in accordance with the authority of Minnesota Statutes, Sections 103B.201 through 103B.255 and Section 471.59.

Dated: 2/23/04

CITY OF BROOKLYN CENTER

By: Robert Peppe
Its Mayor Pro Tem

And by:
Its City Manager

Dated: 11-21-05

CITY OF BROOKLYN PARK

By:
Its Mayor

And by:
Its City Manager

Dated: March 1, 2004

CITY OF CRYSTAL

By: Peter E. Masterman
Its Mayor

And by:
Its City Manager

Dated:

CITY OF MAPLE GROVE

By:
Its Mayor

And by:
Its City Administrator

Dated: 3/21/06

CITY OF MINNEAPOLIS

By:
Its Mayor '06

Sara Way
Finance Officer's Designee

And by:
Its FSD

Dated: 2/23/04

CITY OF NEW HOPE

By:
Its Mayor

And by:
Its City Manager

Dated: 5-27-04

CITY OF OSSEO

By: _____
Its MAYOR

And by: _____
Its Clerk Administrator

Dated: _____

CITY OF PLYMOUTH

By: _____
Its Mayor

And by: _____
Its City Manager

Dated: 3/1/2004

CITY OF ROBBINSDALE

By: _____
Its Mayor

And by: _____
Its City Manager

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Appendix B

City and Agency Agreements

A G R E E M E N T

THIS AGREEMENT made by and between the City of Crystal, a municipal corporation, its successors and assigns and the City of Robbinsdale, a municipal corporation, its successors and assigns.

PURPOSE: The purpose of this agreement is to facilitate and provide a means for the City of Crystal to dispose of storm water, into Twin Lakes from Gaulke's Pond through the storm sewer located in the City of Robbinsdale at 40th and Yates and flowing to Twin Lakes.

DEFINITIONS: STORM SEWER - Storm Sewer is defined as the storm sewer in the City of Robbinsdale flowing to Twin Lakes from 40th and Yates.

STORM SEWER EXTENSION - Storm Sewer Extension is defined as that part of the storm sewer to be constructed in the City of Robbinsdale by the City of Crystal with City of Crystal funds and at no cost or expense to the City of Robbinsdale.

WHEREAS, the City of Robbinsdale and the City of Crystal both have lands within their respective cities bordering upon and abutting said Twin Lakes,

WHEREAS, both municipalities have real properties which drain into Gaulke's Pond,

WHEREAS, the water level of Twin Lakes has dropped in the last several years to the detriment of the appearance of said Lake Shore and the use of said Twin Lakes for fishing and recreational purposes benefitting both cities, the inhabitants thereof and the public,

WHEREAS, it is in the interest of both Cities to maintain a high water level in said Twin Lakes so as to preserve a high valuation for Lake properties and lands adjacent thereto,

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein both the City of Crystal and the City of Robbinsdale agree as follows:

The City of Robbinsdale grants to the City of Crystal the right to use, drain and dispose of storm waters from Gaulke's Pond and such waters flowing

STATE OF
MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
500 Lafayette Road, St. Paul, MN 55155-4032
PHONE NO. 296-4800 FILE NO.

March 10, 1992

Mr. Fran Hagen Sr.
City of Robbinsdale
4221 Lake Road
Robbinsdale, MN 55442

RE: PERMIT #92-6123, WATER LEVEL CONTROL, CRYSTAL LAKE (27-34P), CITY OF ROBBINSDALE, HENNEPIN COUNTY

Dear Mr. Hagen:

Enclosed is DNR Protected Waters Permit #92-6123 which authorizes installation of a permanent pumped outlet control system to prevent flooding in Crystal Lake (27-34P).

Please note the following special provisions of Permit #92-6123:

18. The water level control elevation shall be referenced to the following benchmark: south corner of the headwall on the inlet culvert on the east side of Crystal Lake at 38th Avenue. The benchmark elevation is 852.85' (NGVD, 1929).

19. Protection Elevation for the Basin: The pumping shall cease when the water level of Crystal Lake is at or below the ordinary high water level, elevation 847.5' (NGVD, 1929).

20. Intake. The end of the intake pipe of the pumped outlet shall be screened as a safety precaution.

21. A detailed plan for the operation and maintenance of the pumped outlet shall be submitted to the Regional Hydrologist (at DNR Metro Waters, 1200 Warner Road, St. Paul, MN 55106) for approval by June 30, 1992. This plan shall address: (a) manner and time of operation, (b) frequency of monitoring, (c) appropriate monitoring of water levels, water quality and other factors, and (d) management of excess waters.

22. The pumping shall be coordinated with technical representatives of the Shingle Creek Watershed Management Commission and the city of Minneapolis. The pumping shall cease if problems exist (or continued pumping will create problems) due to high water downstream of Crystal Lake.

23. Upon completion of the authorized work, the permittee shall submit representative photographs and any as-built surveys, as appropriate, of the project area to DNR Metro Water.

In addition to the special provisions noted above, some commonly overlooked permittee responsibilities are summarized below:

1. Read <u>all</u> permit conditions and attachments carefully.

2. The orange Permit Card must be posted conspicuously at the project site. This will indicate a permit has been issued for your project and may avoid unnecessary misunderstandings.

3. If there are changes in the project which could affect the protected water(s), an amendment to the permit may be required. The regional office should be contacted to determine whether the change necessitates an amendment.

4. The expiration date of the permit may be extended if good cause is demonstrated. A written request for an extension must be submitted to the Regional Hydrologist.

5. All written correspondence should be addressed to:

DNR - Metro Waters
1200 Warner Road
St. Paul, MN 55106

If you have any questions or concerns, please contact Area Hydrologist Ceil Strauss at 772-7910.

Sincerely,

David B. Milles

David B. Milles, Supervisor
Permits Unit

Enclosure

cc: Robin Bouta, Westwood Professional
USCOE
Hennepin Conservation District
Dale Claridge, Shingle Creek WMC
Perry Damon, Minneapolis Public Works
Dave Zappetillo, DNR Fisheries
Tim Wallace, DNR Wildlife
Conservation Officer
Ron Anderson, Central Waters
Crystal Lake (27-34P) file
City of Robbinsdale file

NA-02733-04
(Rev.3/90)

MINNESOTA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATERS

PROTECTED WATERS
PERMIT

P.A. Number
92-6123

Pursuant to Minnesota Statutes, Chapter 105, and on the basis of statements and information contained in the permit application, letters, maps, and plans submitted by the applicant and others supporting data, all of which are made a part hereof by reference, PERMISSION IS HEREBY GRANTED to the applicant named below to change the course, current or cross section of the following:

Protected Water	County
Crystal Lake (27-34P)	Hennepin
Name of Applicant	**Telephone Number (include Area Code)**
City of Robbinsdale Attn: Fran Hagen Sr.	(612) 537-4534
Address (No. & Street, RFD, Box No., City, State, Zip Code)	
4221 Lake Road, Robbinsdale, MN 55422	
Authorized to:	
Install a permanent pumped outlet system for Crystal Lake (27-34P); maintain an outlet elevation of 847.5' (NGVD, 1929) during the months of March through November using an 800 gpm pump; all in accordance with the application and supporting documents received January 9, 1992.	
Purpose of Permit:	**Expiration Date of Permit**
water level control	November 30, 1992
Property described as:	**County**
E½ Section 6 and W½ Section 5, T29N, R24W	Hennepin
As Indicated: (8)	**As Indicated: (11)**
Does not apply	the OHW elevation of 847.5' (NGVD, 1929)

This permit is granted subject to the following GENERAL and SPECIAL PROVISIONS:

GENERAL PROVISIONS

1. This permit is permissive only and shall not release the permittee from any liability or obligation imposed by Minnesota Statutes, Federal Law or local ordinances relating thereto and shall remain in force subject to all conditions and limitations now or hereafter imposed by law.
2. This permit is not assignable except with the written consent of the Commissioner of Natural Resources.
3. The Regional Hydrologist shall be notified at least five days in advance of the commencement of the work authorized hereunder and shall be notified of its completion within five days thereafter. The Notice of Permit issued by the Commissioner shall be kept securely posted in a conspicuous place at the site of operations.
4. No change shall be made, without written permission previously obtained from the Commissioner of Natural Resources, in the dimensions, capacity or location of any items of work authorized hereunder.
5. The permittee shall grant access to the site at all reasonable times during and after construction to authorized representatives of the Commissioner of Natural Resources for inspection of the work authorized hereunder.
6. This Permit may be terminated by the Commissioner of Natural Resources at any time he deems it necessary for the conservation of water resources of the state, or in the interest of public health and welfare, or for violation of any of the provisions of this permit, unless otherwise provided in the Special Provisions.
7. Construction work authorized under this permit shall be completed on or before date specified above. Upon written request to the Commissioner by the Permittee, stating the reason therefore, an extension of time may be obtained.
8. The excavation of soil authorized herein shall not be construed to include the removal of organic matter (as indicated above) unless the area from which such organic matter is removed, is impervious, or is sealed by the application of bentonite after excavation.
9. In all cases where the doing by the permittee of anything authorized by this permit shall involve the taking, using, or damaging of any property rights or interests of any other person or persons, or of any publicly owned lands or improvements thereon or interests therein, the permittee, before proceeding therewith, shall obtain the written consent of all persons, agencies, or authorities concerned, and shall acquire all property, rights and interests necessary therefore.

10. This permit is permissive only. No liability shall be imposed by the State of Minnesota or any of its officers, agents or employees, officially or personally, on account of the granting hereof or on account of any damage to any person or property resulting from any act or omission of the permittee or any of its agents, employees, or contractors relating to any matter hereunder. This permit shall not be construed as estopping or limiting any legal claims or right of action of any person other than the state against the permittee, its agents,employees, or contractors, for any damage or injury resulting from any such act or omission, or as estopping or limiting any legal claim or right of action of the state against the permittee, its agents, employees, or contractors for violation of or failure to comply with the permit or applicable provisions of law.

11. No material excavated by authority of this permit nor material from any other source, except as specified herein, shall be placed on any portion of the bed of said waters which lies below (as indicated above).

12. Any extension of the surface of said waters resulting from work authorized by this permit shall become protected waters and left open and unobstructed for use by the public.

13. This permit does not obviate any requirement for federal assent from the U.S. Army Corps of Engineers, 1421 U.S. Post Office and Custom House, St. Paul, Minnesota 55101-9808.

