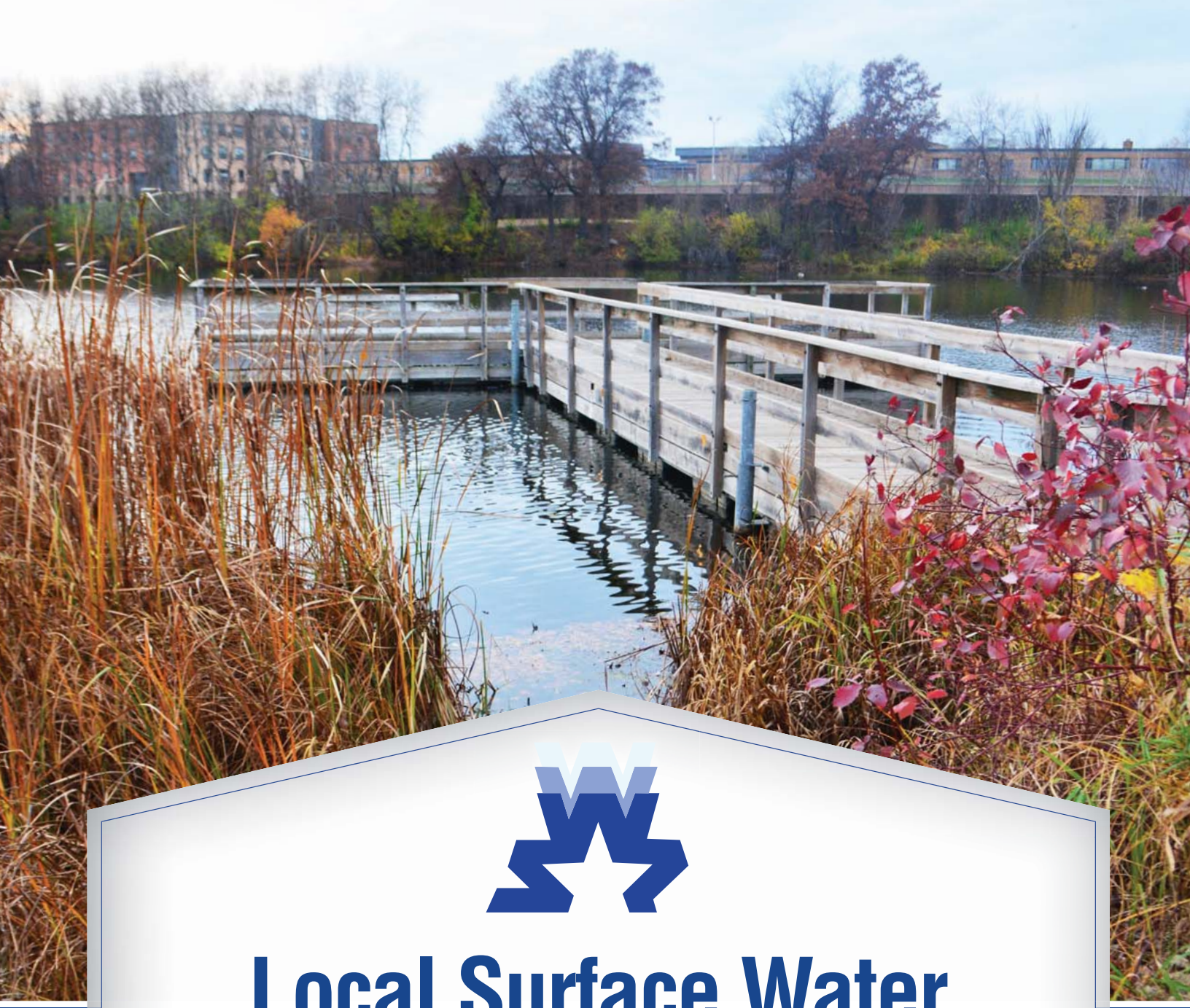

Local Surface Water Management Plan

FOR THE CITY OF WEST ST. PAUL

DECEMBER 2018 | PROJECT NO 1722-10

WSB

CERTIFICATION

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

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SECTION 1

1. EXECUTIVE SUMMARY

1.1. Local Surface Water Management Plan Purposes

The City of West St. Paul's Local Surface Water Management Plan (LSWMP, the Plan) serves as a guide to managing the City's surface water system, which brings the City into compliance with Minnesota Statute Rules and Metropolitan Council requirements. The LSWMP will carry the City through 2028. Periodic amendment to the Plan will likely occur in the intervening ten years so that the Plan remains current to watershed plan amendments and revisions and current to the "state of the art" in surface water management.

The City of West St. Paul is located in northern Dakota County, with St. Paul to the north, Mendota Heights to the west, Sunfish Lake and Inver Grove Heights to the south, and South St. Paul to the east (**Figure 1, Appendix A**). West St. Paul is an established community that is considered fully developed. The community has put an emphasis on high quality residential neighborhoods and parks, and well-planned commercial and industrial areas.

The goals and policies in **Section 3** are also prescriptive requirements. The distinction between the goals and policies and the design standards is that the goals and policies are general while the design standards are specific.

Minnesota Statute 103B.201 states that the purposes of the water management programs are to:

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

The West St. Paul LSWMP addresses these purposes.

1.2. Purpose and Scope

The West St. Paul LSWMP will serve as a comprehensive planning document to guide the City in conserving, protecting, and managing its surface water resources. The Plan has been created to meet statutory requirements as detailed in Minnesota Rules 8410.

In addition, the Plan reflects the requirements of the Lower Mississippi River Watershed

Management Organization (LMRWMO), which is the watershed organization with jurisdiction within the City. Meeting watershed requirements ensures the City's compliance with local and regional expectations. Finally, the plan addresses the Metropolitan Council's requirements for LSWMPs.

Local plans must do the following:

- Describe existing and proposed environment and land use.
- Provide a narrative addressing stormwater infrastructure philosophy, which details regulatory authority as well as implementation and financial responsibilities.
- Define areas and elevations of stormwater storage adequate to meet performance standards established in the watershed plan.
- Identify quality and quantity protection methods which meet standards.
- Identify regulated areas and potential easements or land acquisition areas.
- Outline a procedure for submitting annual reports to agencies which document Wetland Conservation Act and monitoring program data consistent with state compatibility guidelines.
- Set forth an implementation program, including a description of official controls, inspection and maintenance, and a capital improvement plan.
- Describe official controls and the responsible unit of government in the following areas: wetlands, erosion control, shoreland, floodplain, grading, and drainage.
- Meet other requirements as outlined in watershed organization plans.

The City submits its LSWMP to the Metropolitan Council and LMRWMO for review. The watershed has sixty days for its review after written receipt of the City Plan. Metropolitan Council provides comments within forty-five days. The Metropolitan Council directs its comments to the watershed, which considers these comments in formulating its own.

Beyond the statutory requirements outlined above, the West St. Paul LSWMP has its own emphasis. Some areas of emphasis include:

- Collecting and compiling the efforts of agencies and organizations including the City, its departments, and its residents. This includes past reports and studies, management plans, monitoring studies, as well as completed and proposed improvement projects.
- Reviewing the current state of the City's surface water resources in the context of its goals and policies, ordinances, operations and maintenance, flood mitigation, and achievement of targeted water quality levels in its surface waterbodies.
- Establishing reasonable, achievable, and affordable goals and supporting them with a strong regulatory and management culture. Developing an implementation plan that includes projects and processes derived from a thorough assessment of current City problem areas and current City surface water regulations and controls.

- Ensuring compliance with National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Separate Storm Sewer System (MS4) Permit and Storm Water Pollution Prevention Plan (SWMPP).

- Supporting the establishment of the City's stormwater utility by outlining an implementation plan.

City staff has participated in collecting data, providing feedback, and contributing knowledge of local systems to aid in developing a strategy that encompasses water quality and quantity issues.

Based on the guidance provided by the City Council and staff, this report addresses the City's current surface water management needs and provides a framework for successful implementation of a comprehensive stormwater management program. A specific outline of the steps involved in the preparation of the LSWMP is presented below:

- System Inventory and Mapping – Reassess and update drainage patterns and major trunks/conveyors of the stormwater system. Develop a map based on this analysis.

- Goals, Policies and Guidelines – Develop goals and policies that guide the City's surface water management philosophy. Augment design guidelines for development and redevelopment. This gives the City guidance for designing facilities and standards for reviewing development plans. Determine regulatory agencies involved in the stormwater management of the City and work with City staff to develop feasible goals, policies, and guidelines.

- System Assessment and Design – Use modeling which was completed with the 2006 Local Surface Water Management Plan to assess system capacity.

- Stormwater Ordinances – Recommend ordinances or revision to existing ordinances.

- Stormwater System Management – Provide recommendations on operating and maintaining the stormwater system as well as Best Management Practices (BMPs) for water quality and erosion control. Also include information regarding compliance with NPDES Phase II Stormwater Permits.

1.3. Organization

This report is a culmination of the activities described above and is organized as follows:

- **Section 1 – Executive Summary** describes the direction, intent, and legal requirements regarding the City of West St. Paul creating and adopting a comprehensive surface water management plan.

- **Section 2 - Land and Water Resource Inventory** describes the physical environment including watersheds and drainage patterns, dominant land uses, and significant waterbodies within the City.

- **Section 3 - Goals and Policies** lists the City's goals and policies along with public agency requirements affecting surface water management in the City.

- **Section 4 - System Assessment and Design** presents an overview of all the major watersheds in the City. **Section 4** also provides detail on the existing stormwater management system within the four watershed areas. A synopsis of the modeling procedure, criteria, and assumptions are included as well.

- **Section 5 - Implementation Plan** covers regulatory responsibilities, priority implementation items, educational programs, operation and maintenance, and financing considerations. A plan amendment process is also identified.

SECTION 2

2. LAND AND WATER RESOURCE INVENTORY

2.1. Land Use

The City of West St. Paul was incorporated in 1889 and is located in northern Dakota County. The City and its boundaries are shown in **Figure 1, Appendix A**. **Figure 2, Appendix A** provides the current land use classifications for the City of West St. Paul and **Figure 3, Appendix A** shows the Future Land Use as mapped by the Metropolitan Council 2040 Plan. The City's 2010 Comprehensive Land Use Plan stated that the City of West St. Paul is fully developed. However, there remains a significant number of natural features and environmentally sensitive areas within the City. According to the comprehensive plan, the City will strive to protect, enhance, and restore the natural environment through sound land stewardship practices to maintain a proper balance between human and environmental qualities.

The population in West St. Paul has been stable at around 19,000 people since the 1970s, when the City essentially developed to its borders. The population is projected to increase through 2040 as areas are redeveloped with higher density residential housing. **Table 2.1** provides City populations and population projections from 2000 through 2040.

Table 2.1
Population and Households

Year	Population	Number of Households
2000	19,405	8,779
2010	19,540	8,529
2020	21,100	9,300
2030	21,700	9,600

Source: City of West St. Paul 2010 Comprehensive Plan and U.S. Census Data

The City's 2010 Comprehensive Plan provides a significant amount of narrative and statistical detail on existing and proposed land use and the reader is referred to that document for more information on land use planning. The current Comprehensive Plan can be found on the City website or viewed at City Hall.

2.2. Modeling

The most recent hydrologic modeling was completed using HydroCAD as part of the 2006 Local Surface Water Management Plan. A combination of aerial photos, the land use classification map, and as-built drawings were used to determine hydrologic characteristics of the full development landscape. **Section 4.3** discusses this model in detail, including the features of each subwatershed. **Appendix B** includes areas for the subdistricts within each major watershed. **Appendix C** includes the pond data. Refer to Map 2 in **Appendix D** for detailed topography, storm sewer, pond locations, and drainage districts.

There is currently no city-wide model of water quality in West St. Paul. Part of West St. Paul was also included in the P8 modeling completed by LMRWMO which is discussed in more detail in **Section 4.4.2.2**.

2.3. Topography and Watersheds

The surficial geology of West St. Paul consists entirely of glacial and alluvial (outwash) deposits of the Labradorean Superior Lobe. As the glacier retreated and melted, it left behind areas of outwash and till deposit formations. Most of the City is covered in till formations composed of reddish-brown sandy loam, with cobbles and boulders common. Areas of gravel and sand

outwash and ice-contact stratified deposits of gravel and sand are interspersed throughout the City (Minnesota Geological Survey 1990).

West St. Paul has rolling to hilly terrain interspersed with poorly drained depressions that form ponds and small lakes. Elevation in the City ranges from approximately 880 feet in the northeast corner of the City along Highway 52 to approximately 1,110 feet in the center of the City in Marthaler Park. **Figure 4, Appendix A** shows the City's topography using two-foot contours from Dakota County.

The City's hydrologic system is part of the Mississippi River watershed. The City resides entirely within the LMRWMO. The subwatersheds used in the most recent city-wide hydrologic model are shown in Map 2 in **Appendix D**.

2.4. Climate and Precipitation

The climate within the Twin Cities Metropolitan Area is typical of a continental climate. Without the buffering influence of large bodies of water, cold winters and hot summers predominate. It is generally understood that global climate change influences the Twin Cities Metropolitan Area's local climate. One area where climate change manifests itself is in rainfall intensities and rainfall depths. The Twin Cities Metropolitan Area has seen higher rainfall depths in the last two decades and even the average depth rainfalls are more intense. The implications are clear:

- Flood control facilities, if designed for the 100-year rainfall, would get larger as the statistical 100-year rainfall gets larger.
- Facilities designed for smaller events, such as infiltration areas and small storm sewer would also get larger as rainfall depths increase for the 1-year to 5-year rainfall events.

The total average annual precipitation in the Twin Cities Metropolitan Area is approximately 30.6 inches. The total average annual snowfall is approximately 54.4 inches. Average monthly temperature, precipitation, and snowfall are shown in **Table 2.2.**

TABLE 2.2
AVERAGE MONTHLY CLIMATE DATA, MINNEAPOLIS/ST. PAUL, 1981-2010

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Daily Temperature (°F)	15.6	20.8	32.8	47.5	59.1	68.8	73.8	71.2	62.0	48.9	33.7	19.7	46.2
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	0.1	0.0	0.0	0.0	0.0	0.6	9.3	11.9	54.4

Source: Minnesota Climatology Working Group

Additional climatological information for the area can be obtained from the Minnesota State Climatology Office at http://www.climate.umn.edu/.

Rainfall frequency estimates are used as design tools in water resource projects. In 2013, the National Oceanic Atmospheric Administration (NOAA) published the Atlas 14 Precipitation-Frequency document that showed an increase in rainfall intensity and design storms from the previous Technical Paper 40 precipitation values. Selected rainfall frequencies for West St. Paul are listed in **Table 2.3.**

TABLE 2.3
TP-40 AND ATLAS 14 RAINFALL FREQUENCIES

Recurrence Interval (yrs)	Atlas 14 24-hr Rainfall Depth (in)	TP-40 24-hr Rainfall Depth (in)
1	2.45	2.38
2	2.80	2.75
10	4.18	4.18
50	6.31	5.31
100	7.44	5.95

Additional precipitation information for the area can be obtained from the NOAA website.

2.5. Soils

The majority of soils in West St. Paul are classified into the Kingsley-Mahtomedi association soil series. Information about each of the soils in this association is available from the Soil Survey of Dakota County (SCS 1983). **Table 2.4** shows the drainage characteristics of each soil series from the above associations.

Table 2.4
Soil Drainage Characteristics

Soil Series	Drainage Characteristics	Hydrologic Soil Group
Kingsley	Deep, well drained	B
Mahtomedi	Deep, excessively drained	A

The drainage characteristics of a soil is important for determining the surface water runoff from a given area. If the soil is well-drained, a significant portion of the precipitation will be infiltrated into the ground. Whereas if a soil is very poorly drained, much more precipitation becomes runoff. A map of the soils present in the City of West St. Paul can be found in **Figure 5, Appendix A.**

Hydrologic Soil Groups (HSG) characterize diverse soils by similar infiltration capacity. Group A soils have the highest infiltration capacity while Group D have the lowest. Generally, infiltration is not an appropriate practice on Group C and D soils.

Group A – These soils have high infiltration rates even when thoroughly wetted. Based on the Minnesota Stormwater Manual, published by the MPCA, the infiltration rates range from 0.8 to 1.63 inches per hour. These soils consist chiefly of deep, well drained to excessively drained, sands and gravel. Group A soils have a high rate of water transmission resulting in a low runoff potential.

Group B – These soils have moderate infiltration rates ranging from 0.3 to 0.45 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 0.2 inches per hour when thoroughly wetted. Group C have moderately fine to fine texture.

Group D – These soils have very slow infiltration rates ranging from 0 to 0.06 inches per hour when thoroughly wetted. Group D soils are typically clay soils with high swelling potential, soils with high permanent water table, soils with a clay layer at or near the surface, or shallow soils over nearly impervious material.

Most of West St. Paul has soil associations of HSG A to B, indicating a low to moderate potential to generate runoff. In many cases, grading associated with development projects reduces the drainage capacity of the soil increasing its runoff generating potential. However, map-based classifications such as those shown in **Figure 4, Appendix A** are not sufficient for design of infiltration-based BMPs. Site-specific soil testing should be done before designing and installing these systems.

Figure 5, Appendix A also shows that a significant amount of existing soils within West St. Paul do not have an assigned HSG classification. Unclassified soils in urban areas are often highly disturbed and require testing and evaluation to properly quantify their potential for runoff generation.

2.6. Key Water Resources

The City of West St. Paul has several water resources available for the use and enjoyment of its residents. These major water resources tend to be Department of Natural Resources (DNR) public waters and public water wetlands. Below is a brief summary of the major surface water resources. **Figure 6, Appendix A** depicts the City of West St. Paul's surface water system. The public waters and protected water wetlands are labeled with their Public Waters Inventory (PWI) number and are shown in **Figure 7, Appendix A**.

2.6.1. Major Bodies of Water

Thompson Lake (PWI # 19004800 W)

Thompson Lake is a seven-acre lake located in the City of West St. Paul. Thompson Lake is the centerpiece for the popular Thompson County Park. The area has numerous trails, a fishing pier, a community center, and a picnic shelter. Thompson Lake is the only lake in West St. Paul with an assigned classification from the DNR; it is classified as a Natural Environment lake.

Monitoring performed by the City of West St. Paul and Dakota County has determined that lake sediments contain concentrations of polycyclic aromatic hydrocarbons (PAHs) at levels that prevent reuse of the sediment on residential or industrial properties. A feasibility study to address the high concentrations of PAHs and investigate the upstream source has been completed. Dakota County and City are working to secure funding to remove the sediment with high PAH concentrations.

Thompson Lake was monitored by Dakota County in 2011 and by the LMRWMO in 2012 (as part of the WRAPS project). Thompson Lake is listed on the MPCA's 2018 impaired waters list for Nutrient/Eutrophication Biological Indicators and Chloride.

To address Thompson Lake's present on the impaired waters list, the City of West St. Paul is partnering with LMRWMO and Dakota County to install a stormwater treatment project which will reduce nutrient loads to Thompson Lake and remediate PAH contamination. The project will treat runoff from 83% of Thompson Lake's watershed and is currently scheduled for construction in 2018-2019.

Marthaler Pond (PWI # 19009100 P)

Marthaler Pond resides in the southwest corner of the Simons Ravine drainage district. The lake is shallow, with a maximum depth of six feet. Its surface area is approximately 4.5 acres. Its watershed is approximately 23 acres, giving a watershed to lake ratio of 5.1 to one. The pond is landlocked, and there is no plan to add an outlet at this time.

Dodge Center Ponds (PWI #s 19008600 P, 19008700 P, 19008900 P)
Pond #87P is located in the south portion of the Ivy Falls Creek drainage district and drains to the northwest via storm sewer to Mendota Heights. The pond has a surface area of approximately 4.4 acres and a drainage area of 33 acres, for a watershed to pond ratio of 7.5 to one. Ponds #86P and #89P are in the Valley Creek (Marie) drainage district. Pond #86P is the farther north pond. It has a surface area of about 5.2 acres and a watershed area of 16.5 acres for a watershed to pond ratio of 3.2 to one. Pond #89P has a surface area of 2.7 acres and a watershed area of 113 acres, giving a watershed to pond ratio of 41.9 to one. Both ponds in the Valley Creek (Marie) drainage district drain overland to the south and into Mendota Heights.

2.6.2. Water Courses

The City of West St. Paul does not contain any DNR designated watercourses.