SPECIAL PROVISIONS

14. The permittee shall comply with all rules, regulations, requirements, or standards of the Minnesota Pollution Control Agency and other applicable federal, state, or local agencies.

15. Permittee shall ensure that the contractor has received and thoroughly understands all conditions of this permit.

16. Erosion control measures shall be adequately designed for the site characteristics. They may include staked haybales, diversion channels, sediment ponds, or sediment fences. They shall be installed prior to commencement and maintained throughout project. All exposed soil shall be restored (by seeding and mulching or sodding and staking) within 72 hours of completion of project.

17. The permittee shall submit a water quality management plan governing the maintenance and operation of the dam or control structure to the Minnesota Pollution Control Agency (MPCA) for its approval.

18. The water level control elevation shall be referenced to the following benchmark: south corner of the headwall on the inlet culvert on the east side of Crystal Lake at 38th Avenue. The benchmark elevation is 852.85' (NGVD, 1929).

19. Protection Elevation for the Basin: The pumping shall cease when the water level of Crystal Lake is at or below the ordinary high water level, elevation 847.5' (NGVD, 1929).

20. Intake. The end of the intake pipe of the pumped outlet shall be screened as a safety precaution.

21. A detailed plan for the operation and maintenance of the pumped outlet shall be submitted to the Regional Hydrologist (at DNR Metro Waters, 1200 Warner Road, St. Paul, MN 55106) for approval by June 30, 1992. This plan shall address: (a) manner and time of operation, (b) frequency of monitoring, (c) appropriate monitoring of water levels, water quality and other factors, and (d) management of excess waters.

22. The pumping shall be coordinated with technical representatives of the Shingle Creek Watershed Management Commission and the city of Minneapolis. The pumping shall cease if problems exist (or continued pumping will create problems) due to high water downstream of Crystal Lake.

23. Upon completion of the authorized work, the permittee shall submit representative photographs and any as-built surveys, as appropriate, of the project area to DNR Metro Waters.

cc: Robin Bouta, Westwood Professional
Hennepin CD
Tim Wallace, DNR Wildlife
Conservation Officer
Crystal Lake (27-34P) file
USCOE
Dale Claridge, Shingle Creek WMC
D. Zappetillo, DNR Fisheries
R. Anderson, St. Paul Waters
City of Robbinsdale file

Authorized Signature	Title	Date
David B. Miller David B. Milles	Permits Supervisor	3/10/92

STATE OF
MINNESOTA
DEPARTMENT OF NATURAL RESOURCES
500 Lafayette Road, St. Paul, MN 55155-4032
PHONE NO. 296-4800 FILE NO.

March 10, 1992

Mr. Fran Hagen Sr.
City of Robbinsdale
4221 Lake Road
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Please note the following special provisions of Permit #92-6123:

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22. The pumping shall be coordinated with technical representatives of the Shingle Creek Watershed Management Commission and the city of Minneapolis. The pumping shall cease if problems exist (or continued pumping will create problems) due to high water downstream of Crystal Lake.

23. Upon completion of the authorized work, the permittee shall submit representative photographs and any as-built surveys, as appropriate, of the project area to DNR Metro Water.

In addition to the special provisions noted above, some commonly overlooked permittee responsibilities are summarized below:

1. Read all permit conditions and attachments carefully.

2. The orange Permit Card must be posted conspicuously at the project site. This will indicate a permit has been issued for your project and may avoid unnecessary misunderstandings.

3. If there are changes in the project which could affect the protected water(s), an amendment to the permit may be required. The regional office should be contacted to determine whether the change necessitates an amendment.

4. The expiration date of the permit may be extended if good cause is demonstrated. A written request for an extension must be submitted to the Regional Hydrologist.

5. All written correspondence should be addressed to:

DNR - Metro Waters
1200 Warner Road
St. Paul, MN 55106

If you have any questions or concerns, please contact Area Hydrologist Ceil Strauss at 772-7910.

Sincerely,

David B. Milles

David B. Milles, Supervisor
Permits Unit

Enclosure

cc: Robin Bouta, Westwood Professional
USCOE
Hennepin Conservation District
Dale Claridge, Shingle Creek WMC
Perry Damon, Minneapolis Public Works
Dave Zappetillo, DNR Fisheries
Tim Wallace, DNR Wildlife
Conservation Officer
Ron Anderson, Central Waters
Crystal Lake (27-34P) file
City of Robbinsdale file

NA-02633-01
(W-147)
Rev. 4/72

PERMIT NO. 92-6123

☐ APPROPRIATION AND USE OF WATER

☒ WORK IN THE BEDS OF PUBLIC WATERS

HAS BEEN ISSUED TO

City of Robbinsdale (Applicant)

By The COMMISSIONER

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

EXPIRATION DATE 11-30-92

POST CONSPICUOUSLY AT PROJECT SITE

From: Industrial Waste and Pollution Prevention Section
Direct Dial: (651) 602-4715 Fax Number: (651) 602-4730
E-Mail: michael.flaherty@metc.state.mn.us

November 04, 2016

To: Richard McCoy, Director of Public Works
City of Robbinsdale - Crystal Lake Alum
4100 Lakeview Ave N
Robbinsdale, MN 55422-2280

RE: INDUSTRIAL DISCHARGE PERMIT (SPECIAL DISCHARGES) NUMBER 2313
FOR THE SITE LOCATED AT 3769 Crystal Lake Blvd
Robbinsdale, MN 55422

TRANSMITTED HEREWITH is the reissued Industrial Discharge Permit (Special Discharges) for the above referenced site. This Permit has been reissued by Metropolitan Council Environmental Services for the period specified, and it supercedes the previous Permit. The discharge of landfill leachate, contaminated groundwater or special industrial waste into the Metropolitan Disposal System is hereby allowed, subject to any and all provisions of the Waste Discharge Rules for the Metropolitan Disposal System, and this Permit.

THE PERMIT contains Discharge Limitations, Self-Monitoring and Reporting Requirements, Special Conditions regarding connected and nonconnected sites, General Permit Conditions, and Specific Permit Conditions. Any failure to submit the required Self-Monitoring Reports (SMRs) is a violation of this Permit. The Permit Number shall be included on all correspondence regarding this Permit.

THE PERMITTEE is reminded that reissuance of this Permit is not automatic; the Permittee must apply for reissuance at least 60 days prior to the Permit expiration date. If questions arise, contact Michael Flaherty at (651) 602-4715 or via e-mail at michael.flaherty@metc.state.mn.us.

Sincerely,

Robert Nordquist

Robert Nordquist, P.E.
Industrial Waste Manager
MCES Industrial Waste & Pollution Prevention Section

Enclosure

METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES (MCES)

INDUSTRIAL DISCHARGE PERMIT
SPECIAL DISCHARGES

Pursuant to the provisions of Minnesota Statutes Chapter 473 as amended, the Waste Discharge Rules for the Metropolitan Disposal System (MDS), and the MCES Leachate and Contaminated Groundwater Program, permission is hereby granted to

City of Robbinsdale - Crystal Lake Alum

4100 N Lakeview Ave

Robbinsdale, MN 55422

for the discharge of aluminum phosphate floc wastewater

from 3769 Crystal Lake Blvd, Robbinsdale, MN 55422

into the Metropolitan Council's Metropolitan Wastewater Treatment Plant.

This permit is granted in accordance with the application previously submitted and in consideration of the plans, specifications, and data contained in the application.

Discharge Limitations, Self-Monitoring and Reporting Requirements, Special Conditions regarding connected and non-connected sites, and Specific Permit Conditions are contained in the following sections of this Permit.

EFFECTIVE DATE: January 01, 2017

EXPIRATION DATE: December 31, 2019

Issued by METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES

L Rogacki

Nov 1, 2016

General Manager, or duly authorized representative
Larry Rogacki, Assistant General Manager
Support Services Business Unit

Date

METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES (MCES)

A. Discharge Limitations (continued)

3. Prohibited Waste Discharges:

Prohibited Waste Discharges are specified in Waste Discharge Rule 406 and include, but are not limited to the following: (a) Flammable, explosive, and corrosive wastes, gasoline, fuel oil, lubricating oil, hydraulic oil, motor oil, or grease; (b) Wastes that are likely to obstruct the flow within public sewers: grease, fat or oil of animal or vegetable origin, solid wastes, garbage, guts, bones, ash, sand, rags, lime, metal, wood, plastic, glass, or yard wastes; (c) Wastes that are likely to cause interference, pass-through or operational problems: slug discharges, toxic chemicals, poisons, dyes, or inks; (d) Wastes that are likely to cause a public nuisance: noxious, malodorous, or foam producing products; (e) Cooling water, runoff, and other unpolluted water; (f) Hazardous wastes, as defined by Minnesota Statutes; and (g) Waste generated outside of the Metropolitan Area, unless prior approval is obtained from MCES.

B. Self-Monitoring and Reporting Requirements:

1. Sample Collection

Representative wastewater sample(s) shall be collected from the following sample locations (SPs). See Attachment A for sample collection frequency.

SP-01: Clarifier Discharge

The total facility wastestream shall be sampled from the clarifier.

2. Parameters

Chemical analysis, in accordance with Waste Discharge Rule 216, of the sample(s) representing the waste discharged through the specific sample location(s), shall be performed for the following parameters:

See Attachment A

METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES (MCES)

C. Special Conditions for Discharge Sites Not Connected to Public Sewers

1. Discharge Location

Permitted discharge for sites not connected to public sewers shall be transported by an MCES-permitted Liquid Waste Hauler to the Metropolitan Plant Liquid Waste Receiving Facility in St. Paul. As defined in Waste Discharge Rule 004.28, public sewers include MCES interceptors and all community-owned sanitary and combined sewers that are tributary to the MDS.

2. Load Charge

Transported discharges are be subject to a Load Charge which includes a volume component, a strength component, and a facilities cost component. The volume component is based on the volume rate that MCES charges all communities served. The strength component is based on volume, a Chemical Oxygen Demand concentration in excess of 500 milligrams per liter (mg/L) and a Total Suspended Solids concentration in excess of 250 mg/L. The facilities cost component includes debt service for capital costs for new or upgraded disposal sites, and associated operating costs. The Load Charge recovers the full cost of treating hauled liquid waste discharged into MCES facilities. The Out of Service Area Load Charge includes an additional service fee, determined by the Regional Administrator. The MCES rates used to calculate the load charge components are adjusted annually.

D. Special Conditions for Discharge Sites Connected to Public Sewers

1. Connection Approval

A Permittee making a connection to a community-owned sewer or an MCES interceptor shall obtain approval from the appropriate authority prior to making the connection. Billing for sewer use shall also be arranged with the community.

2. Volume Measurement

The Permittee shall install and maintain an appropriate discharge volume metering device, in accordance with Waste Discharge Rules 213 and 215.

3. Temporary Capacity Charge (TCC)

Permitted sites that are connected to public sewers will be subject to a Temporary Capacity Charge for temporary use of reserve capacity in the MDS.

E. General Permit Conditions

1. All discharges into public sewers by the Permittee shall be in accordance with applicable provisions of the Waste Discharge Rules for the MDS, the MCES Leachate and Contaminated Groundwater Program and this Permit.

2. The Permittee shall not knowingly make any false statement, representation or certification in any record, report, plan or other document submitted to MCES.

METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES (MCES)

E. General Permit Conditions (continued)

11. The Permittee shall report any operational changes or practices which differ from those described in the original Special Discharge Permit application, including changes in pretreatment system design or operation, or rate of discharge. The Permittee shall also notify the Industrial Waste & Pollution Prevention Section within 48 hours if the discharge is temporaily or permanently discontinued.

12. This Permit supercedes any MCES discharge approvals or Industrial Discharge Permits previously issued for the discharge of landfill leachate, contaminated groundwater or special industrial waste from this site into the Metropolitan Disposal System.

13. This Permit is not exclusive. This Permit shall not release the Permittee from conditions set forth by the Minnesota Pollution Control Agency, Minnesota Department of Health, Minnesota Department of Natural Resources or the community in which the site is located.

14. The Permittee shall be subject to civil liability as a result of discharges which violate the Waste Discharge Rules, applicable federal pretreatment standards or requirements, or any requirement or condition contained in this Permit. Further, any violation may also result in the Permittee being subject to civil and/or criminal penalties in the amount of $1,000 per day, 90 days imprisonment, or both.

15. Information and data that Permittees submit to MCES shall be available to the public as required by Waste Discharge Rule 221, the Minnesota Government Data Practices Act, Minnesota Statutes, chapter 13, 40 CFR part 403.14 or any other applicable law. The Permittee may make a written request that certain submitted information remain confidential by submitting the Confidential Business Information Request Form. If MCES determines that this information is eligible for classification as confidential, then the information will not be made available to the public. Information determined to be confidential will remain available only to MCES or any other public agency with the authority to view such information. Information that MCES needs to determine applicable regulations, compliance with the Waste Discharge Rules, or characteristics of the wastewater discharge cannot be deemed confidential.

METROPOLITAN COUNCIL ENVIRONMENTAL SERVICES (MCES)

G. Required SMR Submittals

Sampling Results SMR

The following items shall be submitted as an attachment to each submitted Sampling Results SMR:

1. The analytical results for all wastewater monitoring conducted during each reporting period, at the monitoring points(s) specified in this Permit or at points representing the industrial discharge through the monitoring point(s), including in-house sampling and analysis, shall be submitted with each Sampling Results SMR.

Minnesota Pollution Control Agency
520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300
800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

February 1, 2017

Ms. Marcia Glick, City Manager
City of Robbinsdale
4100 Lakeview Avenue
Robbinsdale, Minnesota 55422

RE: Final NPDES/SDS Permit No. MN0069957
Crystal Lake Flocculation Treatment Facility
T29N, R24W, Section 5, Robbinsdale, Hennepin County, Minnesota

Dear Ms. Glick:

Enclosed is the final permit for the facility identified above. The Minnesota Pollution Control Agency (MPCA) has prepared this permit in accordance with Minn. Stat. chs. 115, 115A, and 116, and Minn. R. chs. 7000, 7001, and 7035.

If you have any questions regarding any of the terms and conditions of the final permit, please contact Shauna Bendt at 651-757-2282 or by email at shauna.bendt@state.mn.us.

Sincerely,

Bill Priebe

This document has been electronically signed.

Bill Priebe, P.E.
Supervisor, Metro Regional and Infrastructure Financing Unit
Municipal Wastewater Section
Municipal Division

BP/SB:lmg

Enclosure: Final Permit

cc: Richard McCoy, City of Robbinsdale

Minnesota Pollution Control Agency

National Pollutant Discharge Elimination System/State Disposal System

MN0069957

Permittee:	City of Robbinsdale
Facility name:	Crystal Lake Flocculation Treatment Facility
Receiving water:	Crystal - Class 2B, 3C, 4A, 4B, 5, 6 water
City or Township:	Robbinsdale **County:** Hennepin
Issuance date:	February 1, 2017
Expiration date:	January 31, 2022

The state of Minnesota, on behalf of its citizens through the Minnesota Pollution Control Agency (MPCA), authorizes the Permittee to operate a disposal system at the facility named above and to discharge from this facility to the receiving water named above, in accordance with the requirements of this permit.

The goal of this permit is to reduce pollutant levels in point source discharges and protect water quality in accordance with the U.S. Clean Water Act, Minnesota statutes and rules, and federal laws and regulations.

This permit is effective on the issuance date identified above. This permit expires at midnight on the expiration date identified above.

Signature: Bill Priebe

This document has been electronically signed.

for the Minnesota Pollution Control Agency

Bill D. Priebe, P.E.
Supervisor
St. Paul Office
Municipal Division

Submit eDMRs
Submit via the MPCA Online Services Portal at
https://netweb.pca.state.mn.us/private/

Questions on this permit?
For eDMR and other permit reporting issues, contact:
Jennifer Satnik, 651-757-2692

Submit other WQ reports to:
Attention: WQ Submittals Center
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

For specific permit requirements please refer to:
Molly Baumann, 651-757-2204

Wastewater Permit Program general questions, contact:
MPCA, 651-282-6143 or 1-800-657-3938.

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1. Permitted facility description

The Crystal Lake Flocculation Treatment facility (facility) is located at 3769 Crystal Lake Blvd, Robbinsdale, Minnesota 55422, Hennepin County.

The facility provides phosphorus removal from lake water withdrawn from Crystal Lake to assist in reduction of phosphorus nutrient loads within the lake. The facility operates seasonally between April and October. The maximum daily flow for the facility is 0.720 million gallons per day (mgd). The facility uses aluminum sulfate (alum) addition as a flocculent, sodium hydroxide for pH adjustment and a clarifier for retention time and solids removal. The intake water is pH adjusted if needed as the alum is added. The water then flows to the clarifier. The clarifier is designed for a 4-hr detention time at design flow to allow for the settling of floc and solids prior to discharge. The discharge from the facility can be routed to Crystal Lake directly or through a series of connected stormwater ponds within the adjacent park, with eventual discharge to Crystal Lake. Solids from this facility are transferred to another facility for final disposal.

Changes to the facility may result in an increase in pollutant loading to surface waters or other causes of degradation to surface waters. If a change to the facility will result in a net increase in pollutant loading or other causes of degradation that exceed the maximum loading authorized through conditions specified in the existing permit, the changes to the facility are subject to antidegradation requirements found in Minn. R. 7050.0250 to 7050.0335.

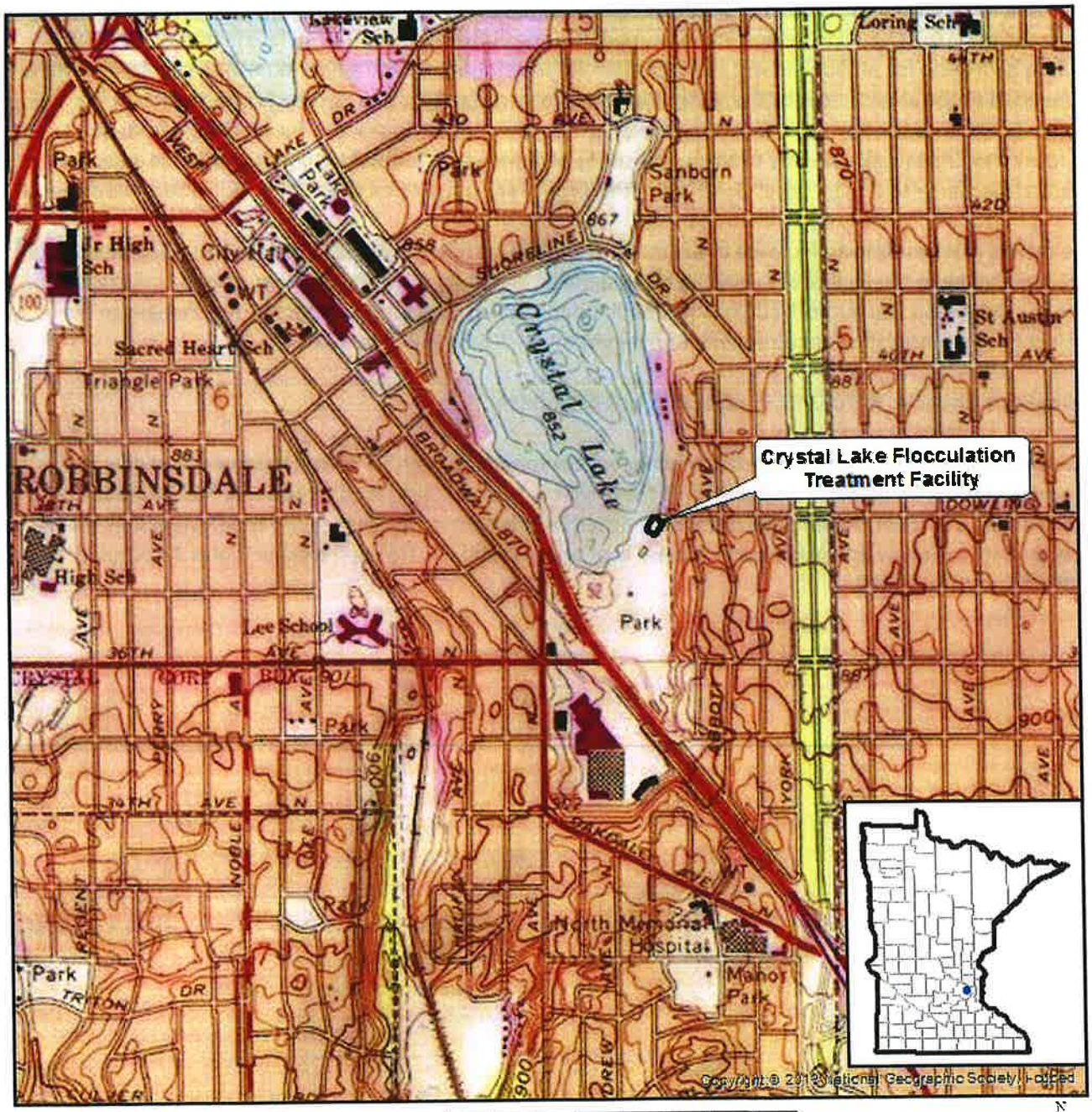
This Permit complies with Minn. R. 7053.0275 regarding anti-backsliding.