2.6.3. Wetlands

The wetlands which are part of the National Wetland Inventory (NWI) are shown in **Figure 7, Appendix A**. The two most significant wetlands in West St. Paul are Lily Lake and Mud Lake, which are also public waters.

Lily Lake (PWI # 19008400 W)
This lake is considered a public water wetland by the DNR. This lake is located in the eastern portion of the Riverview Tunnel drainage district. The area of its watershed is about 22 acres and its surface area is 6.4 acres, giving a watershed to lake ratio of 3.4 to one. It drains into the storm sewer system and discharges north into St. Paul.

Mud Lake (PWI # 19008500 W)
This lake is a public water wetland. The lake resides in the western portion of the Riverview Tunnel drainage district. Its area is approximately 3.1 acres. The area of its watershed is 34.2 acres, giving a watershed to lake ratio of 11 to one. The lake drains into the storm sewer system and discharges north into St. Paul.

On November 14, 2016, the City Council adopted Resolution No. 16-122 which delegates its decision and administrative authority under the Minnesota Wetland Conservation Act (WCA) of 1991 to the Dakota County Soil and Water Conservation District (Dakota SWCD). Therefore, the City of West St. Paul is no longer responsible for WCA-related permitting and reporting activities which relate to the wetlands listed above. However, the City still cooperates with the Dakota SWCD and state agencies in the management and protection of these wetlands.

2.6.4. Water Quality and Water Quantity Modeling Programs

There are no long-term MPCA monitoring sites in West St. Paul. All surface water quality data collected by the MPCA is available at the MPCA's Environmental Data Access site for surface water.

The City of West St. Paul and Dakota County have done monitoring work on Thompson Lake as part of a study of the lake sediments. Thompson Lake was also monitored by Dakota County in 2011 and the LMRWMO in 2012 as part of the WRAPS study.

2.6.5. List of Impaired Waters

Thompson Lake is listed on the MPCA's proposed 2018 impaired waters list for Nutrient/Eutrophication Biological Indicators, and Chloride. It is part of the LMRWMO

Watershed WRAPS/Total Maximum Daily Load (TMDL), which was approved by the U.S. Environmental Protection Agency (EPA) in 2014. The implementation plan for this TMDL has not yet been approved by the MPCA.

The City of West St. Paul does not directly border the Mississippi River, but the Mississippi River to the east, north, and west of the City is impaired for the following pollutants: Fecal coliform, PCB in fish tissue, perfluorooctane sulfonate (PFOS) in fish tissue, and turbidity.

2.7. Existing Flood Insurance Studies

The Federal Emergency Management Agency (FEMA) completed the map modernization process for its Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) to identify flood risk within Dakota County in 2011. A copy of the updated FIS and FIRMs can be obtained through the FEMA Map Service Center at https://msc.fema.gov. There are currently no federally delineated floodplains within the City of West St. Paul.

2.8. NPDES Phase II

The City of West St. Paul is required to have a MS4 permit through the MPCA's NPDES Phase II Program. MS4s designated by rule are urban areas with populations over 10,000 or urban areas with populations greater than 5,000 with the potential to discharge to valuable or polluted waters. Permits for construction sites greater than one acre will also be required as part of Phase II.

As an MS4, the City will be required to implement the following six minimum control measures:

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

For more information on the MS4 Permit requirements refer to www.pca.state.mn.us. Refer to **Appendix E** for a copy of the City's MS4 SWPPP.

2.9. Other Pollution Sources

Figure 8, Appendix A shows the sites tracked by the MPCA in their What's In My Neighborhood program. These locations have permits from the state to generate certain waste streams. The City of West St. Paul does not have a monitoring program for any of the MPCA sites in the City.

2.10. Water Quality Monitoring

The City of West St. Paul does not currently have a monitoring program for any of the public waters shown in **Figure 7, Appendix A.** These public waters are also not monitored by the MPCA or the LMRWMO. The DNR does perform occasional monitoring on Thompson and Lily Lakes, including fish sampling. The public water wetlands within the City are not currently part of a monitoring program.

As part of addressing Thompson Lake's impairment for nutrients, the City is partnering with LMRWMO and Dakota County to implement a project which will treat stormwater runoff reaching Thompson Lake. This project will include post-project water quality monitoring, which will be conducted by one of the project partners and results shared with the group.

2.11. Unique Features

2.11.1. Parks and Open Spaces

West St. Paul has 13 parks, as well as a golf course and other public recreational amenities. None of these parks are designated as Scientific and Natural Areas. There are no Outstanding Resource Value Waters in West St. Paul.

2.11.2. MLCCS and MCBS

The Minnesota Land Cover Classification System, or MLCCS, categorizes urban and built up areas in terms of land cover rather than land use. MLCCS serves as a tool for City staff to integrate natural area preservation into land planning, land use, and zoning decisions. **Figure 9, Appendix A** shows that the majority of West St. Paul is classified as developed land, with some of the parks and public areas classified as forest, shrubland, or herbaceous land. Most public waters and wetlands discussed in **Section 2.6** have been delineated in the MLCCS.

The Minnesota County Biological Survey (MCBS) provides a ranking of natural sites based on the presence of rare species, the size and conditions of native plant communities within the site, and the landscape context of the site. There are no sites of biodiversity significance as determined by the MCBS within the City of West St. Paul.

2.12. Groundwater and Wellhead Protection

The City of West St. Paul is part of the St. Paul Regional Water Authority, which provides drinking water to the City from the Mississippi River. The City of West St. Paul does not currently use groundwater as a source of drinking water, and there are no Groundwater Management Areas within City boundaries.

The South St. Paul Wellhead Protection Area lies partially within West St. Paul, as shown in **Figure 10, Appendix A**. Wellhead Protection areas are established by the Minnesota Department of Health (MDH) and are managed to protect the wells or well fields that they contain from surface or subsurface contamination.

Part of West St. Paul is within a Drinking Water Supply Management Area (DWSMA) which overlaps with the South St. Paul Wellhead Protection Area. The vulnerability of this DWSMA ranges from Moderate to High within the City boundaries. Vulnerability of a DWSMA is determined using geologic, soils, and groundwater chemistry information.

Regardless of vulnerable source water protection areas being located within West St. Paul the City will incorporate the guidance developed by the MDH on evaluating proposed stormwater infiltration projects in vulnerable source water protection areas and the guidance located within the Minnesota Stormwater Manual on designing infiltration BMPs while protecting groundwater. This will be of particular concern in areas where infiltration is being considered in soils suitable for rapid infiltration adjacent to municipal and private wells.

SECTION 3

3. GOALS AND POLICIES

3.1. Purpose

The primary goal of West St. Paul's LSWMP is to bring the City into statutory compliance and provide the City with a framework for effective stormwater management. Primarily, the goal to guide redevelopment activities but also as a guide for identifying and implementing retrofits to the existing system. These retrofits consist of both projects and programs. Additionally, the plan provides clear guidance on how West St. Paul intends to manage surface water in terms of both quantity and quality.

This plan is an update to the cities 2006 Local Surface Water Management Plan as a result of the 2011 (LMRWMO) plan and 2015 amendment. This plan is also intended to meet the requirements of Minnesota Statute 103B and Rules 8410, which describe the content and requirements for Local Surface Water Management Plans. This plan is also intended to meet current Metropolitan Council requirements regarding Local Surface Water Management Plans. The goals and policies of the 2011 LMRWMO plan and 2015 amendment are included in this LSWMP.

3.2. Background

The City completed its first comprehensive plan in 1963, about 13 years before the Metropolitan Council required such plans. The City amended the plan in 1973, 1982, and 2000. The latest revised comprehensive plan was adopted on February 24, 2010. The 2010 Comprehensive Plan reiterated the goals of previous plans, and it also reaffirmed the City's commitment to those aspects of the community that makes it a desirable place to live.

Specific to this Plan are the following 2010 Comprehensive Plan goals and policies under the Natural Environment subsection.

Goals

1. To protect, enhance, and restore the natural environment through sound land stewardship practices in order to maintain a proper balance between human and environmental qualities.

2. To preserve significant open spaces and natural systems.

General Policies

1. The City's significant natural resources shall be preserved for their functional value and for their potential positive impact upon proximate urban development.

2. Urban development shall be encouraged in such a manner that it preserves the City's significant environmental resources and maximizes their positive impact upon such urban development.

3. The natural environment shall be protected to preserve ecologically sensitive and scenic areas.

4. Land uses should not be allowed which degrade the quality of the air, ground or surface water below acceptable environmental standards.

5. The City shall encourage sustainable and "green" building development practices that minimize negative impacts on the natural environment and conserves valuable resources.

Surface Water Policies

1. The City's Local Surface Water Management Plan shall be strictly adhered to.

2. DNR shoreland management regulations shall continue to be enforced by the City of West St. Paul.

3. The City shall cooperate with the Dakota SWCD in preserving wetlands shown on the Wetlands Map for their functional and environmental value.

    a. Wetlands shall be considered an integral part of the City's stormwater drainage system.

    b. Alteration for ponding purposes may be permitted but should be accomplished in such a manner that wildlife habitat is preserved or strengthened.

    c. When areas in proximity to designated public waters/wetlands are proposed for urbanization, detailed site plans should be required to demonstrate how the resource will be protected from potential negative effects.

4. Temporary storage areas, retention basins, or natural swales scattered throughout developed areas should be encouraged so as to reduce peak flows, erosion damage, and construction costs.

5. Water quality should be protected by adoption and adherence to:

    a. The City's Local Surface Water Management Plan

    b. DNR Statewide Standards for Management of Shoreland Areas.

    c. MPCA "Best Management Practices" as outlined in *Protecting Water Quality in Urban Areas* or the *Minnesota Stormwater Manual*.

    d. National Urban Runoff Program standards for new stormwater ponds.

6. The City will continue to monitor new development proposals and require whatever means are necessary and feasible to adequately accommodate stormwater runoff.

Woodland/Steep Slope Policies

1. Concentrations of wooded land with an 18 percent slope or greater shall be preserved in its natural state for environmental value, particularly to deter soil erosion on the steep slopes.

2. Urbanization within woodland areas of less than 18 percent slope shall be sensitively designed so that the overall woodland effect is preserved.

3. Detailed site plans shall be required for areas within proximity to woodlands to assure that potential negative impacts are minimized.

4. Erosion protection and soil conservation measures should be required for all new development, including:

    a. The drainage system should be constructed and operational as quickly as possible during construction.

b. Where the topsoil is removed, sufficient arable soils should be set aside for re-spreading over the developed area. The soil should be restored to a minimum depth of four inches and should be of a quality at least equal to the topsoil quality prior to development.

c. When soil is exposed, the exposure should be for the shortest feasible period of time so as to minimize sheet and gully erosion.

This West St. Paul LSWMP expands upon the goals and objectives provided in the City's 2010 Comprehensive Plan, as well as the City's 2006 LSWMP and 1991 Municipal Water Resources Management Plans (MWRMP).

3.3. Official Controls

Implementation items include ordinance as well as projects. One of the requirements of local plans is that they outline official controls, lines of responsibility, and mechanisms for enforcement in certain areas. **Table 3.1** shows how existing controls and future implementation items address the need for these official controls.

Table 3.1
Official Controls

Official Control	Responsibility	Mechanism
Wetlands	Dakota County as LGU	WCA review by Dakota SWCD.
Erosion Control	City; Dakota County for NPDES construction permit	Section 40 of the City's Zoning Ordinance; MPCA pilot project for Dakota SWCD.
Shoreland	City	Section 153.413 of the Zoning Ordinance.
Floodplain	City	There is no FEMA floodplain within the City.
Grading	City	Through the existing stormwater management ordinance (City Code Chapter 50), site review process and through the requirements of this LSWMP.
Drainage	City	Through the stormwater management ordinance, site review process and through the requirements of this LSWMP.

3.4. City of West St. Paul LSWMP Goals and Policies

This section of the LSWMP outlines goals and policies specific to surface water management in West St. Paul and its environs. The goals and policies identified below are broad statements regarding the motivation and intent of the LSWMP. The policies that follow individual goals are specific requirements that promote attainment of the goal.

The City of West St. Paul has maintained natural drainage patterns throughout most of its development. The City's goal is to foster continued optimum use of that natural drainage system

while enhancing the overall water quality entering lakes and wetlands. The intent is to prevent flooding while using identified BMPs to enhance surface water quality with minimal capital expenditures by the City.

The City of West St. Paul has adopted by ordinance the 2000 edition of MPCA publication *Protecting Water Quality in Urban Areas* for implementing BMPs for erosion control. The City of West St. Paul goals were established along the guidelines of the goals developed by the Metropolitan Surface Water Management Act (M.S. 103B).

The purposes of the water management programs required by Sections 103B.205 to 103B.255 are to:

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.

3.4.1. Nondegradation

Goal 1:
Improve the quality of the City's and region's surface water resources, whenever feasible, by decreasing phosphorous, total suspended solids, and water volume discharge. At a minimum, the City's nondegradation goal calls for no increase in phosphorus, total suspended solids, and water volume discharge.

Policy 1.1:
The City will begin reviewing developments in the context of nondegradation and will apply such BMPs as necessary to maintain or reduce current phosphorous, total suspended solids loads, and water volume loads.

Policy 1.2:
The City will endeavor to retrofit treatment structures when opportunities present themselves in public projects.

Policy 1.3:
All the City's lakes and wetlands will be managed for nondegradation.

3.4.2. Water Quantity

Goal 2:
Prevent flooding from surface flows while reducing, to the greatest extent practicable, the public capital expenditures necessary to control excessive volumes and rates of runoff.

Policy 2.1:
Trunk storm sewers that serve as elements of the trunk system shall be designed with capacity for 100-year ponded outflows plus 10-year directly connected flows. Channels and ravines that serve as elements of the trunk system shall be designed with capacity for 100-year ponded outflows plus 100-year directly connected flows. The City's freeboard requirements are applied to the 100-year elevations of these channels and ravines.

Policy 2.2:
In addition to the 10-year and 100-year ponded flow primary capacity, the conveyance system shall provide capacity in excess of the 100-year event in the form of overland overflow routes or adequate surface storage volume. This surface storage volume consists of storage in street low points, within ditches, or in other transient ponding areas.

Policy 2.3:
Detention basins must be designed with capacity for the critical 100-year event. At a minimum, detention basins must maintain existing flow rates for the 2-, 10-, and 100-year rainfalls.

Definition: The 100-year critical event in the 100-year event that produces the highest water level between the 24-hour rainfall event or the 10-day, 7.2-inch runoff event.

Policy 2.4:
The maximum duration for rainfall critical event analysis shall be 24 hours except in cases where basins are landlocked, where both a back to back 24-hour event and a 10-day 7.2-inch runoff event shall also be used. In all cases, a hydrograph method of analysis shall be used. For the 24-hour rainfall event, or back-to-back 24-hour rainfall events, an MSE3 rainfall distribution should be used. For shorter duration critical events other distributions may be used with the approval of the City Engineer.

Definition: Landlocked basins are those where no outlet exists below proposed or existing structures.

Regarding policies 2.2, 2.3, and 2.4: For systems designed and implemented prior to the 1991 MWRMP, conveyance capacity and storage requirements may not meet these requirements. These policy statements in no way imply that the City intends to unilaterally upgrade these systems.

Policy 2.5:
All drainage system analyses and designs shall be based on proposed full development land use patterns.

Policy 2.6:
Intercommunity water resources issues planning shall consider alternative solutions:

a. All drainage studies or feasibility studies, whether by a watershed organization or municipality, leading to projects in a subwatershed with an intercommunity drainage issue, shall consider the impact of the project on the drainage issue and shall consider the total intercommunity project cost.

b. Except in emergencies, no solutions or partial solutions to intercommunity drainage issues shall be implemented without prior completion of a feasibility study of options and adoption of a preferred option by the applicable watershed organizations.

Policy 2.7:
The following items shall be considered in the management of landlocked basins:

a. The flood levels established for landlocked basins shall take into consideration the effects of water level fluctuations on trees, vegetation, erosion, and property values. Steeply sloped shorelines subject to slope failure and shoreline damage should not be in contact with floodwaters for extended periods of time.

b. The capacity of proposed outlets to landlocked basins should not be so small as to cause extended duration of high water levels (HWL) that would result in damage to upland vegetation.

c. Only the existing tributary area may discharge to a landlocked basin, unless a provision has been made for an outlet from the basin or the right to augmented storage within the basin has been secured through purchase or easement, except in cases where adverse impacts to vegetation would occur. The form of the outlet may range from temporary pumps to gravity storm sewers. The outlet shall be implemented before increased water levels are likely to affect vegetation, slope stability, and property values.

d. Critical event analysis of landlocked basins shall include the 10-day, 7.2-inch runoff event and back to back 24-hour, 100-year events.

Policy 2.8:
When development occurs adjacent to a landlocked basin and the basin is not provided an outlet, freeboard should be determined based on one of three methods (whichever provides for the highest freeboard elevation):

a. Three feet above the HWL determined by modeling back to back 100-year, 24-hour events or a 7.2-inch runoff event, whichever produces the higher HWL.

b. Three feet above the highest known water level.

c. Five feet above the HWL determined by modeling a single 100-year, 24-hour event.

If outlets from landlocked basins are needed, the City of West St. Paul, where practicable, will keep outflow rates low enough to allow for as much infiltration as possible. Drawdown time to within one foot of the normal water level should not exceed 48 hours to reduce damage to upland vegetation.

The City of West St. Paul will consider both the water quality and flooding impacts of proposed outlets from landlocked basins on downstream water resources.

When modeling landlocked basins, the starting water surface elevation should be the basins Ordinary High Water (OHW) elevation. This is typically available from the DNR.

In cases where it is not, a reasonable approximation of it must be obtained by field survey and modeling. Additionally, continuous simulation of average annual rainfall conditions will also provide insight into whether significant, adverse impact to vegetation would occur due to development around the landlocked basin.

> Definition: Freeboard is the vertical separation between the HWL of the simulated rainfall or runoff event and the lowest ground elevation adjacent to a structure.

Policy 2.9:
For basins with a suitable outlet, freeboard will be 2.0 feet above the HWL determined by modeling the 100-year critical event. Emergency overflows a minimum of 1.5 feet below the lowest ground elevation adjacent to a structure should also be provided.

Policy 2.10:
Adjacent to channels, creeks, and ravines freeboard will also be two feet to the 100-year critical event elevation.

Policy 2.11:
Development and redevelopment projects must not exceed existing rates of discharge for the 2-, 10-, and 100-year events. Wherever feasible the City will look for reductions over existing discharge rates for development and redevelopment projects.

Policy 2.12:
The City will review developments and manage its stormwater system so that development, redevelopment, and other infrastructure projects do not overtax the existing downstream stormwater system.

Policy 2.13:
The City will reduce the amount of impervious surfaces through the use of Low Impact Development (LID) techniques to the greatest extent reasonable for new development and redevelopment projects, taking into consideration land use, zoning, topography, previous site uses, and site constraints. LID techniques may include, but are not limited to, those presented on the MPCA Low Impact Development website.

Policy 2.14:
The City will not be allowed to use infiltration as a stormwater BMP in areas where there are known contaminants or in drinking water supply management areas/wellhead protection areas. In addition, infiltration will not be encouraged where the soils are not suitable for infiltration or in areas where there is less than three feet of separation between the bottom of the infiltration system and the groundwater or bedrock. In-situ field tests shall be required to verify the infiltration rates of on-site soils prior to the construction of infiltration BMPs.

Policy 2.15:
The City will provide pretreatment of stormwater prior to discharge to any new infiltration system to protect the functionality of the system. Pretreatment shall collect sediment, skim floatables, and be easily accessed for inspection and maintenance.

Policy 2.16:
The City will design all new non-trunk stormwater systems to provide discharge capacity for the critical-duration runoff event that is not less than a 5-year frequency event, preferably a 10-year frequency event (level of service). Where the planned level of

service would cause hardship in operation of a downstream system, the owner may design for a lesser level of service if the following circumstances are present:

a. The proposed new or replacement system will not have a longer life than that of the existing downstream system.

b. It is not practical to incorporate temporary measures into the new system to mitigate the effects of the new system on the downstream system.

Policy 2.17:
The City will continue to maintain ordinances or policies that allow for securing easements over floodplains, detention areas, wetlands, ditches, and all other parts of the stormwater system as areas develop or redevelop.