Any point source discharger of sewage, industrial, or other wastes for which a NPDES permit has been issued by the MPCA that contains effluent limits more stringent than those that would be established by Minn. R. 7053.0215 to 7053.0265 shall continue to meet the effluent limits established by the permit, unless the permittee establishes that less stringent effluent limits are allowable pursuant to federal law, under section 402(o) of the Clean Water Act, United States Code, title 33, section 1342.]

2. Location map of permitted facility

Topographic Map of Permitted Facility

MN0069957: Crystal Lake Flocculation Treatment Facility
T29 N, R24W, Section 5
Robbinsdale, Hennepin County, Minnesota

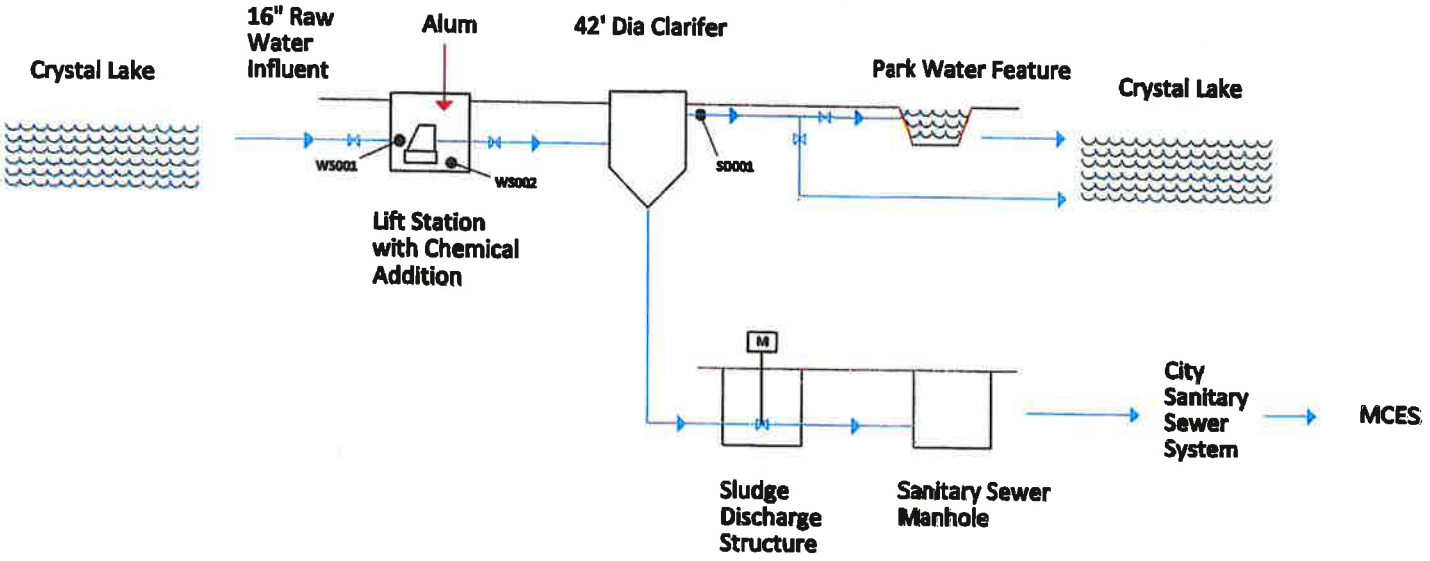


Map produced by: MPCA Staff, 11/17/2016
Main Map Scale: 1:15,000

0 0.15 0.3 0.6 Miles

N

3. Flow diagram



4. Summary of stations and station locations

Station	Type of station	Local name	PLS location
SD 001	Effluent To Surface Water	Facility Effluent	T29N, R24W, S5, SE Quarter of the SW Quarter
WS 001	Water Intake	Influent Flow	T29N, R24W, S5, SE Quarter of the SW Quarter

5. Permit requirements

SD 001	**Effluent To Surface Water**	
		Facility Specific Limit and Monitoring Requirements
	5.1.1	The Permittee shall submit a monthly DMR : Due by 21 days after the end of each calendar month following permit issuance. [Minn. R. 7001.0150, Subp. 2(B)]
	5.1.2	Sampling Location. [Minn. R. 7001.0150, Subp. 2(B)]
	5.1.3	Samples for Station SD001 shall be taken at a point representative of the total facility effluent discharge. [Minn. R. 7001.0150, Subp. 2(B)]
	5.1.4	The Permittee shall submit monitoring results in accordance with the limits and monitoring requirements for this station. If conditions are such that no sample can be acquired, the Permittee shall report "No Flow" or "No Discharge" on Discharge Monitoring Report (DMR) and shall add a Comments attachment to the DMR detailing why the sample was not collected. [Minn. R. 7001.0150, Subp. 2(B)]
WS 001	**Water Intake**	
		Facility Specific Limit and Monitoring Requirements
	5.2.1	The Permittee shall submit a monthly DMR : Due by 21 days after the end of each calendar month following permit issuance. [Minn. R. 7001.0150, Subp. 2(B)]
	5.2.2	Sampling Location. [Minn. R. 7001.0150, Subp. 2(B)]
	5.2.3	Samples for Station WS001 shall be taken at a point representative of total influent flow to the facility. [Minn. R. 7001.0150, Subp. 2(B)]
	5.2.4	The Permittee shall submit monitoring results in accordance with the limits and monitoring requirements for this station. If conditions are such that no sample can be acquired, the Permittee shall report "No Flow" or "No Discharge" on Discharge Monitoring Report (DMR) and shall add a Comments attachment to the DMR detailing why the sample was not collected. [Minn. R. 7001.0150, Subp. 2(B)]
MN0069957	**Crystal Lake Flocculation Treatment Facility**	
		Surface Discharge Station General Requirements
	5.3.1	Analysis Requirements. [Minn. R. 7001]
	5.3.2	pH analysis shall be conducted within 15 minutes of sample collection. [Minn. R. 7001]
	5.3.3	Representative Samples. [Minn. R. 7001]
	5.3.4	Samples and measurements required by this permit shall be representative of the monitored activity. [Minn. R. 7001]
	5.3.5	Surface Discharge Prohibitions. [Minn. R. 7001]
	5.3.6	Floating solids or visible foam shall not be discharged in other than trace amounts. [Minn. R. 7001]
	5.3.7	Oil or other substances shall not be discharged in amounts that create a visible color film. [Minn. R. 7001]
	5.3.8	The Permittee shall install and maintain outlet protection measures to prevent erosion at the discharge to the stormwater ponds and the outfall location to the receiving water. [Minn. R. 7001]
	5.3.9	Winter Sampling Conditions. [Minn. R. 7001]
	5.3.10	The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR. [Minn. R. 7001]
		Waste Stream Station General Requirements
	5.4.11	Analysis Requirements. [Minn. R. 7001]

	5.4.12	pH analysis shall be conducted within 15 minutes of sample collection. [Minn. R. 7001]
	5.4.13	Representative Samples. [Minn. R. 7001]
	5.4.14	Grab and composite samples shall be collected at a point representative of total influent flow to the system. [Minn. R. 7001]
		Water Treatment Plant (NPDES)
	5.5.15	Authorization. [Minn. R. 7001]
	5.5.16	This permit authorizes the Permittee to treat surface water and dispose of residual solids in accordance with the provisions in this chapter. [Minn. R. 7001]
	5.5.17	Wastewaters discharged to a sanitary sewage treatment system from water treatment plants are not regulated by this permit and the monitoring and effluent limits stated in this permit do not apply to the specific wastewaters discharged to the sanitary sewage treatment system. [Minn. R. 7001]
	5.5.18	Residual Solids Management. [Minn. R. 7001]
	5.5.19	The Permittee shall provide for the effective management and/or disposal of residual solids, or other substances resulting from treatment of potable water. [Minn. R. 7035]
	5.5.20	The Permittee shall dispose of residual solids in such a manner and at such locations that disposal practices shall not result in unlawful pollution of the air, surface water or ground water, or create nuisance conditions. [Minn. R. 7035]
	5.5.21	This permit authorizes the Permittee to transfer residual solids generated in the treatment process to a permitted wastewater or solid waste facility for final treatment and disposal. The Permittee is responsible for determining if additional approvals or permits may be required for use of disposal facilities. [Minn. R. 7035]
	5.5.22	Residual Solids Management Annual Report. [Minn. R. 7001]
	5.5.23	The Permittee shall submit a water treatment plant residual solids annual report : Due by 31 days after the end of each calendar year following permit issuance. [Minn. R. 7001]
	5.5.24	The Water Treatment Plant Residual Solids Annual Report shall include: a. notification of the quantity of solids removed and the method and location of disposal; and b. analytical results and land application rates, if applicable. [Minn. R. 7001]
		Total Facility Requirements (NPDES/SDS)
	5.6.25	Definitions. Refer to the 'Permit Users Manual' found on the MPCA website (www.pca.state.mn.us) for standard definitions. [Minn. R. 7001.]
	5.6.26	Incorporation by Reference. The following applicable federal and state laws are incorporated by reference in this permit, are applicable to the Permittee, and are enforceable parts of this permit: 40 CFR pts. 122.41, 122.42, 136, 403 and 503; Minn. R. pts. 7001, 7041, 7045, 7050, 7052, 7053, 7060, and 7080; and Minn. Stat. ch. 115 and 116. [Minn. R. 7001]
	5.6.27	Permittee Responsibility. The Permittee shall perform the actions or conduct the activity authorized by the permit in compliance with the conditions of the permit and, if required, in accordance with the plans and specifications approved by the Agency. [Minn. R. 7001.0150, subp. 3(E)]
	5.6.28	Toxic Discharges Prohibited. Whether or not this permit includes effluent limitations for toxic pollutants, the Permittee shall not discharge a toxic pollutant except according to Code of Federal Regulations, Title 40, sections 400 to 460 and Minnesota Rules 7050, 7052, 7053 and any other applicable MPCA rules. [Minn. R. 7001.1090, subp. 1(A)]
	5.6.29	Nuisance Conditions Prohibited. The Permittee's discharge shall not cause any nuisance conditions including, but not limited to: floating solids, scum and visible oil film, acutely toxic conditions to aquatic life, or other adverse impact on the receiving water. [Minn. R. 7050.0210, subp. 2]
	5.6.30	Property Rights. This permit does not convey a property right or an exclusive privilege. [Minn. R. 7001.0150, subp. 3(C)]
	5.6.31	Liability Exemption. In issuing this permit, the state and the MPCA assume no responsibility for damage to persons, property, or the environment caused by the activities of the Permittee in the conduct of its actions, including those activities authorized, directed, or undertaken under this permit. To the extent the state and the MPCA may be liable for the activities of its employees, that