Policy 2.18:
The City will incorporate multi-stage outlets into their pond designs to control flows from smaller, less frequent storms and help maintain base flows in downstream open channels, where practicable.

3.4.3. Water Quality

Goal 3:
Maintain or improve the quality of water resources within the City.

Policy 3.1:
Wetlands and waterbodies identified in **Figure 6, Appendix A** will be protected according to Zoning Ordinance 40: Stormwater Management and according to other applicable local, state, and federal regulations.

Policy 3.2:
The use of watershed BMPs will be required to help minimize pollutants in stormwater runoff.

Policy 3.3:
The City shall require a 50 percent total phosphorus removal from runoff leaving new development and redevelopment projects that exceed one acre of land disturbance (for this policy, mill and overlay and pavement rehabilitation projects are not considered land disturbance). For areas that discharge directly to the Mississippi River or to an impaired water body for which a TMDL has been completed, the findings of the TMDL will replace this requirement (whether more or less stringent). The required reduction of total phosphorus may be accomplished through the use of regional or on-site stormwater BMPs such as: ponds, NURP (National Urban Runoff Program) basins, infiltration basins, biofiltration, vegetated swales, mechanical devices, porous pavements, or any other techniques effective at phosphorus reduction.

Policy 3.4:
Given that many of the soils underlying the City have higher than typical infiltration capacity, infiltration, or reducing impervious surface, should be considered in all projects that involve stormwater management. If either infiltration or limiting impervious surface is rejected for a project, specific reasons for doing so will be provided by the project proposer. Infiltration of the first inch of runoff from new impervious surfaces is expected for development and redevelopment sites on HSG A or B soils. The City will also endeavor to obtain as much infiltration as possible from existing impervious surfaces when these are included in a project where the infiltration is required.

Policy 3.5:
Newly constructed ponds shall include an outlet design allowing for extended detention of the 1- to 5-year rainfall event. The hydrograph duration for pond discharge should extend a minimum of 24 hours for events within the 1- to 5-year range.

Policy 3.6:
Outlet skimming will be required in all ponds. Skimming shall occur for up to the 5-year, 24-hour event.

Policy 3.7:
The City will share water quality data and analysis with LMRWMO and other cities.

Policy 3.8:
Linear construction projects should meet water quality Policy 3.3 where possible and feasible. Linear projects will be required to meet NPDES Construction Permit requirements.

Policy 3.9:
For stormwater discharge points/outfalls that did not exist prior to the adoption of this plan, the City will provide pretreatment of stormwater prior to its discharge to wetlands and other water resources. Pretreatment shall collect sediment, skim floatables, and be easily accessed for inspection and maintenance.

Policy 3.10:
For replacement discharge points/outfalls or existing stormwater discharge points/outfalls the City will provide, where feasible, pretreatment of stormwater prior to its discharge to wetlands and water resources.

3.4.4. Recreation and Fish and Wildlife

Goal 4:
Protect and enhance fish and wildlife habitats, water recreational facilities, and water resource aesthetics.

Policy 4.1:
The neighborhood and regional benefits to wildlife habitat and aesthetics should be considered in any proposal to alter or eliminate wetlands, understanding that wetland elimination without mitigation is precluded by state law and that even mitigated wetland impacts must meet strict sequencing guidelines.

Policy 4.2:
The City will review inlets and outlet for aesthetics.

Policy 4.3:
West St. Paul shall seek to coordinate with the Minnesota DNR regarding development of DNR public waters and public water wetlands. Notwithstanding ordinance provisions, both existing and future, that control development of shoreland areas, the City will seek DNR comments on development proposals adjacent to DNR public waters and public water wetlands.

Policy 4.4:
Water resources shall be maintained in such a manner as to preserve or restore their intrinsic aesthetic qualities and wildlife habitat.

Policy 4.5:
West St. Paul shall consider landscape designs for projects located near natural areas or greenways to:

a. Increase beneficial habitat, wildlife and recreational uses, promote infiltration and vegetative water use.

b. Decrease detrimental wildlife uses (such as beaver dams or goose overabundance) that damage water control facilities, shoreline vegetation, water quality or recreational facilities.

Policy 4.6:
The City will prioritize shoreland areas for restoration. Shoreland areas include streambanks and lakeshore areas.

3.4.5. Enhancement of Public Participation; Information and Education

Goal 5:
Inform and educate the public concerning urban stormwater management and the problems pollutants cause if allowed into our water resources.

Policy 5.1:
Enact a public education program based on the following objectives to reduce stormwater pollution:

a. Promote community ownership of the lakes
b. Raise awareness of the problem and solutions
c. Recognize responsible parties and actions to date
d. Merge public feedback into program execution

Policy 5.2:
Enact a public education and outreach program to satisfy the minimum control measures identified in the City's NPDES permit. The content of this, as outlined in the City's MS4 permit, includes postings on the City website and in the City newsletter, stormwater brochures, and close coordination with outside entities.

Policy 5.3:
The City of West St. Paul will make information available to active community groups such as Rotary, Chamber of Commerce, and the Cities Environmental Commission to educate and increase awareness of water resource issues throughout the City.

3.4.6. Groundwater

Goal 6:
Maintain and improve groundwater quality and promote groundwater recharge.

Policy 6.1:
To the extent that Wellhead Protection Plans identify areas of groundwater recharge that require protection, the City shall work with the MDH and neighboring communities in developing adequate protection measures.

Policy 6.2:
The City of West St. Paul will encourage groundwater recharge and are required to protect recharge areas from potential sources of contamination. Whenever possible and appropriate, the City will also provide increased green space, native vegetation, and

pond “dead” storage to allow for the infiltration of stormwater runoff and promote groundwater recharge.

Policy 6.3:
The lowest floor or basement floor of a structure shall be four feet above the currently observed water table elevation or two feet above any known historic water table elevation.

Policy 6.4:
The City will continue to support the policies in the Dakota County and Ramsey County groundwater plans.

3.4.7. Lakes and Wetland Management

Goal 7:
Classify the City’s waterbodies and develop management goals appropriate to them.

Policy 7.1:
The City will begin a phased inventory of its wetlands and lakes to determine their functions and values and develop management standards that go beyond the susceptibility-based treatment and bounce standards of **Section 4.4.3**.

Policy 7.2:
The City will share information collected on its waterbodies with the LMRWMO.

3.4.8. Wetlands

Goal 8:
Protect and preserve wetlands through compliance with the Wetland Conservation Act. As of November 14, 2016, the Dakota SWCD is now the local government unit (LGU) responsible for enforcing the Wetland Conservation Act. The City of West St. Paul continues to support protection and preservation of wetlands within the City boundaries by partnering with the Dakota SWCD.

Policy 8.1:
Cooperate with Dakota SWCD (as the LGU) and other jurisdictional agencies with respect to wetlands within the City of West St. Paul.

Policy 8.2:
Require a vegetated buffer with a width of at least 15 feet outside an existing or proposed wetland boundary within the City of West St. Paul.

3.4.9. Erosion and Sediment Control

Goal 9:
Prevent, to the greatest extent possible, sediment from construction sites from entering the City’s surface water resources and to control the erosion from drainage ways within the City.

Policy 9.1:
The City will enforce an Erosion and Sediment Control Ordinance as outlined in its NPDES permit.

Policy 9.2:
The City will periodically review its Erosion and Sediment Control ordinance and revise it as necessary.

Policy 9.3:
The City of West St. Paul will require erosion control plans for land development and construction work that will disturb one or more acres of land. Erosion Control Plans shall be prepared by a qualified individual and shall conform to the MPCA's NPDES General Permit to Discharge Stormwater from Construction Sites. The erosion control plan shall also conform to all future NPDES stormwater regulations that apply to erosion control.

Policy 9.4:
Acceptable erosion in drainage ways is limited to that which causes no net degradation of the watercourse or destruction of properties adjacent to the watercourse.

a. Measures to alter the natural course and meandering of streams will be discouraged, except when foreseeable erosion threatens to damage structures, utilities, or natural amenities or impair the drainage system.

b. Land use adjacent to watercourses shall be regulated to allow for the reasonably expected natural behavior of streams.

Policy 9.5:
The City of West St. Paul will ensure the design of stream bank stabilization and streambed control measures will consider unique or special site conditions, energy dissipation potential, adverse effects, preservation of natural processes and habitat, and aesthetics, in addition to standard engineering and economic criteria.

Policy 9.6:
City staff will, when and where possible, attend certification training programs for the inspection of erosion control plans and inspecting erosion control measure. These certifications are expected to take place once every five years.

Policy 9.7:
When and where possible, "other" staff (streets, parks, building inspections) will attend the LMRWMO coordinated/conducted non-certification training for staff to address items in MS4 permit (e.g., mowing and erosion control).

3.4.10. Floodplains

Goal 10:
Control development in floodplains and floodways including those subject to FEMA Studies and those that are not regulated by FEMA Studies like ponds, wetlands, lakes and channels within the City limits.

Note: Specific policies related to this goal are found in **Section 3.3.1**. The City's shoreland management section of the Zoning Ordinance (Section 35) also defines limitations to development along shoreland and non-federally regulated floodplain areas.

3.4.11. West St. Paul's NPDES Permit

Goal 11:
Operate and manage the City's surface water system consistent with best current practices and the City's NPDES Permit.

Policy 11.1:
Projects to correct existing deficiencies, to the extent they are identified, will be prioritized as follows:

a. Intended to reduce or eliminate flooding of structures in known problem areas.
b. Intended to improve water quality in the City's lakes.
c. Intended to retrofit water quality treatment into developed areas.
d. Intended to reduce maintenance costs.
e. Improve wetlands.
f. Retrofit water quality improvements.

Policy 11.2:
The City will actively inspect and properly operate, maintain and repair its stormwater system. The City will follow a regular inspection, cleaning, and repair schedule. Frequency of maintenance will be event-based and informed by experience and inspection history. The City's SWPPP outlines the frequency of these activities. **Section 5** of this Plan provides some guidelines on pond maintenance and inspection cycles, but the SWPPP will remain the definitive source on the City's intended maintenance and inspection schedules.

Policy 11.3:
The City will follow BMPs on its own lands and for its own projects including street reconstruction projects in accordance with the NPDES construction site permit and the City's NPDES MS4 Permit.

3.4.12. Administration

Goal 12:
Ensure that the costs of the surface water system are equitably distributed.

Policy 12.1:
The City will periodically update its stormwater utility rate structure to accomplish the following:

a. Meet the requirements of its NPDES permit.
b. Provide for the maintenance of ponds and outfall structures.
c. Conduct repairs to the system.
d. Update its system planning efforts.
e. Implement rainwater gardens or other water quality retrofits with downtown redevelopment.

Policy 12.2:
The City of West St. Paul will report their annual progress by submitting an implementation plan progress update for their Plan to the WMO.

3.4.13. Subsurface Sewage Treatment Systems (SSTS)

Policy 13.1**:**
The City of West St. Paul will maintain updated records of all known on-site septic systems and prohibit installation of new individual sewer systems or alteration, repair, or extension of existing systems when connection can be made to the city sanitary sewer system. The City is required to notify property owners with on-site septic systems that they are required to connect to the cities' sanitary sewer, if available. The City will continue to support MPCA standards for the management of SSTS.

3.5. County, State and Federal Agency Requirements

This section of the LSWMP presents a synopsis of the current agency requirements while acknowledging the existence of other requirements that may be applicable. The City is committed to the preservation and enhancement of its wetlands and water resources through full compliance with local, state, and federal wetland regulations.

3.5.1. Minnesota DNR

At the state level, only public waters and public water wetlands are protected by statute. Public waters are all watercourses and lakes that have been inventoried in the PWI. These waters meet certain minimum basin or drainage size requirements. Public water wetlands include all Types 3, 4, and 5 wetlands in excess of 10 acres in rural areas and 2.5 acres in municipalities. These wetlands are generally characterized by open water and emergent vegetation throughout most of the year.

If an area meets the DNR's jurisdictional criteria but is not on the state's inventory, it is not regulated by the DNR. If it does not meet the statutory criteria but is listed on the inventory, it still is subject to DNR regulation. There is no mechanism presently for adding or deleting waters from the inventory. The inventory was begun in the late 1970s and all state inventories were completed during the early 1980s.

The DNR rules specify that permits may not be issued for any project except those that provide for public health, safety, and welfare. Any private development projects are effectively excluded from permit consideration by this requirement.

The other powers and duties of this Minnesota state agency and its commissioner are wide-ranging. As they affect surface water management within the City they include:

a. Regulation of all public waters inventory waterbodies within the City – to the extent of their ordinary HWL.
b. Regulation of certified floodplains around rivers, creeks, lakes, and wetlands.
c. Management of the Flood Hazard Mitigation program.
d. Shoreland Management.
e. Water appropriations.
f. Aquatic plant management control.

3.5.2. U.S. Army Corps of Engineers (USACE)

Under Section 404 of the Clean Water Act, including subsequent modifications, the U.S. EPA and the U.S. Army Corps of Engineers (USACE) regulate the placement of fill into all wetlands of the U.S. In 1993, there was a modification of the definition of "discharge of dredged material" to include incidental discharges associated with excavation. This modification of the "discharge of dredged material" definition meant that any excavation done within a wetland required the applicant to go through Section 404 permitting procedures. In 1998, however, this decision was modified so that excavation in wetlands is now regulated by the USACE only when it is associated with a fill action.

3.5.3. Board of Water and Soils Resources (BWSR)

The local and regional wetland rules are governed by the WCA, which is administered statewide by BWSR. The WCA, passed in 1991, extends protection to all wetlands unless they fall under one of the exemptions of the WCA.

The WCA follows a “no net loss” policy. The wetlands covered under the WCA must not be drained or filled, wholly or partially, unless replaced by restoring or creating wetland of at least equal public value under an approved replacement plan. Replacement ratio is typically 2:1 (two acres created for every acre filled) for wetland impacts.

A designated LGU is responsible for making exemption and no-loss determinations and approving replacement plans. Currently the Dakota SWCD acts as the LGU for WCA within the City’s subdivision authority.

The powers and duties of this Minnesota state agency also include:

a. Coordination of water and soil resources planning among counties, watersheds, and local units of government.
b. Facilitation of communication among state agencies in cooperation with the Environmental Quality Board.
c. Approval of watershed management plans.

3.5.4. Minnesota Pollution Control Agency (MPCA)

The MPCA implements provisions of Section 404 of the Clean Water Act with guidance from the EPA through a permitting process.

The Section 404 permit also requires a Section 401 water quality certification before it is valid. The EPA has given Section 401 certification authority to the MPCA.

The powers and duties of this Minnesota state agency and its commissioner include:

a. Fulfillment of mandates from the EPA, particularly in regard to the Clean Water Act.
b. Administration of the NPDES Phase II MS4 permit.
c. Administration of the NPDES construction site permit program.
d. Administration of the NPDES industrial site discharge permit program.
e. Development of TMDLs for waterbodies and watercourses in Minnesota (often in conjunction with other agencies or joint powers organizations such as watersheds).

3.5.5. Environmental Protection Agency (EPA)

As it relates to surface water management within West St. Paul, this agency is charged with interpreting and applying aspects of the Clean Water Act. This has led to the City’s need for its NPDES MS4 permit. Total maximum daily load limits, a new initiative mandated by the EPA, also stem from the EPA’s role as steward of the Clean Water Act.

3.5.6. Lower Mississippi River Watershed Management Organization (LMRWMO)

The powers and duties of this Minnesota statutory authority include:

a. Authority to approve local water management plans.
b. Ability to develop rules regarding management of the surface water system.
c. Ability to determine a budget and raise revenue for covering administrative and capital improvement costs.
d. Regulation of land use and development when one or more of the following apply:
    1. The City does not have an approved local plan in place.
    2. The City is in violation of their approved local plan.

3. The City authorizes the watershed toward such regulation.

e. Other powers and duties as given in statute and joint powers agreements.

3.5.7. State and Federal Jurisdictional Boundaries for Public Wetlands and Waters

Wetlands are delineated in accordance with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1987). Wetlands must have a predominance of hydric soils. By definition, hydric soils are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, under normal circumstances, a prevalence of hydrophytic (water tolerant) vegetation typically adapted for life in saturated soil conditions. The USACE and the BWSR regulate wetlands as defined by a jurisdictional delineation.

For wetlands that fall under the DNR jurisdiction, the OHW determines the boundary of DNR jurisdiction. The OHW is established by the DNR.

3.5.8. Dakota County Soil and Water Conservation District

Dakota SWCD is currently the LGU for WCA within the City's subdivision authority. Dakota County SWCD also conducts NPDES erosion control inspection for construction sites that have obtained the NPDES Construction Permit for Construction Activities. This inspection program is a pilot project funded by the MPCA.

3.5.9. Metropolitan Council

Metropolitan Council, through Metropolitan Council Environmental Services, serves as a review agency for local surface water management plans. They also review and approve municipal comprehensive plans and have a prominent role in the Mississippi River Critical Area Corridor as described on the DNR website:

> The Metropolitan Council reviews existing plans that affect lands within the Mississippi River Critical Area Corridor. Technical assistance is provided to assist communities in amending or adopting plans to become consistent with Executive Order 79-19 standards and guidelines and any voluntary MNRRA CMP policies. The council reviews all critical area plans and ordinances and makes an evaluation to DNR prior to the approval decision. In addition, the council administers the pass-through funds from the National Park Service to provide financial assistance to communities wishing to revise their plans and ordinances. The council is also involved with oversight of the Metropolitan Land Planning Act.

3.6. Agency Contacts

The primary contacts for local regulating agencies described above are presented below. These contacts are accurate as of October 2017.

City of West St. Paul
Ross Beckwith
City of West St. Paul
1616 Humboldt Avenue
West St. Paul, MN 55118
(651) 552-4130

Lower Mississippi River Watershed Management Organization
Joe Barten
Lower Mississippi River Watershed Management Organization
125 3rd Avenue North
South St. Paul, MN 55075
(651) 554-3210

Dakota County Soil and Water Conservation District
Brian Watson
Dakota County Soil and Water Conservation District
4100 220th Street West, Suite 102
Farmington, MN 55024
(651) 480-7778

Minnesota Department of Natural Resources
Jennie Skancke
Minnesota Department of Natural Resources
1200 Warner Road
St. Paul, MN 55106
(651) 772-7910

Minnesota Board of Water and Soil Resources
Mary Peterson
Minnesota Board of Water and Soil Resources
520 Lafayette Road N
St. Paul, MN 55155
(651) 296-3767

3.7. Water Resource Management-related Agreements

The City of West St. Paul is party to two separate joint powers agreements related to surface water management:

a. With the City of Mendota Heights for the Thompson Avenue Diversion Project.

b. With the cities of Inver Grove Heights, Lilydale, Mendota Heights, South St. Paul, Sunfish Lake, and St. Paul establishing the LMRWMO.

3.8. Impacts of the West St. Paul LSWMP on Other Units of Government

Upon approval of this LSWMP by the LMRWMO, it is the City's intent to maintain and potentially expand its permitting powers. Currently, the LMRWMO does not issue permits, so no impact to this organization would occur. Within its jurisdiction, the City will use the permit submittal requirements outlined in **Section 5** of this plan and Section 40 of the Zoning Ordinance in addition to the requirements of Section 33.6 of the Zoning Ordinance which defines when a permit is needed. The LMRWMO would continue in its role as project review agency.

Section 40 of the Zoning Ordinance is titled "Stormwater Management" and essentially serves as both a stormwater management ordinance and erosion and sediment control ordinance. **Section 5** describes how the City will review this ordinance to determine if revisions are needed.

3.9. Watershed Goals and Strategies that Affect the City of West St. Paul

The City of West St. Paul goals and policies, outlined above, are a close reflection of those of the LMRWMO, only presented through the municipal filter. The LMRWMO also has specific design

standards and criteria that are required to achieve its goals.

Table 3.1 is a summary of the design standards and criteria for the LMRWMO. The far-right column describes the applicable City standards as described in this LSWMP, plus a reference as to where the standard appears in the LSWMP.