		liability is explicitly limited to that provided in the Tort Claims Act. [Minn. R. 7001.0150, subp. 3(O)]
	5.6.32	The MPCA's issuance of this permit does not obligate the MPCA to enforce local laws, rules, or plans beyond what is authorized by Minnesota Statutes. [Minn. R. 7001.0150, subp. 3(D)]
	5.6.33	Liabilities. The MPCA's issuance of this permit does not release the Permittee from any liability, penalty or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit. [Minn. R. 7001.0150, subp. 3(A)]
	5.6.34	The issuance of this permit does not prevent the future adoption by the MPCA of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the Permittee. [Minn. R. 7001.0150, subp. 3(B)]
	5.6.35	Severability. The provisions of this permit are severable and, if any provisions of this permit or the application of any provision of this permit to any circumstance are held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. [Minn. R. 7001]
	5.6.36	Compliance with Other Rules and Statutes. The Permittee shall comply with all applicable air quality, solid waste, and hazardous waste statutes and rules in the operation and maintenance of the facility. [Minn. R. 7001]
	5.6.37	Inspection and Entry. When authorized by Minn. Stat. ch. 115.04; 115B.17, subd. 4; and 116.091, and upon presentation of proper credentials, the agency, or an authorized employee or agent of the agency, shall be allowed by the Permittee to enter at reasonable times upon the property of the Permittee to examine and copy books, papers, records, or memoranda pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit; and to conduct surveys and investigations, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit. [Minn. R. 7001.0150, subp. 3(I)]
	5.6.38	Control Users. The Permittee shall regulate the users of its wastewater treatment facility so as to prevent the introduction of pollutants or materials that may result in the inhibition or disruption of the conveyance system, treatment facility or processes, or disposal system that would contribute to the violation of the conditions of this permit or any federal, state or local law or regulation. [Minn. R. 7001.0150, subp. 3(F)]
	5.6.39	Sampling. [Minn. R. 7001]
	5.6.40	Representative Sampling. Samples and measurements required by this permit shall be conducted as specified in this permit and shall be representative of the discharge or monitored activity. [40 CFR 122.41(j)(1)]
	5.6.41	Additional Sampling. If the Permittee monitors more frequently than required, the results and the frequency of monitoring shall be reported on the Discharge Monitoring Report (DMR) or another MPCA-approved form for that reporting period. [Minn. R. 7001.1090, subp. 1(E)]
	5.6.42	Certified Laboratory. A laboratory certified by the Minnesota Department of Health and/or registered by the MPCA shall conduct analyses required by this permit. Analyses of dissolved oxygen, pH, temperature, specific conductance, and total residual oxidants (chlorine, bromine) do not need to be completed by a certified laboratory but shall comply with manufacturers specifications for equipment calibration and use. [Minn. R. 4740.2010, Minn. R. 4740.2050 through 2120]
	5.6.43	Sample Preservation and Procedure. Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200. [40 CFR 136, Minn. R. 7041.3200]
	5.6.44	Equipment Calibration: Flow meters, pumps, flumes, lift stations or other flow monitoring equipment used for purposes of determining compliance with permit shall be checked and/or calibrated for accuracy at least twice annually. [Minn. R. 7001.0150, 2(B and C)]
	5.6.45	Maintain Records. The Permittee shall keep the records required by this permit for at least three years, including any calculations, original recordings from automatic monitoring instruments, and laboratory sheets. The Permittee shall extend these record retention periods upon request of the MPCA. The Permittee shall maintain records for each sample and measurement. The records shall include the following information:

		a. the exact place, date, and time of the sample or measurement; b. the date of analysis; c. the name of the person who performed the sample collection, measurement, analysis, or calculation; d. the analytical techniques, procedures and methods used; and e. the results of the analysis. [Minn. R. 7001.0150, 2(C)]
	5.6.46	Completing Reports. The Permittee shall submit the results of the required sampling and monitoring activities on the forms provided, specified, or approved by the MPCA. The information shall be recorded in the specified areas on those forms and in the units specified. Required forms may include DMR Supplemental/Sample Value Form Individual values for each sample and measurement shall be recorded on the DMR Supplemental/Sample Value Form which, if required, will be provided by the MPCA. DMR Supplemental/Sample Value Forms shall be submitted with the appropriate DMRs. You may design and use your own supplemental form; however it shall be approved by the MPCA. Note: Required summary information shall also be recorded on the DMR. Summary information that is submitted ONLY on the DMR Supplemental/Sample Value Form does not comply with the reporting requirements. [Minn. R. 7001.1090, 1(D), Minn. R. 7001.150, 2(B)]
	5.6.47	Submitting Reports. DMRs, DMR supplemental forms and related attachments must be electronically submitted via the MPCA Online Services Portal after authorization is approved. DMRs and DMR Supplemental Forms shall be electronically submitted by the 21st day of the month following the sampling period or as otherwise specified in this permit. Electronic DMR submittal shall be complete on or before 11:59 PM of the 21st day of the month following the sampling period or as otherwise specified in this permit. A DMR shall be submitted for each required station even if no discharge occurred during the reporting period. Other reports required by this permit shall be postmarked by the date specified in the permit to: MPCA, Attn: WQ Submittals Center, 520 Lafayette Road North, St Paul Minnesota 551554194. [Minn. R. 7001..0150, Subp. 2(B), Minn. R. 7001..0150, Subp. 3(H)]
	5.6.48	Incomplete or Incorrect Reports. The Permittee shall immediately submit an electronically amended report or DMR to the MPCA upon discovery by the Permittee or notification by the MPCA that it has submitted an incomplete or incorrect report or DMR. The amended report or DMR shall contain the missing or corrected data along with a cover letter explaining the circumstances of the incomplete or incorrect report. If it is impossible to electronically amend the report or DMR, the Permittee shall immediately notify the MPCA and the MPCA will provide direction for the amendment submittals. [Minn. R. 7001.0150, 3(G)]
	5.6.49	Required Signatures. All DMRs, forms, reports, and other documents submitted to the MPCA shall be signed by the Permittee or the duly authorized representative of the Permittee. Minn. R. 7001.0150, subp. 2, item D. The person or persons that sign the DMRs, forms, reports or other documents shall certify that he or she understands and complies with the certification requirements of Minn. R. 7001.0070 and 7001.0540, including the penalties for submitting false information. Technical documents, such as design drawings and specifications and engineering studies required to be submitted as part of a permit application or by permit conditions, shall be certified by a registered professional engineer. [Minn. R. 7001.0540]
	5.6.50	Detection Level. The Permittee shall report monitoring results below the reporting limit (RL) of a particular instrument as "<" the value of the RL. For example, if an instrument has a RL of 0.1 mg/L and a parameter is not detected at a value of 0.1 mg/L or greater, the concentration shall be reported as "<0.1 mg/L." "Non-detected," "undetected," "below detection limit," and "zero" are unacceptable reporting results, and are permit reporting violations. Where sample values are less than the level of detection and the permit requires reporting of an average, the Permittee shall calculate the average as follows: a. If one or more values are greater than the level of detection, substitute zero for all nondetectable

		values to use in the average calculation. b. If all values are below the level of detection, report the averages as "<" the corresponding level of detection. c. Where one or more sample values are less than the level of detection, and the permit requires reporting of a mass, usually expressed as kg/day, the Permittee shall substitute zero for all nondetectable values. [Minn. R. 7001.0150, 2(B)]
	5.6.51	Records. The Permittee shall, when requested by the Agency, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit. [Minn. R. 7001.0150, 3(H)]
	5.6.52	Confidential Information. Except for data determined to be confidential according to Minn. Stat. ch. 116.075, subd. 2, all reports required by this permit shall be available for public inspection. Effluent data shall not be considered confidential. To request the Agency maintain data as confidential, the Permittee shall follow Minn. R. 7000.1300. [Minn. R. 7000.1300]
	5.6.53	Noncompliance and Enforcement. [Minn. R. 7001]
	5.6.54	Subject to Enforcement Action and Penalties. Noncompliance with a term or condition of this permit subjects the Permittee to penalties provided by federal and state law set forth in section 309 of the Clean Water Act; United States Code, title 33, section 1319, as amended; and in Minn. Stat. ch. 115.071 and 116.072, including monetary penalties, imprisonment, or both. [Minn. R. 7001.1090, 1(B)]
	5.6.55	Criminal Activity. The Permittee may not knowingly make a false statement, representation, or certification in a record or other document submitted to the Agency. A person who falsifies a report or document submitted to the Agency, or tampers with, or knowingly renders inaccurate a monitoring device or method required to be maintained under this permit is subject to criminal and civil penalties provided by federal and state law. [Minn. R. 7001.0150, 3(G), Minn. R. 7001.1090, 1(G and H), Minn. Stat. ch. 609.671, 1]
	5.6.56	Noncompliance Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [40 CFR 122.41(c)]
	5.6.57	Effluent Violations. If sampling by the Permittee indicates a violation of any discharge limitation specified in this permit, the Permittee shall immediately make every effort to verify the violation by collecting additional samples, if appropriate, investigate the cause of the violation, and take action to prevent future violations. If the permittee discovers that noncompliance with a condition of the permit has occurred which could endanger human health, public drinking water supplies, or the environment, the Permittee shall within 24 hours of the discovery of the noncompliance, orally notify the commissioner and submit a written description of the noncompliance within 5 days of the discovery. The written description shall include items a. through e., as listed below. If the Permittee discovers other non-compliance that does not explicitly endanger human health, public drinking water supplies, or the environment, the non-compliance shall be reported during the next reporting period to the MPCA with its Discharge Monitoring Report (DMR). If no DMR is required within 30 days, the Permittee shall submit a written report within 30 days of the discovery of the noncompliance. This description shall include the following information: a. a description of the event including volume, duration, monitoring results and receiving waters; b. the cause of the event; c. the steps taken to reduce, eliminate and prevent reoccurrence of the event; d. the exact dates and times of the event; and e. steps taken to reduce any adverse impact resulting from the event. [Minn. R. 7001.150, 3(K)]
	5.6.58	Upset Defense. In the event of temporary noncompliance by the Permittee with an applicable effluent limitation resulting from an upset at the Permittee's facility due to factors beyond the control of the Permittee, the Permittee has an affirmative defense to an enforcement action brought by the Agency as a result of the noncompliance if the Permittee demonstrates by a preponderance of competent evidence:

		a. the specific cause of the upset; b. that the upset was unintentional; c. that the upset resulted from factors beyond the reasonable control of the Permittee and did not result from operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or increases in production which are beyond the design capability of the treatment facilities; d. that at the time of the upset the facility was being properly operated; e. that the Permittee properly notified the Commissioner of the upset in accordance with Minn. R. 7001.1090, subp. 1, item I; and f. that the Permittee implemented the remedial measures required by Minn. R. 7001.0150, subp. 3, item J. [Minn. R. 7001.1090]
	5.6.59	Release. [Minn. R. 7001]
	5.6.60	Unauthorized Releases of Wastewater Prohibited. Except for discharges from outfalls specifically authorized by this permit, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited. However, the MPCA will consider the Permittee's compliance with permit requirements, frequency of release, quantity, type, location, and other relevant factors when determining appropriate action. [40 CFR 122.41, Minn. Stat. ch. 115.061]
	5.6.61	Discovery of a release. Upon discovery of a release, the Permittee shall: a. Take all reasonable steps to immediately end the release. b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 or (651)649-5451 (metro area) immediately upon discovery of the release. You may contact the MPCA during business hours at 1(800)657-3864 or (651)296-6300 (metro area). c. Recover as rapidly and as thoroughly as possible all substances and materials released or immediately take other action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If the released materials or substances cannot be immediately or completely recovered, the Permittee shall contact the MPCA. If directed by the MPCA, the Permittee shall consult with other local, state or federal agencies (such as the Minnesota Department of Natural Resources and/or the Wetland Conservation Act authority) for implementation of additional clean-up or remediation activities in wetland or other sensitive areas. [Minn. R. 7001.1090]
	5.6.62	Sampling of a release. Upon discovery of a release, the Permittee shall: a. Collect representative samples of the release. The Permittee shall sample the release for parameters of concern immediately following discovery of the release. The Permittee may contact the MPCA during business hours to discuss the sampling parameters and protocol. In addition, Fecal Coliform Bacteria samples shall be collected where it is determined by the Permittee that the release contains or may contain sewage. If the release cannot be immediately stopped, the Permittee shall consult with MPCA regarding additional sampling requirements. Samples shall be collected at least, but not limited to, two times per week for as long as the release continues. b. Submit the sampling results on the Release Sampling Form (http://www.pca.state.mn.us/index.php/view-document.html?gid=18867). The Release Sampling Form shall be submitted to the MPCA with the next DMR or within 30 days whichever is sooner. [Minn. R. 7001.1090]
	5.6.63	Bypass. [Minn. R. 7001]
	5.6.64	Anticipated bypass. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if the bypass is for essential maintenance to assure efficient operation of the facility. The permittee shall submit prior notice, if possible at least ten days before the date of the bypass to the MPCA. The notice of the need for an anticipated bypass shall include the following information: a. the proposed date and estimated duration of the bypass;

		b. the alternatives to bypassing; and c. a proposal for effluent sampling during the bypass. Any bypass wastewater shall enter waters of the state from outfalls specifically authorized by this permit. Therefore, samples shall be collected at the frequency and location identified in this permit or two times per week for as long as the bypass continues, whichever is more frequent. [40 CFR 122.41(m)(2 and 3), Minn. R. 7001.1090, 1(J)]
	5.6.65	All other bypasses are prohibited. The MPCA may take enforcement action against the Permittee for a bypass, unless the specific conditions described in Minn. R. Ch. 7001.1090 subp. 1, K and 122.41(m)(4)(i) are met. In the event of an unanticipated bypass, the permittee shall: a. Take all reasonable steps to immediately end the bypass. b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 or (651)649-5451 (metro area) immediately upon commencement of the bypass. You may contact the MPCA during business hours at 1(800)657-3864 or (651)296-6300 (metro area). c. Immediately take action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If directed by the MPCA, the Permittee shall consult with other local, state or federal agencies for implementation of abatement, clean-up, or remediation activities. d. Only allow bypass wastewater as specified in this section to enter waters of the state from outfalls specifically authorized by this permit. Samples shall be collected at the frequency and location identified in this permit or two times per week for as long as the bypass continues, whichever is more frequent. The permittee shall also follow the reporting requirements for effluent violations as specified in this permit. [40 CFR 122.41(m)(4)(i), Minn. R. 7001.1090, 1(K), Minn. Stat. ch. 115.061]
	5.6.66	Operation and Maintenance. [Minn. R. 7001]
	5.6.67	The Permittee shall at all times properly operate and maintain the facilities and systems of treatment and control, and the appurtenances related to them which are installed or used by the Permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these backup or auxiliary facilities are technically and economically feasible Minn. R. 7001.0150. subp. 3, item F. [Minn. R. 7001.0150, 3(F)]
	5.6.68	In the event of a reduction or loss of effective treatment of wastewater at the facility, the Permittee shall control production or curtail its discharges to the extent necessary to maintain compliance with the terms and conditions of this permit. The Permittee shall continue this control or curtailment until the wastewater treatment facility has been restored or until an alternative method of treatment is provided. [Minn. R. 7001.1090, 1(C)]
	5.6.69	Solids Management. The Permittee shall properly store, transport, and dispose of biosolids, septage, sediments, residual solids, filter backwash, screenings, oil, grease, and other substances so that pollutants do not enter surface waters or ground waters of the state. Solids should be disposed of in accordance with local, state and federal requirements. [40 CFR 503, Minn. R. 7041]
	5.6.70	Scheduled Maintenance. The Permittee shall schedule maintenance of the treatment works during non-critical water quality periods to prevent degradation of water quality, except where emergency maintenance is required to prevent a condition that would be detrimental to water quality or human health. [Minn. R. 7001.0150, 3(F), Minn. R. 7001.150, 2(B)]
	5.6.71	Control Tests. In-plant control tests shall be conducted at a frequency adequate to ensure compliance with the conditions of this permit. [Minn. R. 7001.0150, 3(F), Minn. R. 7001.150, 2(B)]
	5.6.72	Changes to the Facility or Permit. [Minn. R. 7001]
	5.6.73	Permit Modifications. Except as provided under Minnesota Statutes, section 115.07, subdivisions 1 and 3, no person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted, nor shall a person commence an activity for which a permit is required by statute or rule until the agency has issued a written permit for the facility or activity.

		Permittees that propose to make a change to the facility or discharge that requires a permit modification shall follow Minn. R. 7001.0190. If the Permittee cannot determine whether a permit modification is needed, the Permittee shall contact the MPCA prior to any action. It is recommended that the application for permit modification be submitted to the MPCA at least 180 days prior to the planned change. [Minn. R. 7001.0030]
	5.6.74	Plans, specifications and MPCA approval are not necessary when maintenance dictates the need for installation of new equipment, provided the equipment is the same design size and has the same design intent. For instance, a broken pipe, lift station pump, aerator, or blower can be replaced with the same design-sized equipment without MPCA approval. If the proposed construction is not expressly authorized by this permit, it may require a permit modification. If the construction project requires an Environmental Assessment Worksheet under Minn. R. 4410, no construction shall begin until a negative declaration is issued and all approvals are received or implemented. [Minn. R. 7001.0030]
	5.6.75	Report Changes. The Permittee shall give advance notice as soon as possible to the MPCA of any substantial changes in operational procedures, activities that may alter the nature or frequency of the discharge, and/or material factors that may affect compliance with the conditions of this permit. [Minn. R. 7001.0150, 3(M)]
	5.6.76	Chemical Additives. The Permittee shall receive prior written approval from the MPCA before increasing the use of a chemical additive authorized by this permit, or using a chemical additive not authorized by this permit, in quantities or concentrations that have the potential to change the characteristics, nature and/or quality of the discharge. The Permittee shall request approval for an increased or new use of a chemical additive at least 60 days, or as soon as possible, before the proposed increased or new use. This written request shall include at least the following information for the proposed additive: a. The process for which the additive will be used; b. Safety Data Sheet (SDS) which shall include aquatic toxicity, human health, and environmental fate information for the proposed additive. The aquatic toxicity information shall include at minimum the results of: a) a 48-hour LC50 or EC50 acute study for a North American freshwater planktonic crustacean (either Ceriodaphnia or Daphnia sp.) and b) a 96-hour LC50 acute study for rainbow trout, bluegill or fathead minnow or another North American freshwater aquatic species other than a planktonic crustacean; c. a complete product use and instruction label; d. the commercial and chemical names and Chemical Abstract Survey (CAS) number for all ingredients in the additive (If the MSDS does not include information on chemical composition, including percentages for each ingredient totaling to 100%, the Permittee shall contact the supplier to have this information provided); and e. The proposed method of application, application frequency, concentration, and daily average and maximum rates of use. Upon review of the information submitted regarding the proposed chemical additive, the MPCA may require additional information be submitted for consideration. This permit may be modified to restrict the use or discharge of a chemical additive and include additional influent and effluent monitoring requirements. Approval for the use of an additive shall not justify the exceedance of any effluent limitation nor shall it be used as a defense against pollutant levels in the discharge causing or contributing to the violation of a water quality standard. [Minn. R. 7001.0170]
	5.6.77	MPCA Initiated Permit Modification, Suspension, or Revocation. The MPCA may modify or revoke and reissue this permit pursuant to Minn. R. 7001.0170. The MPCA may revoke without reissuance this permit pursuant to Minn. R. 7001.0180. [Minn. R. 7001.0170, Minn. R. 7001.0180]
	5.6.78	TMDL Impacts. Facilities that discharge to an impaired surface water, watershed or drainage basin may be required to comply with additional permits or permit requirements, including additional