Table 3.1
Summary of Design Standards and Criteria

Design Standard/Criteria	Lower Mississippi River WMO	City of West St. Paul
Runoff Management Plans	Required for projects that disturb one or more acres of land.	Section 40 of the Zoning Ordinance requires Stormwater Pollution Control Plans. The requirements of **Section 5** of this Plan add to current ordinance requirements.
Erosion and Sediment Control Plans	Required for projects that disturb one or more acres of land.	Required by Section 40 of the Zoning Ordinance.
Storm Sewer System Design Critical Duration Events		
Storage basins[1], channel and ravine conveyance	100-year.	100-year. (Section 4.4.2.1)
Trunk sewer, trunk conveyors	No less than 10-year.	No less than 10-year. (Section 4.4.3.3)
Non-trunk sewer	No less than 5-year, preferably 10-year.	10-year. (Section 4.4.3.3)
Minimum building elevation above 100-year elevation adjacent to inundated areas	1 foot; greater for land-locked basins.	Two feet. (Section 4.4.3.3)
New discharge points and outfalls	Pretreatment required, at least grit removal, prior to discharge to wetlands and water resources.	See Section 4.4.3 for requirements.
Peak rate of stormwater runoff from the developed subwatershed of the site	Shall not exceed the existing peak rate of runoff for the 5-year (or 10-year) and 100-year return frequency critical duration storm events.	Shall not exceed the existing peak rate of runoff for the 5-year (or 10-year) and 100-year return frequency critical duration storm events.

Design Standard/Criteria	Lower Mississippi River WMO	City of West St. Paul
	Detention Pond and Treatment Basin Design	
Permanent pool volume	Volume below the NWL outlet which is greater than or equal to runoff from a 2.5-inch 24-hour storm over the entire subwatershed of the pond/basin, assuming full development.	Water quality volume shall be equal to the runoff from a 2.5-inch rainfall or based on the requirements of the NPDES construction site permit, whichever leads to a larger wet volume. (Section 4.4.2.2)
Permanent pool average depth	Greater than 4 feet and less than 10 feet.	Greater than 4 feet and less than 10 feet. (Section 4.4.3.3)
Emergency Over Flow (EOF)	Required to control events greater or equal to the 100-year critical duration event or plugged outlet conditions.	Required, a minimum of 1.5 feet below the lowest ground elevation at any adjacent structure. (Section 4.4.3.3)
Side slope	No steeper than 3:1.	None steeper than 4:1 is preferred. Side slopes of 3:1 will be allowed only with City Engineer's approval. (Section 4.4.3.3)
Aquatic/safety bench	Minimum width of 10 feet and 1 foot deep below the NWL.	Minimum 10-foot width at 10:1 cross slope. (Section 4.4.3.3)
Discharge rate and flood volume	Sufficient volume above the NWL so that peak discharge rate from the 100-year critical duration storm is not greater than the peak discharge of predevelopment watershed conditions of a similar storm event.	Sufficient volume above the NWL so that peak discharge rate from the 100-year critical duration storm is not greater than the peak discharge of predevelopment watershed conditions of a similar storm event.
Duration for extended detention of hydrograph for more frequent storms (1-year to 5-year storm events)	24 hours.	24 hours.
Maximum velocity for inlet and outlet outfalls	4 feet per second.	4 feet per second. (Section 4.4.2.1)
Distance between major inlets and normal outlets	Maximized as much as possible.	Maximized as much as possible.
Skimmer device design criteria	5-year storm event; less than 0.5 feet per second through a baffled weir.	5-year storm event; less than 0.5 feet per second through a baffled weir. (Section 4.4.2.2)

[1]Storage basins mean wetlands, ponds, detention basins, and lakes.

4. SYSTEM ASSESSMENT AND DESIGN

4.1. General

This section of the West St. Paul LSWMP serves three functions. The system assessment portion catalogues the various assessments of problems that the Plan must address. The intent is to identify the source of problems and specific actions the City will take to address these problems either independently or in collaboration with some other organization – most commonly the LMRWMO.

The system description portion of this section describes the City's surface water management system. This system is shown on **Figure 5**, **Appendix A**. The map indicates the major drainage divides, flow routing, storage areas, conveyance (including pipe and channels), wetlands and lakes that have been incorporated into the West St. Paul LSWMP hydrologic model.

The system design portion of this section starts off by discussing how the LSWMP modeling was accomplished and how future modeling can remain consistent with the methods of the LSWMP modeling. Following the modeling discussion is narrative describing system design concepts for storm sewer, channels, rate control, and water quality ponds. This narrative does not describe prescriptive requirements. Rather, it reflects the City's preferred methods in the various subject areas. The design standards of **Section 4.4.3**, which follow the system design concepts, are the prescriptive requirements.

The goals and policies of **Section 3** are also prescriptive requirements. The distinction between the goals and policies and the design standards is that the goals and policies are general while the design standards are specific.

4.2. System Assessment

4.2.1. Water Quality Assessments

Maintain or enhance the water quality of West St. Paul's lakes, wetlands, and water courses.

4.2.1.1. SWPPP Self-Assessments

The City prepared a self-assessment as part of developing its SWPPP. In that self-assessment, a list of potential sources or types of pollution was developed. The City does not know of any particular source or type of pollution to be prevalent within the City. Although the list is not a list of actual pollution occurrences, the list does provide information for consideration and management. The list is repeated below.

a) The City of West St. Paul has determined very few existing or potential water quality issues. Because they have little new construction and no channels or steep slopes, erosion has not been a source of pollution. There are no ditches within the City that are used for stormwater conveyance. However, there is storm sewer throughout the city that may impact water quality by conveying runoff from impervious and pervious surfaces. Some early connections of storm sewer to sanitary sewer were found in the north end of the City but were separated out when sanitary sewer metering began. There are no known occurrences, past or present, of sanitary sewers connecting into storm sewer systems.

b) Salting and sanding was noted as a possible source of pollution. The City uses 100 percent salt for de-icing. Road salt is purchased by the City on an as needed basis and added at the time of application. The salt is stored under cover until it is used.

The salt is applied using dump trucks, and care is taken to apply more mixture to areas on hills and around curves. The salt is applied selectively on an as needed basis rather than a constant flow.

c) The City uses herbicides and fertilizers but does not feel these are a large source of pollution. The parks crew consists of four maintenance employees all of whom are trained and licensed as herbicide and fertilizer applicators. Also, the City uses over the counter herbicides and phosphorous free fertilizer. There are several indoor storage facilities around the City where fertilizer is stored, but no facility specifically dedicated to fertilizer storage. Residential lawn care could be a source of pollution, including lawn clippings blown into the street and use of non-compliant fertilizer.

d) Animal/pet waste was listed as a possible pollution source. The primary animal polluters include a large number of geese utilizing the ponds and lakes within the City. Owners of dogs and pets are regulated through City ordinances, which include a requirement to clean up after the pet and allowing pets in the park on a leash only. Signs, which refer to these rules, are posted in the City parks.

e) The illegal disposal of trash was mentioned, although it is not known to be a problem in the community. A City ordinance prohibiting illegal dumping has been passed by the City. Occasionally, holding pond outlets need to be cleaned as Styrofoam containers can accumulate and block the outlet. This was more of a problem in the past when Styrofoam was used more often.

f) Septic systems were listed as a potential source of pollution. There are approximately 20 to 30 single family homes in the southwest corner of the City that are on private septic systems. About once a year, one of these owners ends up replacing a failing septic system. The City has adopted Dakota County Ordinance #113, which states that inspections of the septic system are required upon sale of the property. There are no long-range plans to convert these neighborhoods to City utilities. The City has attempted in the past to provide these residents with City utilities, however the residents have declined the project.

4.2.1.2. Problem Areas Identified

The City is aware of the following issues by the LMRWMO:

a) The presence of PAHs in Thompson Lake.
   - The City has identified Thompson Lake as a priority for water quality improvements based on the findings of a feasibility study completed in 2014. The City is partnering with LMRWMO and Dakota County to install a stormwater treatment project which will reduce nutrient loads to Thompson Lake and remediate PAH contamination. (See **Table 5.2** for specifics on the Thompson Lake Pond Improvements and Sediment Removal project.)

b) High water levels at Seidl's Pond/Lake in South St. Paul (Portions of West St. Paul drain to Seidl's Pond/Lake)
   - The City has identified Seidl's Pond/Lake in South St. Paul as an area of possible shoreland erosion. In cooperation with the City of South St. Paul the City regularly inspects the shoreline of Seidl's Pond/Lake, and this site is a priority for a new outlet and other water quality improvements in 2019 (see **Table 5.2** for specifics on the Seidl's Pond Lift Station and Improvements project).

4.2.1.3. Clean Water Act Assessments

The Mississippi River (assessment unit ID # 07-0102-06-505) and Lake Pepin (assessment unit ID #25-0001-00) downstream of the West St. Paul City limits, and Thompson Lake (assessment unit ID # 19-0048-00-201 are listed in the state impaired waters list. Known as the 303(d) list from the applicable section of the federal Clean Water Act, these waters are ones that do not currently meet their designated use due to the impact of a particular pollutant or stressor. This listing will potentially affect management of drainage that directly discharges to the river. If monitoring and assessment indicate that a water body is impaired by one or more pollutants, it is placed on the list.

The Mississippi River's affected uses are aquatic consumption, aquatic recreation, and aquatic life and the pollutants or stressors that have been identified as causing these impairments are the following:

a) Fecal coliform
b) Mercury (water column and fish consumption advisory)
c) PCB (fish consumption advisory)
d) Turbidity

Lake Pepin's affected use is aquatic recreation, and the pollutants identified as causing this impairment is excess nutrients.

Thompson Lake was added to the 303(d) list in 2014. The affected use is aquatic recreation, and the pollutants identified as causing this impairment are excess nutrients.

The absence of a waterbody from the 303(d) list does not necessarily mean the waterbody is meeting its designated uses. It may be that it has either not been sampled or there is not enough data to make an impairment determination. Additionally, where mercury is identified as a stressor, the TMDL approach will be regional in nature as mercury is most commonly an air-borne pollutant.

In September 2014, the LMRWMO completed a TMDL/WRAPS report for the area of the LMRWMO, which includes West St. Paul. This report assigned a Total Phosphorus (TP) Wasteload Allocation (WLA) of 0.298 pounds per day or 63.60 pounds per season to the West St. Paul City MS4, a 31% reduction in the existing TP wasteload.

The report recommends the construction of a stormwater pond or other BMP to treat stormwater entering the north end of Thompson Lake. The City, MnDOT, and Dakota County are all named as LGUs with primary responsibility for this project, and the timeline given for achieving water quality targets is five years. This project is listed in **Table 5.1**.

4.3. System Description

This subsection describes in detail the surface water management system for the City of West St. Paul. The HydroCAD model discussed in the 2006 plan has not been updated since 2005, therefore except for describing districts that were combined/renamed in the 2012 LMRWMO plan, the model descriptions and outputs below have not been changed.

The LSWMP area was organized into nine major drainage districts as follows:

- Pickerel Lake (Highway 13)
- Riverview Tunnel

- Lafayette
- Ivy Falls Creek
- Simons Ravine
- Valley Creek (Marie)
- Valley Creek (Delaware/110)
- Wentworth Street
- Highway 110-494

All districts lie within the LMRWMO jurisdiction. These nine major drainage districts align with the City's 1991 and 2006 Plans to provide continuity.

In the 2011 LMRWMO plan, the Valley Creek (Marie) and Valley Creek (Delaware/110) districts are combined and included in the Interstate Valley Creek subwatershed because they both discharge to the west into Mendota Heights. The Pickerel Lake drainage district is now part of the Highway 13 subwatershed and the Lafayette drainage district is now part of the Riverview subwatershed. Otherwise the major drainage districts are very similar between the two plans; any differences are due to availability of storm sewer maps and two-foot contours within the City.

Each major drainage district was divided into smaller subdistricts. The subdistricts are generally drawn to encompass all drainage to a particular pond, wetland, lake, or storm sewer.

The following sections describe each drainage district in detail. **Appendix B** includes areas for the subdistricts within each major watershed. **Appendix C** includes the pond data. Refer to Map 2, **Appendix D** for detailed topography, storm sewer, pond locations and drainage districts.

4.3.1. Pickerel Lake Drainage District

The Pickerel Lake Drainage District is an approximately 25-acre area in the northwest corner of West St. Paul, bordered by Mendota Heights to the west and St. Paul to the north. The predominant land use is single-family residential. This district discharges into Mendota Heights via storm sewer along Annapolis Street. The drainage from this district ultimately discharges to Pickerel Lake through an 18-inch culvert under Trunk Highway 13 (Sibley Memorial Highway), before discharging into the Mississippi River. The Pickerel Lake district has no subdistricts, and its one district is shown with the prefix PK on Map 2 in **Appendix D**. In the 2012 LMRWMO plan, the Pickerel Lake Drainage District is part of the Highway 13 subwatershed.

4.3.2. Riverview Tunnel Drainage District

The Riverview Tunnel drainage district is an approximately 719-acre area in the north portion of West St. Paul, bordered by St. Paul. The predominant land use is single-family residential, with some commercial property along Robert Street, as well as Grass Junior High School. The district includes two notable lakes, Lily Lake and Mud Lake.

The district discharges to St. Paul to the north via storm sewer where it enters the Riverview Tunnel before ultimately discharging into the Mississippi River. The Riverview Tunnel drainage district has ten subdistricts, which each have the prefix RW on Map 2 in **Appendix D**.

4.3.3. Lafayette Drainage District

The Lafayette Drainage District is an approximately 84-acre area in the northeast portion of West St. Paul, bordered by St. Paul to the north and South St. Paul to the east.

The predominant land use is single-family and multi-family residential, as well as St. Michael's Catholic school. The district consists of two subdistricts each with the prefix of LF. Both discharge via storm sewer to the northeast under US 52 and into the airport marsh, before discharging into the Mississippi River. In the 2012 LMRWMO plan, the Lafayette drainage district is part of the Riverview subwatershed.

4.3.4. Ivy Falls Creek Drainage District

The Ivy Falls Creek Drainage District is an approximately 274-acre area in the western portion of West St. Paul, bordered by Mendota Heights to the west. The predominant land use is single-family residential. The district discharges via storm sewer to two ponds within Mendota Heights, IF-P21 and IF-P1. The Ivy Falls Creek Drainage District has five subdistricts, which each have the prefix IF on Map 2 in **Appendix D**. Drainage area IF2C used to be part of the Ivy Falls Creek Drainage District but was redirected into the Interstate Valley Creek district in Mendota Heights by the Thompson Avenue diversion project. The 30-inch pipe along Delaware Avenue that used to convey IF2C into the Ivy Falls Creek Drainage District has been abandoned.

4.3.5. Simons Ravine Drainage District

The Simons Ravine Drainage District is an approximately 1,235-acre area in the central portion of West St. Paul, bordered by South St. Paul to the east. Simons Ravine includes a variety of land uses: single-family and multi-family residential in the west and along the fringes, industrial in the south, commercial along the central Robert Street corridor, and the Thompson Oaks golf course and the Sports Complex in the east. Large storage basins within the district include Marthaler Pond, Wentworth Pond, Emerson Pond, and Thompson Lake. The district discharges via storm sewer east into South St. Paul Watersheds 15 and 17 and then into the Mississippi River. The Simons Ravine Drainage District has 18 subdistricts, each with the prefix SR on Map 2 in **Appendix D**.

4.3.6. Valley Creek (Marie) Drainage District

The Valley Creek (Marie) Drainage District is an approximately 226-acre area in the southwest portion of West St. Paul, bordered by Mendota Heights to the west.

Valley Creek (Marie) and Valley Creek (Delaware/110) are both part of the Interstate Valley Creek Watershed in the 2012 LMRWMO plan but were separated in the 1991 MWRMP plan to show that the two areas drain to separate branches of the Valley Creek system within Mendota Heights. They are kept separate here for consistency between the plans.

The predominant land use within the Valley Creek (Marie) Drainage District is park due to the presence of the Dodge Nature Center. The district has six substantial storage basins, all within the Nature Center area. Valley Creek (Marie) has eight subdistricts, each with the prefix MR on Map 2, **Appendix D**, except for IF2C, which used to drain into Mendota Heights Pond IF- P1 (in the Ivy Falls Creek Watershed) but was redirected into Mendota Heights Pond IV- P113 (in the Interstate Valley Creek

Watershed) by the Thompson Avenue Diversion project. The remainder of the district discharges at its southwest corner under Delaware Avenue and into Mendota Heights Pond IV-P91.

4.3.7. Valley Creek (Delaware/110) District

The Valley Creek (Delaware/110) Drainage District is the other portion of the LMRWMO Plan Interstate Valley Creek Watershed that lies within the City of West St. Paul. Valley Creek (Delaware/110) is located in the southwest corner of the City, bordered by Sunfish Lake to the south, and consists of approximately 192 acres within the City of West St. Paul. From Sunfish Lake to the south, about 49 acres also drain through the district. The predominant land uses within the district are single-family and multi-family residential around the outside, and the Dodge Nature Center within the center.

The district discharges into a swale in the southwest corner of the site and then through a culvert under Delaware Avenue and into Mendota Heights pond IV-P57. Valley Creek (Delaware/110) has six subdistricts, each with the prefix D10 on Map 2 in **Appendix D**. The subdistrict D10-27 is landlocked and does not discharge.

4.3.8. Highway 110-494 District

The Highway 110-494 Drainage District is an approximately 411-acre area in the southern portion of West St. Paul, bordered by Inver Grove Heights to the south and South St. Paul to the east. The land use in the district is varied, with industrial, multi-family residential, and commercial uses in the west and east, and the Southview Country Club in the center of the district. The Highway 110-494 district has 18 subdistricts, featuring either the prefix A, T, or P. Nine subdistricts have the prefix A and drain via storm sewer into stormwater ponds along Highway 110 in the northwestern corner of Inver Grove Heights. Three subdistricts have the prefix T and drain through the golf course south into the 16-acre pond along Babcock Trail. Six subdistricts have the prefix P and drain east under U.S. Highway 52 and into South St. Paul Watersheds 5C and 5F. Three subdistricts within the country club—A21, T6, and T7—all have landlocked basins with no pipe outlet but that do overflow into adjacent subdistricts.

4.3.9. Wentworth Street District

The Wentworth Street Drainage District is an approximately 38-acre area in the eastern portion of West St. Paul, bordered by South St. Paul to the east. The district is primarily made up of U.S. Highway 52 right-of-way. The Wentworth Street Drainage District has no subdistricts, and its one district is shown with the prefix W on Map 2 in **Appendix D**. The district discharges to a pond on the east side of U.S. Highway 52, and then into South St. Paul Watershed 12.

4.4. System Design

4.4.1. Hydrologic Modeling Discussion

The purpose of the modeling effort was to convert the 1991 MWRMP model to the more user friendly HydroCad modeling software, and to update the model to current conditions of the City. Modeling results, including pond outflows, NWLs, HWLS, and outflows at the City boundaries are shown in **Appendix C**.

At the time, the 1991 MWRMP was being developed, the LMRWMO Watershed Management Plan (1986) only required detailed hydrologic modeling for developing and recently developed watersheds. Developed watersheds only

required watershed delineation and drainage pattern identification. Because of this, the more developed watersheds in the City—Riverview Tunnel, Lafayette, and Wentworth Street—have never been modeled in detail since 1991. These watersheds have been modeled directly in HydroCAD.

Stormwater runoff is defined as that portion of precipitation which flows over the ground surface during and for a short time after a storm. The quantity of runoff is dependent on the intensity of the storm, the amount of antecedent rainfall, the length of the storm, the type of surface upon which the rain falls, and the slope of the ground surface.

The intensity of a storm is described by the amount of rainfall that occurs over a given time interval. Storms are typically characterized by their return frequency. A return frequency designates the average time span during which a single storm of a specific magnitude is expected to recur. Thus, the degree of protection afforded by storm sewer facilities is determined by selecting a return frequency for analysis.

For the West St. Paul LSWMP the following return frequencies were used for the modeling effort:

- 100-year, 24-hour 1991 MWRMP watershed model distribution for calibrating the HydroCad model to the 1991 MWRMP model
- 100-year, 10-year, and 2-year for the SCS 24-hour, MSE3 distribution event for the updated HydroCad model

A 100-year, 24-hour frequency event has a one percent chance of occurring or being exceeded in any given year. This design rainfall return period is commonly used for flood control throughout Minnesota. At the time of the HydroCAD model development all rainfall depths came from Technical Paper 40 (TP-40), which listed the 100-year, 24-hour event as 5.9 inches in West St. Paul. As discussed in **Section 2.4**, the Atlas 14 Precipitation-Frequency document updated the rainfall depths given by TP-40; the most current estimate for the 100-year, 24-hour storm is 7.44 inches (see **Table 2.3**). Updating the HydroCAD model to reflect Atlas 14 rainfall depths would likely result in significant changes to peak flow rates and water surface elevations predicted throughout the drainage system.

Besides the storm characteristics, the modeling requires determining the landscape characteristics. These characteristics can be summarized into two parameters, the time of concentration and the land type curve number.

The time of concentration is the time required for the runoff from a storm to become established and for the flow from the most remote point (in time, not distance) of the drainage area to reach the design point. The time of concentration will vary with the type of surface receiving rain and the slope of the surface.

As the stormwater runoff enters the system, the flow time in the storm sewer is then added to the time of concentration, resulting in a longer time of concentration and thus lower average rainfall intensity as the flow moves downstream from the initial design point.

The percentage of rainfall falling on an area that must be collected by a storm sewer facility is dependent on watershed variables such as:

- Soil perviousness
- Ground slope

- Vegetation
- Surface depressions
- Development type
- Antecedent rainfall

These factors are considered when selecting a runoff curve number (CN). CN values depend on the type of soil, cover type and hydrologic condition. Under fully developed conditions, the values of CN will rise with increases in impervious area caused by street surfacing, building construction, and grading.

The 1991 MWRMP model did not use curve numbers, but the new HydroCad model does. The 1991 MWRMP model gave areas for pervious, impervious, and pond surfaces for each of the subdistricts. It also had the times of concentration for each subdistrict. Therefore, the HydroCad model needed to be calibrated to the 1991 MWRMP model by choosing the correct CN value. The CN value for impervious areas is 98 and for ponds it is 100.

The calibration involved entering the 1991 MWRMP model data into the HydroCad model. The storm event used for calibration was the 1991 MWRMP 24-hour distribution for a 100-year event. Time of concentration, land area by land use type (pervious, impervious, or pond), and the “fixed” CN values for impervious and pond surfaces were all entered into the Hydrocad model.

Several runs of the HydroCad model were performed by varying the pervious curve number until the HydroCad results were mostly within a five percent standard error of the 1991 MWRMP model. Given the criteria, a CN value of 54 for pervious area gave the best results for calibration. CN values affect the runoff volume, so runoff volume was the model output criteria for making the comparisons. **Table 4.1** is a summary of the calibration results.

Table 4.1
Summary of HydroCad Model Calibration

	HydroCAD Model				1991 MWRMP Model				Volume % error
	Peak outflow rate cfs	Time to peak inflow (hours)	Volume ac-ft	Peak Elevation ft	Peak outflow rate cfs	Time to peak inflow (hours)	Volume ac-ft	Peak Elevation ft	
Pickerel Lake									
Pk 1, 2 (to Mississippi River through MH)	14.81	15	6.55	--	15.22	15.2	6.59	--	-0.6%
Ivy Falls Creek									
To MH Pond IF-P21	37.18	15.35	17.31	--	21.12		17.13	--	1.0%
To MH Pond IF-P1	78.4	15.22	44.79	--	80.83	15.2	44.23	--	1.3%
Valley Creek (Marie)									
To MH Pond IV-P113	30.52	15.25	13.87	--	32.58	15.2	13.75	--	0.8%
To MH Pond IV-P91	9.47	19.64	12.79	--	11.79	15.6	12.97	--	-1.4%
Valley Creek (Delaware/110)									
To MH Pond IV-P57	56.33	17.12	45.60	--	54.6	16.4	43.63	--	4.3%
To landlocked Pond D10-27	4.44	14.93	1.96	--	4.28	14.8	2	--	-1.9%
Highway 110-494									
To IGH A-17	7.77	14.92	3.47	--	7.28	15.2	3.44	--	0.9%
To IGH MNDT	73.55	14.99	59.29	--	59.28	15.2	55.83	--	5.8%
To IGH T12	8.52	22.49	37.47	942.83	8.33	21.2	37.16	942.78	0.8%
To SSP P3 & P6	13.52	15.11	23.11	--	14.15		22.7	--	1.8%
Simons Ravine									
To SSP SSP1	165.87	18.46	310.97	--	173.96		301.73	--	3.0%
To SSP SSP2	22.83	15.35	10.49	--	24.39	15.2	10.17	--	3.0%

The HydroCad model is simpler than the 1991 MWRMP model in that the HydroCad model consolidates some drainage areas, reducing the number of catchment nodes in the model. This consolidation is warranted in that the HydroCad model is not intended to model every culvert in the City, which was the method of the 1991 MWRMP model.

Instead, the HydroCad model focuses on modeling storage basins that have significant storage. For a basin to appear in the HydroCAD model it must meet one of the following criteria: the basin appears on an as-built drawing, is discernable from an aerial photograph, or is indicated by the National Wetland Inventory map. Small, local water quality ponds that provide limited rate control have not been included in the model, since there is not an inventory of these basins and their stage storage relationships are not known.

After calibration was performed, the HydroCad model was revised to reflect development that has occurred since 1991. Revisions were based on as-built drawings and updates to the City's Storm Sewer System map provided by the City. The same subdistrict layout was used as was used for the calibration, but the areas were adjusted because of revisions to the storm sewer system and to agree with two-foot contour information and the 2001 LMRWMO WMP. The time of concentration that was used in the 1991 MWRMP model was also used in the update HydroCad model.

Table 4.2 summarizes CN values used in the LSWMP modeling. The CN values reflect Antecedent Moisture Condition II (AMC II), which is a typical assumption in hydrologic analyses. AMC II simply implies that average soil moisture conditions apply prior to simulation of the design event.

Table 4.2
Curve Numbers used for Model Conversion

Land Use Type	CN Value
Pervious	54
Impervious	98
Ponds	100

The Riverview Tunnel, Lafayette, and Wentworth Street Drainage Districts were modeled directly in HydroCAD. The same subdistrict layout was used as was used for the 1991 MWRMP, but the areas were adjusted because of revisions to the storm sewer system and to agree with the two-foot contour information and the 2001 LMRWMO Plan. Also, subdistricts that feed the same trunk storm sewer were consolidated.

To determine CN values for the three drainage districts modeled directly in HydroCAD, the existing land use data from the City's 1999 Comprehensive Plan was used. **Table 4.3** provides CN values and percent impervious assigned for each land use type. These values are unique to the City of West St. Paul and were determined by calculating the percent impervious for ten parcels of each type of land use (30 for single-family) and then comparing this calculated percent impervious to curve numbers from SCS Technical Release 55 (TR-55). Because the 1999 Comprehensive Plan identified roadways as a separate land use, their CN value was calculated separately. Roadways include the entire roadway right-of-way which includes pervious boulevards. Ten separate roadways were examined to determine the roadway percent impervious.

Table 4.3
Percent Impervious and Curve Numbers used for Direct HydroCAD Modeling

Land Use	% Impervious	CN
Single-family	31%	72
Multi-family	50%	80
Public, Semi-public	40%	76
Commercial	82%	91
Industrial	75%	89
Parks and Recreation	0%	61
Roads	66%	85

To ensure consistency with this Plan, future analyses in all drainage districts should use the values contained within **Table 5.4** whether they are for development proposals or other City projects. For other types of land use not identified in the table, SCS Technical Release 55 (TR-55) curve numbers should be used.

Times of concentration were calculated for the three drainage districts modeled directly in HydroCAD. Because these districts had very little surface storage, most runoff in these areas goes directly into the storm sewer system and out of the City. Times of concentration were estimated by determining the time it takes runoff to enter the system, and then by estimating time in pipe by assuming average pipe velocities.

With so little surface storage in the northern portion of the City, the HydroCAD model for the Riverview Tunnel, Lafayette, and Wentworth Street Drainage Districts is highly dependent on small changes in model inputs such as CN and time of concentration. A more detailed model involving relationships between the storm sewer and street flooding would be necessary for local stormwater projects.

HydroCAD stormwater runoff hydrographs are calculated in accordance with SCS TR-20 methodology. Hydrograph routing through channels and detention basins is performed using the Dynamic-Storage-Indication method.

A summary of the updated HydroCAD modeling results is shown in **Appendix C.** The pond outlet information is not included in **Appendix C** because this information is unknown for many ponds. The previous model uses stage-discharge relationships to model pond outflow instead of modeling the outlet directly.

4.4.2. System Design Recommendations andDiscussion

4.4.2.1. Conveyance and Storage System Concepts Storm Sewer and Channels

In the West St. Paul LSWMP stormwater model, a combination of storm sewer and channels has been used to transport simulated stormwater runoff. A complete system consists of a complex web of trunks, manholes, lateral lines, overland drainage ways, catch basin leads, catch basins, pond inlets and outlets and all other items.

Proper design of a storm sewer system requires that all sewer lines be provided with access through manholes for maintenance and repair operations. Generally, spacing of manholes should be no greater than 400 feet. Intervals on larger diameter lines can be increased when the pipes are sufficiently large for a person to physically enter the storm sewer pipe for maintenance operations. Regardless of sewer size, manholes should

normally be provided at all junction points and at points of abrupt alignment or grade changes.

Although lateral systems are designed for the 10-year storm event, their performance must be analyzed for storms exceeding the design storm. Lateral and trunk pipes will surcharge when the design storm is exceeded. During surcharging, the pipes operate as closed conduits and become pressurized with different pressure heads throughout the system. Low areas that are commonly provided with catch basins become small detention ponds often performing like pressure relief valves with water gushing out of some locations. For this reason, it is extremely important to ensure that these low areas have an acceptable overland drainage route with proper transfer capacity.

At a minimum, ponding on streets must meet all of the requirements of the 100-year design criteria. For safety reasons, the maximum depth should not exceed two feet at the deepest point and the lowest exposed building elevation should be at least one foot above the elevation to which water could rise before overflowing through adjacent overland routes.

All storm sewer facilities, especially those conveying large quantities of water at high velocities, should be designed with efficient hydraulic characteristics. Manholes and other structures at points of transition should be designed and constructed to provide gradual changes in alignment and grade. Pond outlet control structures should be designed to allow water movement in natural flow line patterns, to minimize turbulence, to provide good self-cleaning characteristics, and to prevent damage from erosion.

Intake structures should be liberally provided at all low points where stormwater collects and at points where overland flow is to be intercepted. Inlet structures are of special importance, since it is a poor investment to have an expensive storm sewer line flowing partially full while property is being flooded due to inadequate inlet capacity. Intake grates and opening should be self-cleaning and designed to minimize capacity reduction when clogged with twigs, leaves, and other debris.

Effective energy dissipation devices or stilling basins to prevent stream bank or channel erosion at all stormwater outfalls should be provided. The following recommendations should be kept in mind when designing an outlet:

- Inlet and outlet pipes of stormwater ponds should be extended to the pond Normal Water Level whenever possible.
- Outfalls with velocities of less than 4 fps that project flows downstream into the channel in a direction 30 degrees or less from the normal channel axis generally do not require energy dissipaters or stilling basins, but do require riprap protection.
- Where an energy dissipater is used, it should be sized to provide an average outlet velocity of less than 4 fps, unless riprap is also used. In the latter case, or when discharge occurs at NWL of a pond, the average outlet velocity should not exceed 6 fps.
- In the case of discharge to channels, riprap should be provided on all outlets to an adequate depth below the channel grade and to a height above the outfall or channel bottom. It should be placed over a suitably graded filter material and filter fabric to ensure that soil particles do not migrate through the riprap and reduce its stability. Riprap should be placed to a thickness at least 2.5 times the mean rock diameter to ensure that it will not be undermined or rendered ineffective by displacement. If riprap is used as protection for overland

drainage routes, grouting may be recommended.

- Overland drainage routes where velocities exceed 6 fps should be reviewed by the City Engineer and approved only when suitable stabilization measures are proposed.

Open channels and swales are recommended where flows and small grade differences prohibit the economical construction of an underground conduit and in areas where open channel type drainage will enhance the aesthetic qualities of a development. Whenever possible, a minimum slope of two percent should be maintained in unlined open channels and overland drainage routes. Slopes less than two percent and greater than one percent are difficult to construct and maintain and may require an underdrain system. Slopes less than one percent should not be allowed. Side slopes should be a maximum of 4:1 (horizontal to vertical) with gentler slopes being desirable. Where space permits, slopes should be cut back to match existing grade. When erosion control blanket is used 3:1 slopes are often allowed.

In general, the flatter the channel side slopes and the more meandering the channel alignment the more natural the channel will appear. Natural looking channels use significantly more space than common ditches. One method of providing this space is to incorporate greenway corridors over the channel area.

Rock riprap should be provided at all points of juncture between two open channels and where storm sewer pipes discharge into a channel. The design velocity of an open channel should be sufficiently low to prevent erosion of the bottom. Riprap or concrete liners should be provided in areas where high velocities cannot be avoided. Periodic cleaning of an open channel is required to ensure that the design capacity is maintained. Therefore, all channels should be designed to allow easy access for equipment.

Sanitary sewer manholes that could be subject to temporary inundation due to their proximity to ponds, channels, or roadway low points should be equipped with watertight castings. Precautions should be taken during construction to prevent the entrance of stormwater into the sanitary sewer. When access is required at all times, sanitary manholes located near ponding areas should be raised above the 100-year HWL. If access is not required, water tight castings should be installed. Future storm drainage construction should include provisions for improving the water tightness of nearby sanitary sewer manholes. All newly constructed sanitary manholes in the vicinity of ponding areas and open channels described in this report should be waterproof.

Ponds

Stormwater ponding areas are an essential part of any storm drainage system. These areas provide locations where stormwater flows can be reduced to provide flood protection for downstream areas. The effective use of ponding areas allows for outflow storm sewers and channels with reduced capacities, since the duration of the design storm is effectively increased over the total time required to fill and empty ponds. Smaller capacity trunk storm sewer and channels provide a cost savings to the City.

The use of ponds to control stormwater runoff rates is a recent phenomenon. Historically, older cities have piped stormwater directly to the nearest large receiving water or river. Continued use of this practice has both cost and regulatory implications. In terms of cost, few cities have the funds necessary to build pipes that provide 100-year protection to properties. In fact, the older cities that have historically piped all their stormwater find that the systems they constructed provide nowhere near the 100-year

protection found in newer cities that use ponds. In terms of the regulatory control, many direct discharges (without ponding) to waters of the state are precluded.

At present, even direct discharges to wetlands that are not considered waters of the state are regulated through the NPDES construction permit.

Cost and regulatory considerations aside, well designed ponds:

1. Improve water quality
2. Recharge the groundwater table
3. Provide aesthetic, recreational and wildlife benefits

Ponds improve stormwater quality by allowing nutrients and sediments carried by runoff to settle before being discharged to important receiving waters. Groundwater recharge is increased by restricting the outflow rate from a pond, thus allowing more water to infiltrate into the soil. Careful planning of ponds can enhance a development's appeal and still provide efficient stormwater management. In fact, lots with pond frontage command a higher price than lots without.

To provide proper protection for adjacent property, the design storm for ponding areas is the maximum flood from an SCS Type II rainfall distribution of a 24-hour, 100-year rainfall event. The lowest exposed elevations of structures that are adjacent to ponds should be certified by the builder during basement construction to ensure adequate freeboard.

Runoff determinations for pond design vary from those for storm sewer calculations. The critical storm for storm sewer design is the short, high intensity storm, whereas the critical storm for pond design is of longer duration, since water is being stored for longer periods of time and released at a slower rate.

The use of computer modeling in the analysis of the ponding system has allowed the efficient review of several complicated routing patterns, each comprised of several ponds. The pond storage and outflow rates, adjusted by lag time, were determined by the program for all the ponds identified in this Plan. The lag time is significant as it represents the attenuation of peak flows at each pond and generally shows that the peaks are not occurring at the same time. This implies that the direct runoff to a pond has generally passed through to the downstream trunk system before the inflow of large volumes of runoff from upstream ponds.

4.4.2.2. Water Quality System Concepts

The only effective way to maintain high quality waterbodies is to prevent sediment, nutrients, and other materials from entering the storm drainage system. Complete interception of stormwater for treatment at the point of discharge is not currently feasible, though the City encourages the implementation of techniques such as rainwater gardens, infiltration areas, and filtration swales that capture a portion of runoff at the point of generation. Application of these small-scale techniques should be on a site-specific basis.

Pollutant Control

The three main sources for degradation of water quality are:

1. Solids and associated chemicals (including calcium chloride and salt) from erosion and street sanding.

2. Composted decay around ponds.
3. Fertilizers and other chemicals from farming practices, impervious surfaces, or lawn care.
4. Stormwater runoff, including dissolved and suspended nutrients and sediment.

Identification of the source and implementation of reasonable control measures can minimize the degradation of West St. Paul's waterbodies.

In areas where development is taking place, stormwater runoff frequently contains substantial quantities of sediment. Most commonly, these sediments are carried by runoff into the storm sewer from large grading sites though fully developed areas also generate sediment loads particularly from winter sanding operations and in areas of structurally failing pipes. For developing areas, strict on-site erosion control practices are required to prevent sediments from entering downstream waterbodies. Inspections should be conducted by the City to verify that the erosion control practices have been installed and maintained properly. Even with extensive erosion control practices, sediment and airborne particulates will continue to enter surface waters of the City.

The importance of erosion control measures during construction cannot be overemphasized. The BMPs recommended in the MPCA's *Protecting Water Quality in Urban Areas* should be followed for all development. The Minnesota general NPDES stormwater permit for construction activity requires a permit for construction activities that disturb one or more acres.

When disturbing ten or more acres, developers are required to provide temporary settling ponds to treat the runoff from their grading sites. These ponds are intended to prevent the introduction of sediment and its associated pollution into the storm sewer system and are required to function until grading has ceased and adequate cover has been established. At a minimum, these temporary sedimentation basins should meet the requirements set forth in the NPDES general permit for construction activities.

When the outlet for a siltation basin, either permanent or temporary, is located below the normal water surface, the basin can also serve to confine floating solids that may otherwise enter a downstream pond or lake. This practice is typically referred to as skimming. If a hazardous material such as fuel oil were to spill, a skimmer structure would retain it within the basin and thus isolate it for easy access and prompt cleanup.

Skimmer structures should be used for all constructed ponds upstream of wetlands, lakes, rivers and streams. For constructed ponds that discharge into other constructed ponds, skimmer structures are not as important.

Ideally, some sort of solids removal system should be installed wherever storm sewer outlets into a pond. In certain cases, settling chamber (sump) type catch basins or manholes can be provided for storm sewers that discharge into ponds. These can provide effective removal of sand and gravel, which may be flushed into the storm sewer from streets and highways; however, they are ineffective in the removal of finer particles such as silts and clays. The use of this type of catch basin or manhole should be limited to those areas where regular maintenance is practical and where the sump can be realistically expected to intercept sand from winter sanding operations and gravel from driveways and construction sites.

Of late a concern regarding West Nile virus and mosquito breeding habitat has called into question the use of sump manholes. The latest data suggests that many different breeding environments exist for the mosquitoes that carry the virus including ponds,

wetlands, catch basins, and manholes. Obviously, eliminating these elements of the system is not feasible. Though they should be used sparingly, sump manholes should not be prohibited due to a concern over West Nile virus.

It bears repetition that a solids removal structure must be regularly maintained if it is to remain effective. Since maintenance is the controlling factor in the long-term performance of sediment control measures, ponds are recommended over sump manholes. Sump manholes, if numerous, often go without maintenance. An individual pond requires more maintenance time than a sump, but overall system maintenance time goes down when ponds are the preferred method of sediment removal as long as pond slopes and benching allow access by maintenance equipment. For this reason, sump manholes should be limited to storm sewer lines discharging directly to wetlands, lakes, rivers, streams, ravines, and constructed channels and should be avoided upstream of constructed ponds. In all cases, the location, type, and number of sediment control structures must be established at the time of final design of that portion of the storm sewer system. Maintenance of the system is discussed further in **Section 5.**

Even with the best and most expensive solids removal system, contamination of ponds and lakes will occur unless attention is paid to activities that occur after site development. Developers must utilize the BMPs to minimize erosion during the mass grading phase of construction. However, property owners must also use care in the development and maintenance of their lawns and open areas. Debris is frequently raked from lawns into gutters and from there, if it is not removed, it washes into the storm sewer system.

Generally speaking, water quality ponding within a development has to treat stormwater to the level required by the downstream receiving water body and its attendant management strategy. At a minimum, detention ponds should contain wet volume equivalent to the runoff from a 2.5-inch rainfall over their tributary area. Occasionally, with small plats (of five acres of less), water quality ponding cannot be constructed to the extent required by the LSWMP without severely hampering the site development or destroying other habitat such as upland grasslands and forests.