		restriction or relaxation of limits and monitoring as authorized by the CWA 303(d)(4)(A) and 40 CFR 122.44.l.2.i., necessary to ensure consistency with the assumptions and requirements of any applicable US EPA approved wasteload allocations resulting from Total Maximum Daily Load (TMDL) studies. [40 CFR 122.44(l)(2)(i)]
	5.6.79	Permit Transfer. The permit is not transferable to any person without the express written approval of the Agency after compliance with the requirements of Minn. R. 7001.0190. A person to whom the permit has been transferred shall comply with the conditions of the permit. [Minn. R. 7001.0150, 3(N)]
	5.6.80	Facility Closure. The Permittee is responsible for closure and post-closure care of the facility. The Permittee shall notify the MPCA of a significant reduction or cessation of the activities described in this permit at least 180 days before the reduction or cessation. The MPCA may require the Permittee to provide to the MPCA a facility Closure Plan for approval. Facility closure that could result in a potential long-term water quality concern, such as the ongoing discharge of wastewater to surface or ground water, may require a permit modification or reissuance. The MPCA may require the Permittee to establish and maintain financial assurance to ensure performance of certain obligations under this permit, including closure, post-closure care and remedial action at the facility. If financial assurance is required, the amount and type of financial assurance, and proposed modifications to previously MPCA-approved financial assurance, shall be approved by the MPCA. [Minn. Stat. ch. 116.07, 4]
	5.6.81	Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for permit reissuance : Due by 180 days prior to permit expiration. If the Permittee does not intend to continue the activities authorized by this permit after the expiration date of this permit, the Permittee shall notify the MPCA in writing at least 180 days before permit expiration. If the Permittee has submitted a timely application for permit reissuance, the Permittee may continue to conduct the activities authorized by this permit, in compliance with the requirements of this permit, until the MPCA takes final action on the application, unless the MPCA determines any of the following (Minn. R. 7001.0040 and 7001.0160): a. The Permittee is not in substantial compliance with the requirements of this permit, or with a stipulation agreement or compliance schedule designed to bring the Permittee into compliance with this permit; b. The MPCA, as a result of an action or failure to act by the Permittee, has been unable to take final action on the application on or before the expiration date of the permit; c. The Permittee has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies. [Minn. R. 7001.0160]
		Facility Specific Requirements
	5.7.82	submit an annual report : Due by March 31 of each year following permit issuance The Permittee shall submit an annual report by March 31 of each year following permit issuance. This report shall analyze the data collected for the reporting year and include at minimum: a) the MSDS for chemicals used; b) the actual chemical dosage used, in mg/L and gallons per day, for each month of the reporting year; and c) the calculated phosphorus load removed by this facility. [Minn. R. 7001]

6. Submittal action summary

SD 001	Effluent To Surface Water	
		Facility Specific Limit and Monitoring Requirements
	6.1.1	The Permittee shall submit a monthly DMR : Due by 21 days after the end of each calendar month following permit issuance. [Minn. R. 7001.0150, Subp. 2(B)]
WS 001	Water Intake	
		Facility Specific Limit and Monitoring Requirements
	6.2.1	The Permittee shall submit a monthly DMR : Due by 21 days after the end of each calendar month following permit issuance. [Minn. R. 7001.0150, Subp. 2(B)]
MN0069957	Crystal Lake Flocculation Treatment Facility	
		Water Treatment Plant (NPDES)
	6.3.1	The Permittee shall submit a water treatment plant residual solids annual report : Due by 31 days after the end of each calendar year following permit issuance. [Minn. R. 7001]
		Total Facility Requirements (NPDES/SDS)
	6.4.2	Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for permit reissuance : Due by 180 days prior to permit expiration. If the Permittee does not intend to continue the activities authorized by this permit after the expiration date of this permit, the Permittee shall notify the MPCA in writing at least 180 days before permit expiration. If the Permittee has submitted a timely application for permit reissuance, the Permittee may continue to conduct the activities authorized by this permit, in compliance with the requirements of this permit, until the MPCA takes final action on the application, unless the MPCA determines any of the following (Minn. R. 7001.0040 and 7001.0160): a. The Permittee is not in substantial compliance with the requirements of this permit, or with a stipulation agreement or compliance schedule designed to bring the Permittee into compliance with this permit; b. The MPCA, as a result of an action or failure to act by the Permittee, has been unable to take final action on the application on or before the expiration date of the permit; c. The Permittee has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies. [Minn. R. 7001.0160]
		Facility Specific Requirements
	6.5.3	Submit an annual report : Due by March 31 of each year following permit issuance. The Permittee shall submit an annual report by March 31 of each year following permit issuance. This report shall analyze the data collected for the reporting year and include at minimum: a) the MSDS for chemicals used; b) the actual chemical dosage used, in mg/L and gallons per day, for each month of the reporting year; and c) the calculated phosphorus load removed by this facility. [Minn. R. 7001]

7. Limits and monitoring

		Discharge limitations							Monitoring requirements			
Subject item	**Parameter**	**Quantity /Loading avg.**	**Quantity /Loading max.**	**Quantity /Loading units**	**Quality /Conc. min.**	**Quality /Conc. avg.**	**Quality /Conc. max.**	**Quality/ Conc. units**	**Frequency**	**Sample type**	**Effective period**	**Notes**
SD 001 Facility Effluent	Flow		Monitor only. calendar month total	million gallons		Monitor only. calendar month average	Monitor only. calendar month maximum	million gallons per day	once per day	Measurement, Continuous	Jan-Dec (Sep-Aug) (Oct-Sep)	
SD 001 Facility Effluent	pH				Monitor only. instantaneous minimum		Monitor only. instantaneous maximum	standard units	once per week	Grab	Jan-Dec (Sep-Aug) (Oct-Sep)	
SD 001 Facility Effluent	Phosphorus, Ortho, Total Wet					Monitor only. calendar month average		milligrams per liter	twice per month	Grab	Jan-Dec (Sep-Aug) (Oct-Sep)	
SD 001 Facility Effluent	Phosphorus, Total (as P)					Monitor only. calendar month average		milligrams per liter	once per week	Grab	Jan-Dec (Sep-Aug) (Oct-Sep)	
SD 001 Facility Effluent	Solids, Total Suspended (TSS)					Monitor only. calendar month average		milligrams per liter	once per week	Grab	Jan-Dec (Sep-Aug) (Oct-Sep)	
WS 001 Influent Flow	pH				Monitor only. instantaneous minimum		Monitor only. instantaneous maximum	standard units	once per week	Grab	Jan-Dec (Sep-Aug) (Oct-Sep)	
WS 001 Influent Flow	Phosphorus, Ortho, Total Wet					Monitor only. calendar month average		milligrams per liter	twice per month	Grab	Jan-Dec (Sep-Aug) (Oct-Sep)	
WS 001 Influent Flow	Phosphorus, Total (as P)					Monitor only. calendar month average		milligrams per liter	once per week	Grab	Jan-Dec (Sep-Aug) (Oct-Sep)	
WS 001 Influent Flow	Solids, Total Suspended (TSS)					Monitor only. calendar month average		milligrams per liter	once per week	Grab	Jan-Dec (Sep-Aug) (Oct-Sep)	

Appendix C

Wetland Management Standards

Appendix B - Wetland Management Standards
Minnesota Routine Assessment Method for Evaluating Wetland Functions, Version 3.0

Management Class	Management Strategy	Stormwater Treatment	Buffer[1]	Mitigation Standard	Hydrologic Guidelines
A—Preserve	Maintain wetland and existing functions, values and wildlife habitat. Possible need for active management of wetland to protect unique features. Apply strict avoidance standards. May be appropriate to develop a conservation easement.	Avoid conveyed flows where prudent and feasible. Upstream sediment and nutrient pretreatment required to maintain background loading rates. Maintain existing hydrology—divert increased flows. Avoid concentrating flows.	≥50 feet for water quality ≥100 feet for wildlife habitat.[2] Require monuments to mark buffer edge.	WCA minimum or greater replacement ratio with documented replacement of functions/values. Consider requiring buffer replacement.	*Bounce (10 yr):* Existing *Inundation (1 & 2 yr):* Existing *(10 yr):* Existing *Runout Control:*[3] No Change Maintain existing hydrology. Encourage infiltration and reduced impervious BMPs. Conduct water budget analysis.
B—Manage 1	Maintain wetland without degrading existing functions, values and wildlife habitat. Apply WCA sequencing process.	Pretreat conveyed flows to maintain background loading rates.	35-50 feet Require monuments to mark buffer edge.	WCA minimum or greater replacement ratio. Replacement of functions and values on site or in location specified in plan for drain/fill/excavation impacts. In compliance with Ch. 7050 the entire area affected by storm water or other wastewater flows must be avoided, minimized and replaced at a replacement ratio of 1:1 for all changes in wetland type.	*Bounce (10 yr):* Existing + 0.5 ft *Inundation (1 & 2 yr):* Existing plus 1 day *(10 yr):* Existing + 7 days *Runout Control:*[2] No Change Maintain existing hydrology. Encourage infiltration and reduced impervious BMPs.
C—Manage 2	Maintain wetland footprint. Improve wetland biological and plant community diversity/integrity or enhance other functions if possible. Apply WCA sequencing process. Consider for restoration.	Pretreat all conveyed discharges to remove all heavy particles and maximize removal of fine grained sediment prior to discharging to the wetland	25-35 feet Require monuments to mark buffer edge.	WCA minimum replacement of acreage and functions/values on site or in location specified in plan for drain/fill/excavation impacts In compliance with Ch. 7050 the entire area affected by storm water or other wastewater flows must be avoided, minimized and replaced at a replacement ratio of 1:1 for all changes in wetland type.	*Bounce (10 yr):* Existing + 1.0 ft *Inundation (1& 2 yr):* Existing plus 2 days *(10 yr):* Existing + 14 days *Runout Control:*[2] 0 to 1.0 ft above existing runout
D—Manage 3	Allow for relaxed sequencing and replacement plan flexibility. Consider for restoration/enhancement.	Pretreat all conveyed flows to remove all medium grained and larger sediments.	25 feet	WCA allows mitigation flexibility with minimum standards required in the plan area, see M.R. 8420.0650. In compliance with Ch. 7050 the entire area affected by storm water or other wastewater flows must be avoided, minimized and replaced at a replacement ratio of 1:1 for all changes in wetland type.	*Bounce (10 yr):* No Limit *Inundation (1 & 2 yr):* Existing plus 7 days *(10 yr):* Existing + 21 days *Runout Control:*[2] 0 to 4.0 ft above existing runout

[1] Buffers are unmowed, naturalized strips of vegetation around the wetland perimeter. Buffers would be provided during development or redevelopment

[2] Where possible, use 300-foot buffers as per MnRAM (Question #23).