In such cases, it is within the City's discretion to reduce the required water quality ponding and/or require other methods such as filtration swales or filter beds.

Water Quality Modeling

When necessary for modeling a series of water quality ponds, the City uses the PondNet water quality management model. PondNet is an empirical model developed from data collected by the EPA Nationwide Urban Runoff Program (NURP). The model predicts the phosphorus removal efficiency of a large number of hydrologically connected ponds. Phosphorus is the primary nutrient modeled because it has been found to be the nutrient most likely to promote the growth of algae in lakes. LMRWMO has also completed a P8 model for the watershed which includes a portion of West St. Paul. Modeling with P8 is preferred when modeling BMPs other than ponds.

This Plan includes the PondNet modeling of drainage districts and their dominant ponds in West St. Paul. This regional-scale modeling of the water quality of West St. Paul was conducted to remain consistent with the hydrologic/hydraulic modeling of the City's ponds. A more detailed water quality analysis, which includes delineating drainage areas for every pond in the City, would provide the most accurate results of water quality at the local scale. Water quality analysis of ponds and wetlands

requires information on the below water volume in each basin modeled. In wetlands, this can be determined as relatively accurately by the type of wetland. For ponds, it requires the ponds' stage-storage relationship, which is typically obtained from the grading plan.

The PondNET modeling results are in **Appendix D**.

Actual mean depths were calculated for Wentworth and North Emerson Ponds using the ponds' bathymetry. Mean depths for all other ponds were estimated based on the classification shown in **Table 4.4**, the NWI identification, and a visual inspection by a wetland specialist.

Table 4.4
Pond Mean Depth Based on Amount of Vegetation and Water

Mean Depth (ft)	Pond Characteristics
0	All vegetation without constant water level
1.5	Completely emergent vegetation with constant water level
2.5	Some emergent vegetation with some open water
3	Open water with little to no emergent vegetation

Land use in West St. Paul was altered to consider the effects of waterbodies not being modeled for water quantity or quality and golf courses on the overall water quality control of West St. Paul's ponds. The stormwater runoff quality and quantity generated by golf courses vary greatly from course to course depending on the management of the land and ponds in a golf course. In the original land use model, golf courses were integrated with parks and recreation, which is acceptable for water quantity modeling purposes. However, to create a more accurate general model of West St. Paul's water quality control, the golf courses were designated to a separate land use. **Table 4.5** shows the changes that were made to land use designation, percent impervious coverage, and the curve number.

Table 4.5
Changes Made to Land Use for Water Quality Modeling

Original Land Use	% Impervious	CN	Altered Land Use	% Impervious	CN
Parks & Recreation	0%	61	Parks and Recreation	0	61
			Golf Course	10%	65
This land use was embedded in all others.			Water not modeled	100%	98

Average annual precipitation is based on a 20-year average from the Minnesota Climatology Working Group. **Table 4.6** shows several land use-dependent variables utilized in the PondNET model. These values are well-accepted for small storm hydrology modeling in the northern temperate Midwest.

Table 4.6
Variables Assumed in PondNET for West St. Paul Ponds

	Phosphorus Runoff Concentration (ppb)	Hydrologic Runoff Coefficient (Rv)	Unit P-Loading (lbs/ac/yr)	DP:TP Ratio
Single-family Residential	450	0.22	0.74	0.35
Multi-family Residential	450	0.34	1.13	0.35
Public, Semi-public	350	0.28	0.72	0.3
Commercial	350	0.53	1.39	0.5
Industrial	350	0.49	1.28	0.3
Parks and Recreation	200	0.03	0.05	0.5
Roadway (incl. ROW)	350	0.43	1.13	0.5
Undeveloped	200	0.03	0.05	0.7
Water (not modeled)	100	0.03	0.02	0.1
Golf Course	500	0.09	0.35	0.7

Computer models that predict concentrations and removal efficiencies for heavy metals are currently available. These models predict removal efficiency in terms of inflow particle distribution and the pond's ability to remove suspended solids. The Minnesota Stormwater Manual estimates the removal percentage of total phosphorus by wet detention ponds as 50%, bacteria as 60%, and total suspended solids (sediment) as 84%. **Table 4.7** shows the benefits of wet detention ponds as estimated by the Wisconsin DNR.

Table 4.7
Benefits of Wet Detention Ponds

Pollutant	Average Reduction (%)
Lead	70
Zinc	70
Diazinon (pesticide)	17
Phthalate	80

Based on these findings, it can be assumed that water quality ponds which reduce phosphorus loadings by 50% under standard runoff concentrations will also reduce heavy metal concentrations by 70% and sediments by 84%. For this reason, it is sufficient to model for phosphorus and from those results infer removals of other pollutants according to the percentages in **Table 4.7**.

Actual modeling of water quality basins and their treatment capacities can be cumbersome for developers and their engineers. A simple criterion is that every water quality basin should provide wet volume (volume below the normal water level) equivalent to the post development site runoff for the 2.5-inch rainfall event.

Ponds designed in this manner will meet a 60% removal efficiency while providing excess volume for sediment storage.

The modeling conducted for the 2006 LSWMP revealed that West St. Paul's ponds range from very poor to very good phosphorous removal capability. The 38 ponds maintaining constant water level have a 43% average phosphorous removal efficiency. Since this model was conducted at a regional scale, the PondNET results should be viewed relatively and not absolutely. For example, if the City of West St. Paul were interested in focusing efforts toward increasing pond phosphorous removal efficiencies, the PondNET model may provide a basis by which to assign priority of ponds. If removal efficiencies of given ponds are desired, a detailed, local-scale model should be created that includes the routing and sub-watershed delineation of all ponds within West St. Paul.

Local versus Regional Water Quality

Water quality treatment is not considered a regional task but rather something to be installed with individual developments. Regional water quality treatment is considered less effective than local treatment and some analyses suggest that regional water quality basins can become pollutant sources rather than remedies.

The premise that water quality treatment is more effective at a smaller scale is based upon the general assumption that ponds in series are more effective than single, larger ponds, even if equivalent wet volumes are involved. Additionally, when a water quality system consists of disperse elements the effect of any one component failing is relatively small. In contrast, if the water quality system consists of large centralized facilities, the impacts of one component failing might be quite significant. Another argument for smaller and more numerous water quality ponds is maintenance. Many cities maintain ponds themselves and do not have access to equipment that can reach from a pond bank to the middle of the large pond. Additionally, by dispersing water quality to the local or neighborhood level, a wider range of techniques can be used such as:

- Filtration swales
- Infiltration swales
- Infiltration basins
- Structural units like swirl separators
- Sand filters
- Reducing impervious surface

The techniques above are best applied as near as possible to the point of runoff generation.

4.4.3. Design Standards

4.4.3.1. Submittal Requirements

All grading, erosion control, and site restoration work must be done in accordance with the most recent editions of the MnDOT Standard Specifications for Construction, the MPCA's *Protecting Water Quality in Urban Areas*, the MPCA General Stormwater Permit for Construction Activity and the MPCA Minnesota Stormwater Manual.

The following is taken from section 153.365 of the City Zoning Ordinance and describes when grading permits are required.

153.365 (2) PERMITS REQUIRED

(a) Land excavation, grading or filling in excess of 200 cubic Yards of material shall require a permit from the Public Works Director, after review and approval of the exhibits required hereunder.

(b) Land excavation, grading or filling in excess of 3,000 cubic Yards of material shall require a Conditional Use permit according to procedures outlined in section 5.4.

153.365 (3) PERMIT EXCEPTIONS

A permit under this section shall not be required for the following:

(a) Excavations, grading or fills of less than 200 cubic Yards of material.

(b) Excavations or fills associated with a development project on platted property which have commenced within two years after an approved plat has been filed with Dakota County.

(c) Excavations, grading or fills by State, County or City authorities in connection with the construction or maintenance of roads, highways, parks or utilities or on slope or utility easements, provided such activity is conducted within public rights-of-way or easements.

(d) Curb cuts, utility hook-ups or Street openings for which another permit is required from the City.

(e) Any development for which a Conditional Use permit has been approved and granted and a final grading plan approved as a part thereof.

Projects require Erosion and Sediment Control Plans. These are drawings that show how erosion will be prevented and are required to show the following:

1. The name and address of the applicant and the location of the activity.
2. Project description: The nature and purpose of the land disturbing activity and the amount of grading, utilities, and building construction involved.
3. Phasing of construction: timeframes and schedules for the project's various aspects.
4. A map of the existing site conditions: existing topography, property information, steep slopes, existing drainage systems/patterns, type of soils, waterways, wetlands, vegetative cover, one hundred (100) year flood plain boundaries, and locations of existing and future buffer strips.
5. A site construction plan that includes the location of the proposed land disturbing activities, stockpile locations, erosion and sediment control plan, construction schedule, and the plan for the maintenance and inspections of the stormwater pollution control measures.
6. Adjacent areas: neighboring streams, lakes, residential areas, roads, etc., which might be affected by the land disturbing activity.
7. The site’s areas that have the potential for serious erosion problems.
8. Erosion and sediment control measures: the methods that will be used to control erosion and sedimentation on the site, both during and after the construction process.
9. Permanent stabilization: how the site will be stabilized after construction is completed, including specifications, timeframes or schedules.
10. Calculations: any that were made for the design of such items as sediment basins,

wet detention basins, diversions, waterways, infiltration zones and other applicable practices.

11. The Developer shall obtain all regulatory agency permits and approvals including those from the Minnesota Pollution Control Agency for “General Stormwater Permit for Construction Activity”.
12. Show City of West St. Paul’s project number on the Plan.
13. Show first floor and basement walkout elevations.
14. A location map indicating the vicinity of the site.
15. Two-foot contour information extending a minimum of 200 feet beyond the property boundary that shows features such as buildings, structures, walls, trees, fences etc. and any hydrologic features such as wetlands, ponds, lakes, and streams that are wholly or partially encompassed by the project perimeter.
16. Two-foot contour information shall include the following:
    a. Existing contours
    b. Proposed contours
    c. Contour labeling
17. Directional arrows to indicate the site and lot drainage directions.
18. Details on existing wetlands, lakes, streams etc.
    a. Normal water elevation (NWL) and 100-year design storm High Water Level (HWL)
    b. Ordinary High Water Level, if available, for wetlands within the site
    c. Whether waterbodies are DNR protected
    d. Wetland delineations for wetlands on the site
19. Information on individual lots including:
    a. Type of structure (i.e. walkout or rambler)
    b. Lowest ground elevation adjacent to building
    c. Walkout and lookout window elevations
    d. Existing and proposed lot corner spot elevations
    e. Proposed mid-point side lot spot elevations
    f. Proposed spot elevations at any high points or drainage breaks
    g. Proposed spot elevations where drainage swales intersect lot lines
    h. Proposed spot elevations where drainage and utility easements intersect with lot lines
    i. The benchmark utilized for elevation determination.
20. All easements and outlots, existing and proposed.
21. All adjacent plats, parcels, property lines, section lines, streets, existing storm drains and appurtenances, and underground utilities (public and private).
22. Drawings showing existing and proposed drainage boundaries, including watersheds contributing runoff from off-site.
23. Emergency Over Flow (EOF) elevations and directions of flow for all street and rear yard catch basins, parking areas, ponds, wetlands, lakes, streams, swales etc.
24. Hydrologic and hydraulic calculations for the 2-year, 10-year, and 100-year 24-hour (MSE3 distribution) rainfall event.
25. Provide detailed hydrologic/hydraulic calculations verifying location and capacity adequacy of all overland drainage routes.
26. If retaining walls are needed, submit detailed plans and specifications that show type and height of retaining wall. Retaining walls will not be allowed within the City’s easements, unless approved with the overall subdivision grading plan.
27. Show removal of all trees and brush below the controlled water level that will be impacted from existing and newly created ponding areas.
28. Show or define access routes for maintenance purposes to all inlets or outlets at ponding areas (must be maximum of 8% grade, 2% cross slope and 10’ wide).
29. Note for all silt fence to be installed by the contractor and inspected by the City prior to any site work.

Storm sewer projects and plans are required to show the following:

1. The developer shall obtain all regulatory agency permits and approvals necessary for the proposed construction (i.e., DNR, Army Corp. of Engineers, MPCA, etc.)
2. Drainage calculations shall be submitted to show the sizing of pipe, ponds, emergency overflow spillways, and catch basin interception analysis.
3. Show or define access routes for maintenance purposes to all manholes outside the public right-of-way and inlets or outlets at ponding areas (eight percent maximum grade, two percent cross slope, and ten-feet-wide). Access easements shall be dedicated at the time of final platting to provide this access.
4. Upon the completion of the construction of a designated ponding area, the developer and/or engineer is required to submit an as-built record plan of the ponding area certifying that the pond constructed meets all design parameters as set forth in the City's LSWMP.

4.4.3.2. Erosion and Sediment Control

Anyone proposing land disturbing activities should be familiar with the performance criteria for a Stormwater Pollution Control Plan as outlined in Section 40.3(5) of the City's Zoning Code. The Stormwater Pollution Control Plan is the submittal made by a project proposer that includes the Erosion and Sediment Control Plan and any narrative, modeling, photographs, or other items necessary to demonstrate how effective erosion and sediment control will be accomplished.

The City requires a Stormwater Pollution Control Plan as part of its Stormwater Management ordinance. A SWPPP is required for all applicants for building permits, subdivision approval, or permits to allow land disturbing activities. This ordinance lays out a review, approval, and permit process for all projects where bare soil is exposed.

Enforcement of this ordinance is by action against the financial security of a project.

4.4.3.3. Stormwater Management

The term High Water Level (HWL), as used below, refers to the maximum water level generated by an MSE3 distribution, 24-hour, 100-year rainfall event (7.44 inches of rain in 24 hours).

1. Stormwater plans for development shall comply with this LSWMP and its updates.
2. Stormwater facilities shall be designed for a 10-year frequency storm for local pipe design and a 100-year frequency storm for ponding detention basin design and trunk facilities.
3. Stormwater pipes shall be designed using the rational method or hydrograph method (based on sounds hydrologic theory) for pipe. Channel design shall be hydrograph method only. All methods are subject to the City Engineer's approval.
4. Stormwater detention facilities constructed in the City of West St. Paul shall be designed according to the standards reflected in the MPCA publication *Protecting Water Quality in Urban Areas*, the Minnesota Stormwater Manual, and the design criteria from the National Urban Runoff Program. At a minimum, the permanent pool should be equivalent to the runoff from the 2.5-inch, 24-hour rainfall event unless the requirements of the **Table 4.2** call for increased treatment capacity.

5. Maximum allowed pond slopes are 3:1, however 4:1 slopes are preferred. Pond slopes steeper than 4:1 shall have erosion control blanket installed immediately after finish grading. In residential areas slopes no steeper than 4:1 shall be allowed. Maximum 3:1 slopes are allowed in "maintained" areas as approved by the City Engineer. Maximum 3:1 slopes are allowed for road fill sections adjacent to waterbodies.
6. All constructed ponds and wetland mitigation areas shall have an aquatic safety bench around their entire perimeter. The aquatic bench is defined as follows:
   a. Cross slope no steeper than 10:1
   b. Minimum width of 10 feet
   c. Located from pond NWL to one foot below pond NWL
7. All constructed ponds and wetland mitigation areas shall have a maintenance access bench to provide access to all inlets and outlets. At a minimum, the maintenance bench should extend around 50 percent of the basin perimeter.
8. Elevation separations of buildings with respect to ponds, lakes, streams, and stormwater features shall be designed as follows:
   a. The lowest ground elevation adjacent to homes and buildings must be a minimum of two feet above the calculated 100-year HWL or one and one-half feet above the EOF, whichever criteria leads to the higher elevation.
   b. Landlocked lakes and wetlands require either:
      - A five-foot separation between basin HWL and lowest ground elevation adjacent to building, or
      - A three-foot separation between basin HWL for back to back 100-year storms and the lowest ground elevation adjacent to building, or
      - A three- foot separation between the highest known or recorded basin elevation in the case of large wetlands and lakes and lowest ground elevation adjacent to building.

      Whichever of the three methods yields the highest allowable ground at building elevation should be the one used.
   c. Drainage easements for ponds, lakes, wetlands, and streams shall encompass an area to one foot (vertical) above the calculated 100-year HWL.
9. Ponds must have a maximum depth of less than 10 feet.
10. All ponds shall have outlet skimming for up to the 5-year event.
11. All ponds shall be graded to one-foot below design bottom elevation. This "hold down" allows sediment storage until such time as site restoration is complete.
12. The top berm elevation of ponds shall be a minimum of 1.5 feet above the 100-year pond HWL.
13. The average depth of the permanent pool of any pond must be greater than four feet and less than 10 feet.
14. All ponds shall have an emergency overflow which is at minimum 1.5 feet below the lowest ground elevation of any adjacent structure.
15. Grading shall not block or raise emergency overflows from adjoining properties unless some provision has been made for the runoff that may be blocked behind such an embankment.
16. Minimum grade for lot drainage swales and lot grading shall be two percent or greater.
17. Maximum length for drainage swales shall be 300 feet or a total of eight lots draining to a point, or as approved by the City Engineer.
18. Utilization of existing wetlands for stormwater management is subject to review by the appropriate regulatory agency in accordance with the Wetlands Conservation Act.
19. Restrict clearing and grading within 20 feet of an existing wetland boundary to provide for a protective buffer strip of natural vegetation.

20. Seeding around ponds should be MnDOT standard mix 28B (328) or BWSR equivalent.

4.4.3.4. Storm Sewer Design

1. Provide for overflow routes to drain low points along streets or lot lines to ensure a freeboard of two feet from the lowest exposed structure elevation and the calculated 100-year storm HWL elevation. Design criteria verifying the adequacy of the overland drainage route capacity is required.
2. The storm sewer alignment shall follow the sanitary sewer and watermain alignment where practical with a minimum of 10 feet of separation. Storm sewer placed along the curb alignment shall be along the curb opposite the watermain to maintain the 10 feet of separation.
3. Catch basins shall be located on the tangent section of the curb at a point three feet from the point of curve. Mid-radius catch basins will not be allowed. Also, catch basins shall be designed to collect drainage on the upstream side of the intersection.
4. The maximum spacing between manholes is 400 feet.
5. Manhole steps will be aligned and over the downstream side of the manhole. Steps within manholes will be:
   a. One inch (1”) +/- Horizontal Alignment
   b. One inch (1”) +/- Vertical Alignment per latest OSHA Standards
6. Any connections to existing manholes or catch basins shall be core drilled or the opening cut out with a concrete saw. No jack hammering or breaking the structure with a maul is permitted. Also, all connections to an existing system will require a manhole for access.
7. To the greatest extent possible, manholes shall be placed in paved surfaces outside of wheel paths, (three feet and nine feet off centerline) or other readily accessible areas.
8. Minimum pipe size shall be 12 inches in diameter.
9. Aprons or flared end sections shall be placed at all locations where the storm sewer outlets a ponding area. All inlet/outlet flared end sections shall be furnished with hot dipped galvanized trash guards. All trash guard installations will be subject to approval by the City Engineer. The last three pipe joints from the flared end section shall be tied together.
10. Riprap and filter blanket shall be placed at all outlet flared end sections. The placement of the riprap shall be hand placed. The minimum class of riprap shall be MnDOT 3601.2, Class III. Design criteria justifying the size and amount of riprap is required. Geotextile material is not allowed for filter aggregate where ice action along the shore line may tear it.
11. The invert elevations of the pond inlet flared end sections shall match the NWL of the pond. Submerged outlets will only be allowed at the discretion of the City Engineer.
12. If the storm sewer is to be installed less than 10-feet-deep within private property, the easement shall be a minimum of 20-feet-wide with the pipe centered in the easement. If the storm sewer is 10-feet-deep or greater, then the easement shall be twice as wide as the depth, or as required by the City.
13. Junction manholes should be designed to limit the hydraulic head increase by matching hydraulic flow lines and by providing smooth transition angles.
14. In the development of any subdivision or ponding area, the developer and/or property owner is responsible for the removal of all significant vegetation (trees, stumps, brush, debris, etc.) from any and all areas which would be inundated by the designated controlled NWL of any required ponding easement as well as the removal of all dead trees, vegetation, or other items to the HWL of the pond.

15. Outlet control structures from ponding areas are required as directed by the City. Location and appearance of outlet structures shall be subject to City approval and may require landscape screening.
16. Sump manholes with three-foot sumps shall be constructed as the last structure which is road accessible prior to discharge to any waterbody.
17. Inlets should be placed and located to eliminate overland flow in excess of 1,000 feet on minor streets, or a combination of minor streets and swales, and 600 feet on collector streets and arterials. Additionally, inlets should be located such that 3 cfs is the maximum flow at the inlet for the 10-year design storm.
18. Refer to **Section 4.4.2.1** for standards for energy dissipation and protection of channels.

5. IMPLEMENTATION PROGRAM

5.1. Implementation Program Components

Table 5.2 contains a comprehensive list of the MS4 activities and projects, programs, and studies that make up the City of West St. Paul's implementation program for the next 10 years (2018 through 2027. The City developed this program by evaluating the requirements in the MS4 permit (see MS4 SWPPP Application for Reauthorization in **Appendix F**), reviewing existing information (**Section 2**), developing goals and policies (**Section 3)**, identifying potential and existing problems (**Section 4**), and then assessing the need for programs, studies or projects. The City estimated total costs, identified possible funding sources, and developed an approximate schedule to complete the implementation activities. It is anticipated these tables will be updated/revised on a yearly basis.

5.2. Implementation Priorities

The implementation components listed in **Table 5.2** were prioritized to make the best use of available local funding, meet MS4 Permit requirements, address existing water management problems, and prevent future water management problems from occurring. **Table 5.2** identifies which activities are MS4 Permit Requirements, MS4 Permit Requirements – within 12 months, Annual Requirements, or Capital Projects/Programs/Studies. The City's implementation plan reflects its responsibility to protect the public health, safety and general welfare of its citizens by addressing problems and issues that are specific to the City of West St. Paul.

5.3. Financial Considerations

The City plans to use funds generated from its Stormwater Utility as the primary funding mechanism for its implementation program including maintenance, repairs, capital projects, and studies. If funds from this utility fee do not cover necessary costs, the City will consider adjusting the Stormwater Utility Fee as well as using general funds to cover the costs associated with the implementation program. The City will continue to review the stormwater utility fee annually and adjust based on the stormwater related needs of the City and other available funding mechanisms.

Although not proposed at this time, the City may consider using plan implementation taxes (MN Statutes 103B.241) in the future if general funds or stormwater utility funds are not sufficient to fund the projects. The City will also take advantage of grant or loan programs to offset project costs where appropriate and cost-effective.

5.4. Plan Revision and Amendments

The City may need to revise this Plan to keep it current. The City may amend this plan at any time in response to a petition by a resident or business. Written petitions for plan amendments must be submitted to the City Administrator. The petition must state the reason for the requested amendment and provide supporting information for the City to consider the request. The City may reject the petition, delay action on the petition until the next full plan revision, or accept the petition as an urgent issue that requires immediate amendment of the plan. The City of West St. Paul may also revise/amend the plan in response to City-identified needs. This Plan is intended to be in effect for 10 years. The Plan will be revised and updated at that time, to the extent necessary.

5.5. Activities

A stormwater system is a major investment for the City of West St. Paul—both in terms of initial capital cost and in terms of ongoing maintenance costs—with meeting ongoing maintenance costs being the City's current challenge. Typically, system maintenance is funded by the City's stormwater utility and through the general fund.

The City's stormwater system maintenance responsibilities include the following:

a) Street sweeping
b) Cleaning of sump manholes and catch basins
c) Repair of catch basins and manholes
d) Assessing pipe condition (typically by televising)
e) Inspection of storm sewer inlet and outlet structures
f) Pond mowing and other vegetation maintenance
g) Excavation of accumulated sediments from ponds

The City has maintained its pipe system for decades and staff has a strong grasp on the costs associated with this. As new development and increasing requirements bring more ponds (and other BMPs) into the system, City staff will find that maintenance becomes an increasingly large portion of both staff time and maintenance budget. It is important to quantify the extent of this future commitment so that the funds necessary for pond maintenance activities can be collected via the City's stormwater utility.

Table 5.1 provides a typical maintenance schedule for wet ponds.

Table 5.1
Wet Pond Maintenance Schedule

Activity	**Schedule**
Inspect regional pond outlets for clogging.	**After significant rainfalls**
Inspect for damage. Note signs of hydrocarbon build up. Monitor for sediment accumulation in the facility and forebay. Examine to ensure that inlet and outlet devices are free of debris and operational.	Annual inspection
Repair undercut or eroded areas.	As needed
Mow slopes.	Twice annually
Remove sediments from forebay.	5 to 7 year cycle
Remove sediment accumulated in main pool.	20 to 30 year cycle

Adapted from Watershed Management Institute. 1997. Operation, Maintenance, and Management of Stormwater Management Systems.

The management of stormwater ponds is facilitated by creation of a GIS database for all stormwater system infrastructure. The City has mapped all storm sewers in the City as well as all ponds, outfalls, sediment basins, and structural pollution control devices which require inspection for the MS4 Permit. This infrastructure is shown in **Figure 5, Appendix A**. Ultimately, through its stormwater management database the City could reference its maintenance records, videotapes, and maintenance costs for the stormwater system.

5.5.1. Stormwater Basins

Stormwater basins represent a sizable investment in the City's drainage system. General maintenance of these facilities helps ensure proper performance and reduces the need for major repairs. Periodic inspections are performed to identify possible problems in and around the basin. Inspection and maintenance cover the following:

a) Basin outlets
b) Basin inlets
c) Side slopes
d) Illicit dumping and discharges
e) Sediment buildup

Basin Outlets

A key issue with stormwater basins is ensuring that the outlets perform at design capacity. Inspection and maintenance of basin outlets address the following:

a) The area around outlets is kept free and clear of debris, litter, and heavy vegetation.
b) Trash guards are installed and maintained over all outlets to prevent clogging of the downstream storm sewer.
c) Trash guards are inspected at least once a year, typically in the spring, to remove debris that may clog the outlet. Problem areas are addressed more frequently, as required.
d) Emergency overflow outlets are provided for all ponds when possible. These are kept clear of debris, equipment, and other materials and properly protected against erosion.

Basin Inlets

Inspection and maintenance of basin inlets address the following:

a) Inlets are inspected for erosion.
b) Where erosion occurs near an inlet, energy dissipaters or riprap are installed.
c) Inlets are inspected for sediment deposits, which can form at the inlets due to poor erosion practices upstream.
d) Where sediment deposits occur, these are removed to ensure design capacities of storm sewers entering the basin are maintained.

Side Slopes

Inspection and maintenance of basin side slopes address the following:

a) Side slopes are kept well-vegetated to prevent erosion and sediment deposition into the basin. Severe erosion alongside slopes can reduce the quality of water discharging from the basin and require dredging of sediments from the basin.
b) Noxious weeds are periodically removed from around basins.
c) Some basins in highly developed areas require mowing. If mowing is performed, a buffer strip of 20 feet or more adjacent to the normal water level is typically maintained. This provides filtration of runoff and protects wildlife habitat.

Illicit Dumping and Discharges

Inspection and maintenance of illicit dumping and discharges into basins address the following:

a) Basins are periodically inspected for evidence of illicit dumping or discharges. The most common of these is dumping of yard waste into the basin.
b) Where found, illicit material is removed, and signs are posted as needed prohibiting the dumping of yard waste.
c) Water surfaces are inspected for oil sheens. These can be present where waste motor oil is dumped into upstream storm sewers.
d) Skimmer structures are installed as needed at outlet structures to prevent oil spills and other floatable material from being carried downstream.
e) Skimmer structures are periodically inspected for damage, particularly from freeze-thaw cycles.

Sediment Buildup

Inspection and maintenance of sediment buildup in basins address the following:

a) Basins are inspected to determine if sediment buildup is causing significant loss of storage capacity from design levels. Excessive sediment buildup significantly reduces the stormwater treatment efficiency of water quality ponds.
b) Sediment removal is performed where excessive sediment buildup has occurred. As a general guideline, ponds require dredging every 15 to 20 years. When effective forebays are provided, these may require more frequent cleaning (approximately five to seven-year cycles) but would tend to produce less material and would extend the maintenance cycle of ponds to as much as 30 years.

5.5.2. Sump Manholes and Sump Catch Basins

Sump manholes and sump catch basins are included in storm sewer systems to collect sediments before they are transported to downstream waterbodies. These structures keep sediments from degrading downstream waterbodies. Once sediments are transported to a lake or pond, they become much more expensive to remove.

Sediments originate primarily from road sanding operations, although construction activity and erosion can also contribute. Since these structures are designed to collect these sediments, they are routinely cleaned to provide capacity for future sedimentation. Suction vacuum equipment is typically used.

5.5.3. Storm Sewer Inlet Structures

To fully utilize storm sewer capacity, inlet structures are kept operational to get runoff into the system. All efforts are made to keep catch basins and inlet flared ends free of debris and sediments so as not to restrict inflow and cause flood damage. Leaf and lawn litter are the most frequent cause of inlet obstructions. On a routine basis, City staff visually inspects inlet structures to ensure they are operational.

5.5.4. Open Channels and Ravines

Overland flow routes constitute an important part of the surface water drainage system. Open channels are typically vegetated and occasionally lined with more substantial materials. The lined channels typically require little or no maintenance. Vegetated channels are periodically inspected and maintained, as high flows can create erosion within the channel.

Eroded channels can contribute to water quality problems in downstream waterbodies as the soil is continually swept away. If not maintained, the erosion of open channels would accelerate, and the repair would become increasingly costlier. The erosion of channels is accelerated when these are at steep gradients and are used for conveying urban stormwater.

5.5.5. Piping System

The storm sewer piping system constitutes a multimillion-dollar investment for the City. The City performs a comprehensive maintenance program to maximize the life of the facilities and optimize capital expenditures. The following periodic inspection and maintenance procedures are followed:

a) Catch basin and manhole castings are inspected and are cleaned and replaced as necessary.
b) Catch basin and manhole rings are inspected and are replaced and/or re-grouted as necessary.
c) Catch basin and manhole structures are inspected and are repaired or replaced as needed. Pipe inverts, benches, steps (verifying integrity for safety), and walls are checked. Cracked, deteriorated, and spalled areas are grouted, patched, or replaced.
d) Storm sewer piping is inspected either manually or by televising to assess pipe condition. Items looked for include root damage, deteriorated joints, leaky joints, excessive spalling, and sediment buildup. The piping system is programmed for cleaning, repair, or replacement as needed to ensure the integrity of the system.

5.5.6. De-Icing Practices

Minnesota receives approximately 54 inches of snow during a typical year. This requires a large amount of de-icing chemicals (primarily salt) to be applied to roads and sidewalks each winter.

Estimates indicate that 80 percent of the environmental damage caused from de-icing chemicals is a result of inadequate storage of the material (MPCA 1989). Improper storage as well as overuse of salt increases the risk of high chloride concentrations in runoff and groundwater. High chloride concentrations can be toxic to fish, wildlife, and vegetation.

The following procedures are used for storing de-icing chemicals in the City.

a) De-icing material is stored in waterproof sheds. When and where this is not possible, stockpiles are covered with polyethylene and placed on impervious surfaces.
b) Road de-icing stockpiles are not located near municipal well areas or in other sensitive groundwater areas.
c) Runoff from stockpiles is not allowed to flow directly into streams or wetlands where environmental damage can occur.

West St. Paul has established a detailed “snow and ice removal policy” to address winter maintenance needs. Street conditions are assessed for each individual event and ice control material application is adjusted accordingly. Equipment is maintained in good working order to place ice control material on roadways and is properly calibrated to prevent excessive application.

5.5.7. Street Sweeping

Street sweeping is an integral part of the City’s effective surface water management system. It greatly reduces the volume of sediments that have to be cleaned out of sump structures and downstream waterbodies. The City sweeps all streets twice each year (spring and fall). Spring sweeping begins either late March or early April after the risk of later snowfall has passed and targets sand left from winter sanding operations.

Fall sweeping occurs after leaf fall. West St. Paul does not allow residents to rake leaves into the street for municipal pick up. Dakota County and the City encourage residents toward composting their yard waste.

If residents desire to have yard waste removed by their private hauler, then compostable bags or reusable containers are required. Alternately, there are composting sites within Dakota County where yard waste can be brought for a fee. Overall the City’s approach to minimizing organic matter entering its stormwater system greatly reduces the incidence of inlet blockages and protects the water quality of downstream waterbodies.

The objective of the City's street sweeping and de-icing programs is to minimize impacts from leaf litter, sand, salt and other debris on the surface waters of the City.

5.5.8. Detection of Illicit Connections

As presented in **Section 3**, West St. Paul will modify its ordinance to prohibit the dumping of hazardous material into the stormwater system. During routine inspection for inlet grates, outfalls, and other portions of the stormwater system, City staff also looks for evidence of illicit discharge, dry weather flow (indicating possible sanitary sewer connections), sedimentation and other non-point source pollution problems.

The City has mapped its storm sewer outfalls and has started the process of integrating this mapping with inspection data. This effort will be concurrent with the overall storm sewer mapping effort required by the City's NPDES permit.

5.6. Education

5.6.1. General

Education can play an important role in any effort to implement a stormwater management program like the one outlined in this LSWMP. The objectives of an education effort are different, depending on the target audience. In general, the target audience for this education program is City staff, City residents, and the development community. The following sections describe why education of each of these groups is important and presents educational methods that may be used for each audience.

5.6.2. City Staff

City staff have a wide range of responsibilities for implementing this plan. These include:

a) Implementing street sweeping and spill response programs.
b) Maintaining detention basin/stormwater management pond performance and system operability.
c) Planning for and management of projects to enhance pollutant removal performance, wetland quality, among other tasks.
d) Carrying out grounds maintenance of City-owned lands/facilities in a way that sets a good example for residents.
e) Using BMPs in application of ice control material.
f) Application of BMP policies and regulations to new and redevelopment projects.
g) Planning and delivering education programs.
h) Working out cooperative arrangements with regulatory and non-regulatory organizations to achieve LSWMP objectives.
i) Assisting the City Council in the application of the LSWMP policies.

Because these responsibilities involve many different levels of City staff, City staff members are trained to have a basic understanding of the LSWMP, including:

a) A description of the major stormwater management issues (including known stormwater management problem areas, stormwater management expectations for new and re-development projects, and incorporation of stormwater mitigation into capital improvement projects, and regulatory jurisdictions).
b) The objectives of the LSWMP and the general approach outlined in the LSWMP for resolution of these issues.

c) The responsibilities of the different work units in implementing the LSWMP.
d) The information the LSWMP provides.
e) Identification of in-house experts.

This information is disseminated in presentations at staff meetings, coverage in internal newsletters, and issuance of internal memos.

As part of the LSWMP effort, staff will also be trained in using the City's stormwater management model.

5.6.3. City Residents

To obtain the necessary political and economic support for successful LSWMP implementation, it is vital to inform City residents about basic stormwater management and water quality concepts, policies and recommendations in the LSWMP, and the progress of stormwater management efforts.

Through its quarterly newsletter the City keeps residents informed of stormwater and other environmental issues particularly regarding volunteer opportunities, proper lawn care practices, and recycling and hazardous waste management information. The City website is a clearing house for information on stormwater management and will be updated to provide stormwater management articles and contact numbers for reporting illicit discharges and other stormwater related complaints.

As the City incorporates innovative stormwater management practices into both municipal and private development projects, it will use these projects to highlight the benefit of certain stormwater management practices. It is important that residents know about these projects (including how they were funded) so that they develop an awareness that the City is being responsive to the public interest in protecting high priority resources and that dedicated financial resources such as revenue from the stormwater utility are being put to good use.

5.6.4. Developers

The LSWMP is designed to provide the official policy direction that City staff and the City Council desire to guide stormwater mitigation for new and redevelopment projects. New construction in West St. Paul is limited since there is basically no land left to develop. Redevelopment, though, will likely occur on a regular basis.

The information contained within this plan is disseminated to developers and their consulting engineers as early as possible in the development review process. In this way, developers know what is expected of them and can consider the requirements in their initial assessments of the site as well as incorporate the necessary BMPs in any subsequent designs. Much of the necessary information is disseminated to the developers in an information packet in the development submittal information they receive from the City.

While dissemination of information is valuable, there is no substitute for a meeting between key City staff and the developer as early as possible in the review process. This helps define expectations for submittals, clarify regulatory compliance issues, and provide additional detailed guidance. Developers are encouraged to do this as soon as possible after they have reviewed the LSWMP information and thought about how it applies to their site.

5.7. The Stormwater Utility

The City of West St. Paul implemented a stormwater utility fee on February 1, 2006. The current quarterly residential charge is $11.00 per residential unit and $3.67 for commercial properties. The fund is used on any stormwater maintenance and any project where stormwater related work is being done. The City will need to annually review the charge rate, especially as the City's maintenance and permit preparation responsibilities continue to grow.

5.8. Ordinance Implementation

Through the MS4 process, the City will review its Erosion and Sediment Control Ordinance, Illicit Discharge Ordinance, and Stormwater Management Ordinance to see if modifications to these are warranted. Section 153.365 of the Zoning Ordinance defines when grading permits are required. Otherwise sections 153.472 and 153.473 of the Zoning Ordinance include requirements for stormwater management and erosion control.

The illicit discharge ordinance is intended to prohibit the following:

a) Illicit connections from the sanitary sewer to the storm sewer
b) Dumping of listed chemicals into the stormwater system
c) Illegal dumping

Illegal dumping is already covered under the City's Public Nuisances Section (Chapter 94). The illicit discharge ordinance can be found under City Code Section 50.09 Storm Water Illicit Discharge and Illicit Connection.

Ordinance implementation items include a review of the stormwater management ordinance and its, illicit discharge ordinance, and erosion and sediment control provisions ordinance. Ordinance implementation also includes a comprehensive wetland ordinance though this may be folded into a revised stormwater management ordinance if a revised ordinance is deemed necessary.

Review of Section 153.413 of the Zoning Ordinance, the City's Shoreland Ordinance, is not proposed in the Implementation Plan.

5.9. Watershed Implementation Priorities

The LMRWMO has named the City of West St. Paul as a responsible party for three projects in their current plan: stormwater improvements and PAH remediation at Thompson Lake, erosion control at Cherokee Heights, and installation of a lift station at Seidl's Lake. All three projects appear in **Table 5.2** with an estimated budget and year of completion.

5.10. Amendment Procedures

The West St. Paul LSWMP is intended to extend through the year 2027. For the plan to remain dynamic, an avenue must be available to implement new information, ideas, methods, standards, management practices and any other changes that may affect the intent and/or results of the LSWMP. The amendment procedure for the LSWMP is presented below.

5.10.1. Request for Amendment

Written request for plan amendment is submitted to City staff. The request shall outline the need for the amendment as well as additional materials that the City will need to consider before making its decision. The amendment process may also be initiated by staff and, in fact, this is the more common method.

5.10.2. Staff Review of Amendment

A decision is made as to the validity of the request. Three options exist:

1) Reject the amendment,
2) Accept the amendment as a minor issue, with minor issues collectively added to the plan at a later date, or
3) Accept the amendment as a major issue, with major issues requiring an immediate amendment.

In acting on an amendment request, City staff shall recommend to City Council whether or not a public hearing is warranted. Major amendments to the Plan will have to be submitted to the watersheds for review and approval prior to formal action by the council. Minor amendments should also be submitted for review and to determine compatibility with watershed plans.

5.10.3. Council Consideration

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

5.10.4. Public Hearing and Council

This step allows for public input based on public interest. Council shall determine when the public hearing should occur in the process. Based on the public hearing, the City Council could approve the amendment.

5.10.5. Council Adoption

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

5.11. Annual Report to Council

A brief annual report will be made by City staff summarizing development changes, capital improvements, and other water management-related issues that have occurred over the past year. The review will also include an update on available funding sources for water resource issues. Grant programs are especially important to review since they may change annually. These changes do not necessarily require individual amendments. The report can, however, be considered when the plan is brought up to date. The annual report should be completed by July 1 to allow implementation items to be considered in the normal budget process.

The City's LSWMP will remain in effect through 2027. The City will then review the LSWMP for consistency with current water resource management methods. At that time, all annual reports and past amendments will be added to the document. Depending on the significance of changes, a new printing of the LSWMP may be appropriate.