[3] If currently landlocked, new outlet should be above delineated wetland elevation

Appendix D

Storm Water Management Standards Comparison

Category	Bassett Creek WMC Design Standards[1]	Shingle Creek WMC Design Standards[2]	Existing Robbinsdale Design Standards	Recommended Action for LSWMP Updates
Project Review Required	Any proposed project that is located below the 1% (base flood elevation, 100-year flood) floodplain elevation or floodplain storage sites and would consist of a major alteration of existing structures, erection of new structures, filling, floodway encroachment, activities considered incompatible with acceptable floodplain uses or be subject to damage by the 1% flood must be submitted to the BCWMC for review	Plans of any land development or individual site development adjacent to or within a lake, wetland, or a natural or altered watercourses as listed in the final inventory of Protected Waters and Wetlands (DNR). Projects impacting wetlands must be reviewed regardless of size	The City reviews all development and redevelopment proposals for compliance with City stormwater management design standards using Minnesota Stormwater Manual and MIDS calculator	No action required
	Any proposed project that may affect the water surface elevation, outlet storage capability, shoreline or streambank, or be incompatible with existing or proposed land use around the lakes, streams, and wetlands in the Bassett Creek Watershed	Any proposed land development or site development within the 100-year floodplain as defined by the Flood Insurance Study for the member city		
	Any proposed project that would alter water resources in the watershed, involve the discharge of industrial or other waste to any watercourse or storm sewer, require extensive land alteration, are located directly tributary to the waterbodies of the watershed, or may otherwise affect the existing water quality	No person or political subdivision shall alter or fill land below the 100-year critical flood elevation of any public waters, public waters wetland or other wetland without first obtaining an approved project review from the Commission		
	Any proposed project providing intra or inter watershed diversion that may affect flood levels, lake levels, or minimum stream flows in the Bassett Creek Watershed			
	Any project proposing changes in land use and zoning that affect stormwater management			
	Ground or surface water appropriations that may temporarily or permanently alter the existing ground and surface water levels in the Bassett Creek Watershed	Any proposal to construct or improve a road or utility crossing across Shingle Creek or any watercourse with a tributary area in excess of 100 acres		
	The construction of utilities through or paralleling the defined trunk creek system, bridges across the trunk system that require disturbance or the bed or banks of the creek, or the diversion of the creek			
	Permit applications to the DNR for work in public waters, including supporting documentation	Any proposed development or redevelopment project for all land uses except detached single-family residential projects that disturb more than 5 acres requires a Commission Project Review		
	Any proposed new, nonlinear development projects that create more than 1 acre of new impervious surface or redevelopment projects that create 1 or more acres of new and/or fully reconstructed impervious surface shall be submitted for water quality review			
	Linear projects disturbing 1 or more acres shall be submitted to the BCWMC for water quality and erosion and sediment control review, proposed linear projects disturbing more than five acres require action at a BCWMC meeting	Any proposed development or redevelopment of a detached single-family residential project that disturbs more than 15 acres requires a Commission Project Review		
	Any proposed project that will affect the new Bassett Creek tunnel by increasing the area tributary to the tunnel, adding connections or outlets to the tunnel, or change the rate of runoff in the tunnel for the 10-year, 50-year, or 100-year event	Linear projects creating 1 acre or more of new impervious surface		

[1] From "BCWMC Requirements for Improvements and Development Proposals, Revised August 2017"
[2] From "Shingle Creek and West Mississippi Watershed Management Commissions Rules and Standards, Amended July 11, 2013"

	Any proposed project containing streambank stabilization and streambed degradation control structures			
Rate Control	Proposed linear and nonlinear projects containing 1 or more acres of new and/or fully reconstructed impervious surfaces must manage stormwater runoff such that peak flow rates leaving the site are equal to or less than the existing rate leaving the site for the 2-year, 10-year, and 100-year events	Require that peak runoff rates not exceed existing rates for the 2-year, 10-year, and 100-year storm event, or the capacity of downstream conveyance facilities or contribute to flooding	No standard identified	Develop a rate control policy consistent with the requirements of the two jurisdictional watersheds (see Policy 1.2)
	Submit documentation of existing and proposed discharge rates for the 2-year, 10-year, and 100-year events to the BCWMC			
Water Quality Treatment	Require that all stormwater be treated in accordance with the BCWMC performance goals for new development, redevelopment, and linear projects, and BMPs must be designed in accordance with the Minnesota Stormwater Manual or otherwise approved by the BCWMC	All land disturbing activities, whether requiring a project review under the SCWMC rules or otherwise, shall be undertaken in conformance with BMPs and in compliance with the standards and criteria in the SCWMC rules	No standard identified	Develop a water quality policy consistent with the requirements of the two jurisdictional watersheds (see Policies 3.2, 3.7, and 11.4)
	If the BCWMC performance goal is not feasible and/or is not allowed for a proposed project, then the project proposer must implement the BCWMC flexible treatment options	Stormwater must be treated prior to discharge to remove 60% of phosphorus and 85% of total suspended solids. Treatment may be provided by one or more permanent sedimentation and water quality ponds or a combination of BMPs that together will meet removal requirements		
Impaired Waters	It is recommended that BMPs used to meet TMDL requirements be designed and maintained in accordance with the recommendations in the respective TMDL documents.	In areas that drain to Impaired Waters, TMDL implementation plans may include site-specific requirements for any land-disturbing activities that are in addition to SCWMC rules and standards	No standards identified beyond special requirements in project SWPPPs when operating near impaired or special waters	Develop a policy to address the Waste Load Allocations identified in the TMDL process for public waters (see Policy 11.3)
Erosion and Sediment Control	Any proposed projects that will result in more than 200 cubic yards of cut or fill, or more than 10,000 square feet of land disturbance shall be submitted for erosion and sediment control review (Wetland mitigation area is not included in the land disturbance calculation)	All projects requiring a project review by the Commission must have an erosion and sediment control plan using BMPs and must be consistent with the NPDES General Construction Permit	Storm Water Pollution Prevention Plan (SWPPP) required by City for projects encompassing 1 acre or more	No action required
			Erosion control requirements for any project that results in extraction of more than 25 cubic yards of material, disturbs an area of more than 100 square feet, or causes any stockpile in excess of 5 cubic feet (City Code 510.15 Subd. 4)	
Wetlands	The BCWMC will defer wetland issues in cases where the municipality acts as the LGU for administering the Wetland Conservation Act, unless its involvement is requested by the municipality	No person or political subdivision shall drain, fill, excavate or otherwise alter a wetland without first obtaining the approval of a wetland replacement plan from the LGU with jurisdiction over the activity. The Commission intends to serve as the LGU for administration of the Wetland Conservation Act for those cities that have designated the Commission to serve in that capacity	No standard identified, DNR regulations on work in Public Waters apply	Develop a policy clearly stating that the City defers the administration of the WCA to the jurisdictional watersheds (see Policy 10.2)
Buffers	Member cities shall maintain and enforce buffer requirements for projects containing more than one acre of new or redeveloped impervious area. Average minimum buffer widths are required according to the MnRAM classification (or similar classification system).	A buffer strip shall be maintained around the perimeter of all watercourses or wetlands. The buffer strip provisions apply once a parcel is developed or redeveloped	No standard identified	Develop a watercourse and wetland buffer policy consistent with the requirements of the two jurisdictional watersheds (see Policy 10.5)

	Buffer requirements: • An average of 75 feet (min. 50 ft) from the edge of wetlands classified as Preserve • An average of 50 feet (min. 30 ft) from the edge of wetlands classified as Manage 1 • An average of 25 feet (min. 15 ft) from the edge of wetlands classified as Manage 2 or 3	Buffer strips shall be a minimum of 20 feet wide with an average width of 30 feet, measured from the ordinary high water level		
	Allowable land uses and vegetative criteria for buffers are specified in the BCWMC's *Requirements for Development and Redevelopment* (BCWMC, 2017)	Buffer strip vegetation shall be established and maintained in accordance with Commission requirements		
	Member cities may allow exceptions for public recreational facilities parallel to the shoreline (e.g. trails) up to 20 feet in width, with that width being added to the required buffer width.	Narrower buffer strips may be necessary to allow a reasonable use of the parcel. The use of alternative buffer strips will be evaluated as part of the review of a stormwater management plan, and when approved width shall be established by the Commission based on a minimum width of 10 feet		
Floodplain Policies	Require minimum building elevations (lowest floor) of at least 2 feet above the 100-year flood level for new and redeveloped structures	Preserve existing water storage capacity below the 100-year critical flood elevation on all waterbodies in the watershed to minimize the frequency and severity of high water	Robbinsdale will enforce the permitted use in floodplains as dictated in City Code 530.01	Include language within the City's standard to require compensatory storage to mitigate floodplain fill to be consistent with the standards of both jurisdictional watersheds (see Policy 2.8)
	The lowest member of all crossings shall be at least 1 foot above the floodplain to prevent debris accumulation unless approved otherwise by the BCWMC	Minimize development in the floodplain that will unduly restrict flood flows or aggravate know high water problems		
		Require compensatory storage for floodplain fill		
Retention of On-Site Runoff	Require the retention of on-site runoff from development and redevelopment projects, including retention of: • 1.1 inches of runoff from impervious areas for impervious areas for new development creating more than 1.0 acre of new impervious surface • 1.1 inches of runoff from new and/or fully reconstructed impervious surface for redevelopment creating more than 1.0 acre of new and/or fully reconstructed impervious surface • 1.1 inches of runoff from net new impervious areas for linear projects creating 1 or more acres of net new impervious	1 inch of impervious surface runoff must be abstracted on-site for at least 48 hours	No standard identified	Develop an infiltration policy consistent with the requirements of the two jurisdictional watersheds (see Policies 4.2 and 4.3)
		Route runoff to water treatment ponds or other acceptable facilities before discharging into water bodies		
Permanent Sedimentation and Water Quality Ponds	No standard identified beyond guidelines in Minnesota Stormwater Manual	Shall be designed to the Wet Pond Design Standards set forth in SCWMC Rules, as sourced from "Protecting Water Quality in Urban Areas" (MPCA 2000)	No standard identified	Develop a policy consistent with design elements from jurisdictional watersheds (see Policy 3.5)
		Must provide water quality features consistent with NURP criteria and best management practices		
		Must provide a permanent wet pool with dead storage of at least the runoff from a 2.5-inch storm event		

Appendix E

Watershed Approval and City Adoption Documents