TABLE 5.2

LOCAL WATER MANAGEMENT IMPLEMENTATION PLAN

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
1	Construction Site Stormwater Runoff Control - Update construction site stormwater runoff control regulatory mechanism to be at least as stringent as the MPCA NPDES Stormwater Construction Activity Permit. This effort will be completed within 12 months of the date permit coverage is extended. For all ordinances, a draft will be completed within nine months after the date permit coverage is extended to allow for adequate time for the City's administrative process to promulgate an amended ordinance.	✓	✓			$7,000	Stormwater Utility & Developers Agreement	$3,500					$3,500					See SWPPP Application for Reauthorization (Appendix F)
2	Stormwater Management - Amend current post-construction ordinance to include necessary language to be in compliance with MS4 requirements. Ordinance to be completed within 12 months of the date permit coverage is extended. For all ordinances, a draft will be completed within nine months after the date permit coverage is extended to allow for adequate time for the City's administrative process to promulgate an amended ordinance.	✓	✓			$7,000	Stormwater Utility	$3,500					$3,500					See SWPPP Application for Reauthorization (Appendix F)
3	Storm Sewer System Map and Inventory - City will review and update maps to ensure all structural BMP's have been identified and that each has a unique identifier and geographic coordinates. Inventory and mapping will be completed, and the completed inventory will be sent to the MPCA MS4 Permit Program within 12 months of the date permit coverage is extended.	✓	✓			$7,000	Stormwater Utility	$3,500					$3,500					See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
4	Education Activity Implementation Plan - Complete outline of education activity implementation program and implementation schedule for the upcoming permit year. Include procedures to meet requirements for the following stormwater educational programs: -Website (update to include new permit requirements) -Newsletter (completed quarterly - includes three articles on stormwater) -Brochure (Annual distribution to all households and available at City Hall.) -Storm Drain Stenciling (Stencil at least 30 drains per year.)	✓		✓		$12,000	Stormwater Utility	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	$1,200	See SWPPP Application for Reauthorization (Appendix F)
5	Annual SWPPP Assessment & Annual Reporting City staff will conduct an annual SWPPP assessment in preparation of each annual report. Proposed SWPPP modifications are subject to Part II.G of the MS4 permit. The final annual report will be posted on the City's webpage. City staff will submit the annual report to the MPCA prior to June 30th for the previous calendar year.	✓		✓		$20,000	Stormwater Utility	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	See SWPPP Application for Reauthorization (Appendix F)
6	Annual Public Meeting/Event Present the draft MS4 annual report to one public event per year to solicit public input regarding the adequacy of the City's SWPPP. The City will develop documentation procedures for Public input received that are in compliance with the new permit within 12 months of the date permit coverage is extended. Public comment (oral and written) will be recorded in a record of decision and evaluated by the City's MS4 General Contact. City responses (if relevant) will be made in writing to each commenter. Hold one event per calendar year of the MS4 permit cycle.	✓		✓		$10,000	Stormwater Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	See SWPPP Application for Reauthorization (Appendix F)
7	Online Availability of the Stormwater Pollution Prevent Plan (SWPPP) Program Document - The City will make the SWPPP and 2013 annual report available on the Water Resources webpage within 12 months from the date the MS4 permit coverage is extended to the City.	✓	✓	✓		$5,000	Stormwater Utility	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
8	IDDE Regulatory Mechanisms - The City will review and update IDDE regulatory mechanisms, tracking programs, and spill response procedures to meet new requirements of the MS4 general permit. This effort will be completed within 12 months of the date permit coverage is extended.	✓	✓			$10,000	Stormwater Utility	$5,000					$5,000					See SWPPP Application for Reauthorization (Appendix F)
9	ERP Regulations - The City will develop ERPs to comply with the new MS4 permit. A final draft will be presented to City staff for review within nine months of the date permit coverage is extended.	✓	✓			8,000	Stormwater Utility	$4,000					$4,000					See SWPPP Application for Reauthorization (Appendix F)
10	Employee Training - Continue to host a minimum of one staff training event per year to discuss illicit discharge recognition and reporting. City staff will develop an annual training schedule, record the employee names, topics covered, and date of each event, annually through the end of the MS4 permit cycle.	✓	✓	✓		$15,000	Stormwater Utility	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	See SWPPP Application for Reauthorization (Appendix F)
11	City Erosion Control Permit - Continue to implement as defined by City Code Section 40.1 Storm Water Management through the MS4 Permit cycle.	✓		✓		$75,000	Stormwater Utility & Developers Agreement	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	See SWPPP Application for Reauthorization (Appendix F)
12	Develop Construction Site Inspection Checklist - The City will develop a construction site inspection program that meets the requirements of the new MS4 general permit. This will include developing records retention procedures. Staff will use the next nine months to prepare and implement all required changes to the program to meet the new permit requirements.	✓	✓			$4,000	Stormwater Utility	$2,000					$2,000					See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
13	Post Construction Stormwater Management - The City will develop a process and procedure to comply with the new permit requirements for post construction. This will include updating their site plan checklist, process for written procedure for documenting any post-construction mitigation, a process for documenting payments in lieu of on-site, post construction, structural BMP's necessary for permit compliance, and create draft language that will be included in all development contracts that have private stormwater structures. The initial process will be developed over the first 6 months with the final edits and adoption expected to take the an additional 6 months. All work will be completed within 12 months of the date MS4 coverage is extended.	✓	✓			6,000	Stormwater Utility	$3,000					$3,000					See SWPPP Application for Reauthorization (Appendix F)
14	Develop Priority Site Inspection Procedures - Develop internal procedures to ensure at least 20% of inspections conducted annually are performed at deemed high priority sites for inspections in 2014.	✓	✓			$5,000	Stormwater Utility	$2,500					$2,500					See SWPPP Application for Reauthorization (Appendix F)
15	City Stormwater Management Permits - The City will continue to review land disturbance activities and issue stormwater permits.	✓		✓		$75,000	Storm Water Utility & Developer's Agreement	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	$7,500	See SWPPP Application for Reauthorization (Appendix F)
16	Street Sweeping - The City will continue to conduct street sweeping operations of all public streets a minimum of twice annually (record the sweeping route and date per occurrence). Review and revise (as needed) street sweeping operations (including schedule, equipment, and disposal), stormwater quality priority areas, and routes annually through the end of the MS4 permit cycle.	✓		✓		$450,000	Storm Water Utility	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000	See SWPPP Application for Reauthorization (Appendix F)
17	Structural Stormwater BMP Inspections - Continue to inspect 100% of all SPCD's each year of the MS4 permit cycle.	✓	✓	✓		$25,000	Storm Water Utility	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
18	Inspect MS4 Outfalls and Ponds - Continue to inspect 20% of all MS4 outfalls each year, until 100% of all MS4 Outfalls and Ponds have been inspected within the MS4 permit cycle.	✓		✓		$30,000	Storm Water Utility	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	See SWPPP Application for Reauthorization (Appendix F)
19	Review Inspection Reports - Annually, review all pond, outfall, and SPCD inspection records to determine if maintenance, repair, or replacement is needed. Include a description of the findings and any maintenance, repair, or replacement as a result of the inspection findings. Evaluate each SPCD's inspection frequency and adjust as needed per MS4 Permit Part III.D.6.e(1.). Evaluate and update inspection records annually through the end of the MS4 permit cycle.	✓	✓	✓		$15,000	Storm Water Utility	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	See SWPPP Application for Reauthorization (Appendix F)
20	Employee Training - Continue to host a minimum of one staff training event per year to discuss stormwater related topics. City staff will develop an annual training schedule, record the employee names, topics covered, and date of each event, annually through the end of the MS4 permit cycle.	✓	✓	✓		$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	See SWPPP Application for Reauthorization (Appendix F)
21	Pond Sediment Excavation and Removal Projects - The City will develop a reporting component for pond sediment removal projects within 12 months from the date MS4 permit coverage is extended to the City. Reporting will consists of documenting the date, pond ID, project limits/construction plans, volume of sediment removed, test results (if any), and disposal location. Annual reporting will be completed.	✓	✓	✓		$20,000	Storm Water Utility	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	See SWPPP Application for Reauthorization (Appendix F)
22	Stockpiles, Storage and Material Handling Area Inspections - Conduct quarterly written inspections of all stockpile, storage and material handling areas (per the 2014 facility inventory), through the end of the MS4 permit cycle.	✓	✓	✓		$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	See SWPPP Application for Reauthorization (Appendix F)

No.	Project Description	MS4 Permit Requirement	Initial 12 Month Requirement	Annual Requirement	Projects, Programs, & Studies	10 Year Cost Estimate[1]	Possible Funding Sources [3]	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
23	Pond Cleaning - Surveying and cleaning out existing stormwater ponds.				✓	$150,000	Storm Water Utility	$150,000										
24	Drainage Improvements - Drainage improvements associated with City street reconstruction projects.			✓		$2,280,000	Storm Water Utility, Capital Improvement Fund	$180,000	$300,000	$300,000	$300,000	$300,000	$180,000	$180,000	$180,000	$180,000	$180,000	
25	Ponding Assessments - The City is assessing methods for determining TSS and TP treatment effectiveness of City-owned ponds used for stormwater treatment. A schedule will be implemented in year 2-5.	✓	✓		✓	$10,000	Storm Water Utility	$10,000										See SWPPP Application for Reauthorization (Appendix F)
26	Thompson Lake Pond Improvements and Sediment Removal - Install stormwater pond to treat stormwater into Thompson Lake, sediment removal, and habitat improvements consistent with feasibility study findings. Joint venture with Dakota County, will require DNR permit.				✓	$2,000,000	Dakota County, Stormwater Utility	$200,000										
27	Seidl's Lake Lift Station and Improvements - Provide an outlet for Seidl's Lake, install water quality improvements and erosion protection to address issues caused by inconsistent water levels.				✓	$800,000	LMRWMO, South St. Paul, Inver Grove Heights, West St. Paul (Storm Water Utility)		$125,000									
28	Cherokee Heights Stormwater Improvements - alleviate high flow rate and velocities which have caused erosion problems around culvert around Cherokee Heights Boulevard.				✓	$1,000,000	Mendota Heights, Storm Water Utility		$207,000									
	TOTAL					$7,033,000		$644,200	$709,200	$377,200	$377,200	$377,200	$284,200	$257,200	$257,200	$257,200	$257,200	

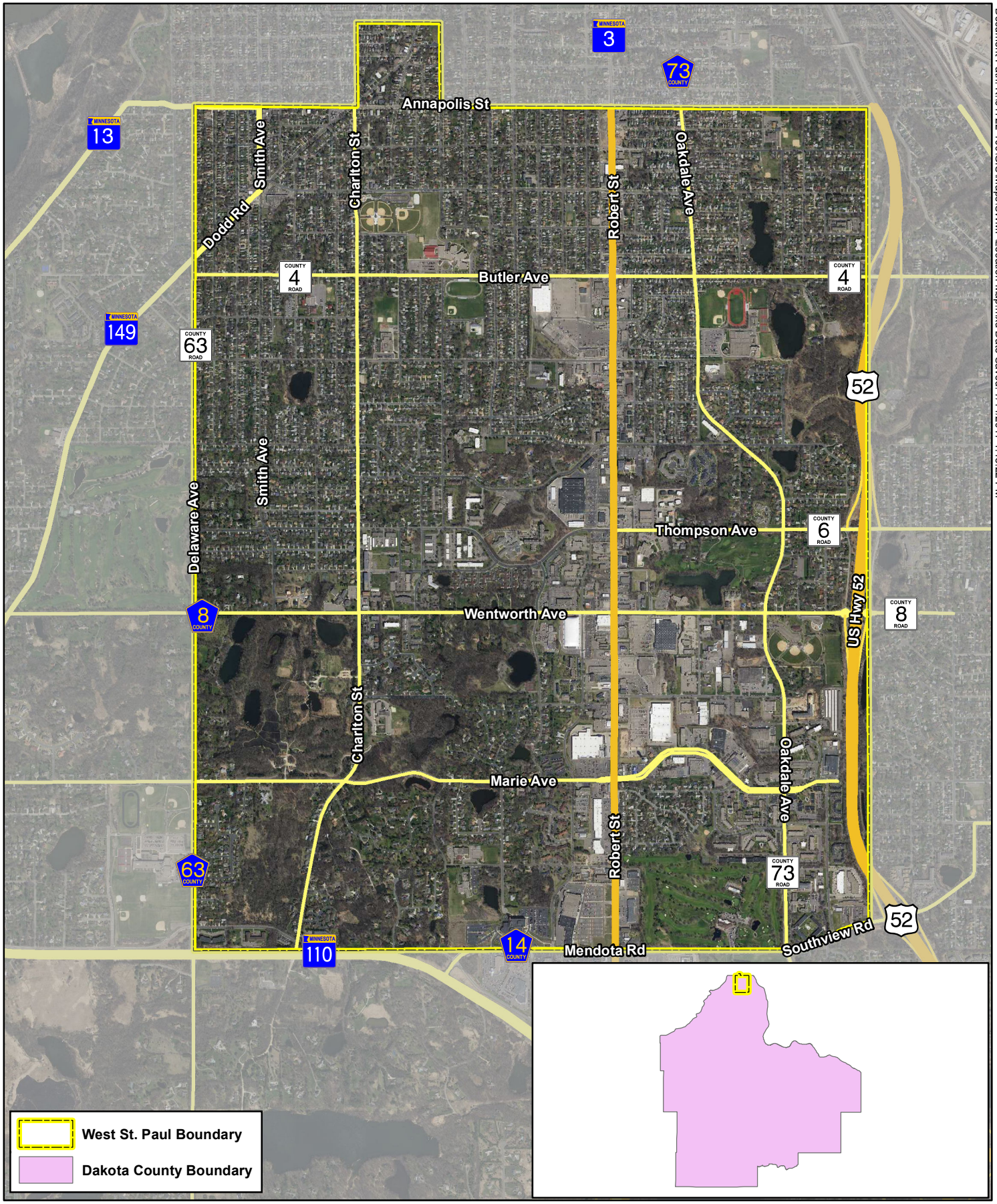
[1] Cost estimates are preliminary and subject to review and revision as engineer's reports are completed and more information becomes available. Table reflects 2017 costs and do not account for inflation. Costs generally include labor, equipment, materials, and all other costs necessary to complete each activity. For City completed activities, staff time is included in the cost. Some of the costs outlined above may be included in other operational costs budgeted by the City.

[2] 10 Year cost projections are based upon 2 MS4 Permit Cycles with year 1 program updates occurring again in 2023

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

APPENDIX

Appendix A - Figures



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West St. Paul Surface Water Management Plan

Figure 1
Location Map

N

0 1,800 Feet

1 inch = 2,000 feet

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Annapolis St
Smith Ave
Dodd Rd
Delaware Ave
Robert St
Oakdale Ave
US Hwy 52
Mendota Rd
Robert Tr S
Southview Rd
COUNTY 4 ROAD
COUNTY 8 ROAD
COUNTY 14 ROAD
COUNTY 73 ROAD
52

Existing Land Use

- Single Family Detached
- Single Family Attached
- Multifamily
- Retail and Other Commercial
- Office
- Mixed Use Residential
- Mixed Use Industrial
- Mixed Use Commercial and Other
- Industrial and Utility
- Institutional
- Park, Recreational or Preserve
- Golf Course
- Major Highway
- Undeveloped
- Water
- West St. Paul Boundary

West St. Paul Surface Water Management Plan
Figure 2
Existing Land Use

N

0 1,200 Feet
1 inch = 1,200 feet

WSB

Annapolis St
Smith Ave
Dodd Rd
COUNTY 4 ROAD
COUNTY 4 ROAD
52
Delaware Ave
Robert St
Oakdale Ave
US Hwy 52
COUNTY 8 ROAD
COUNTY 8 ROAD
COUNTY 73 ROAD
COUNTY 14 ROAD
Mendota Rd
Robert St S
Southview Rd
52

2040 Planned Land Use

- Rural Residential
- Large Lot Residential, Undifferented
- Single Family, Detached Residential
- Single Family, Detached and Attached Residential
- Single Family, Attached Residential
- Single Family, Attached and Multifamily Residential
- Multifamily Residential
- Commercial, Retail or Undifferentiated
- Regional Commercial
- Office, Undifferentiated
- Industrial, Undifferentiated
- Institutional, Undifferentiated
- Religious
- Educational
- Governmental
- Health
- Residential or Other Use
- Community Park and Recreation
- Golf Course
- Open Space: Passive
- Open Space: Restrictive
- Vehicular Rights-of-Way
- Railway Corridor
- Airport
- Open Water
- **West St. Paul Boundary**

West St. Paul Surface Water Management Plan

Figure 3

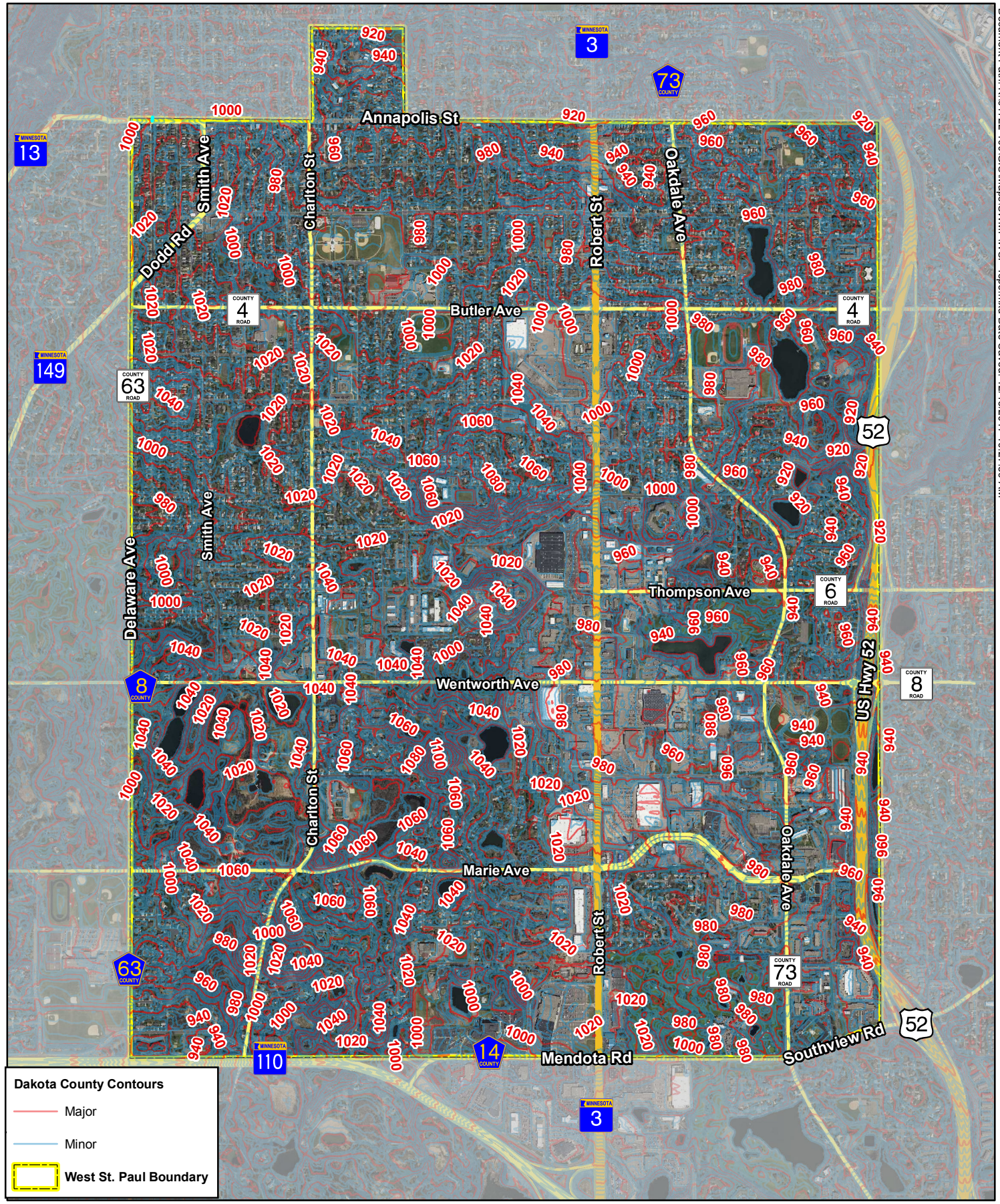
Future Land Use - MetCouncil 2040 Plan

N

0 1,200 Feet

1 inch = 1,200 feet

WSB



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West St. Paul Surface Water Management Plan

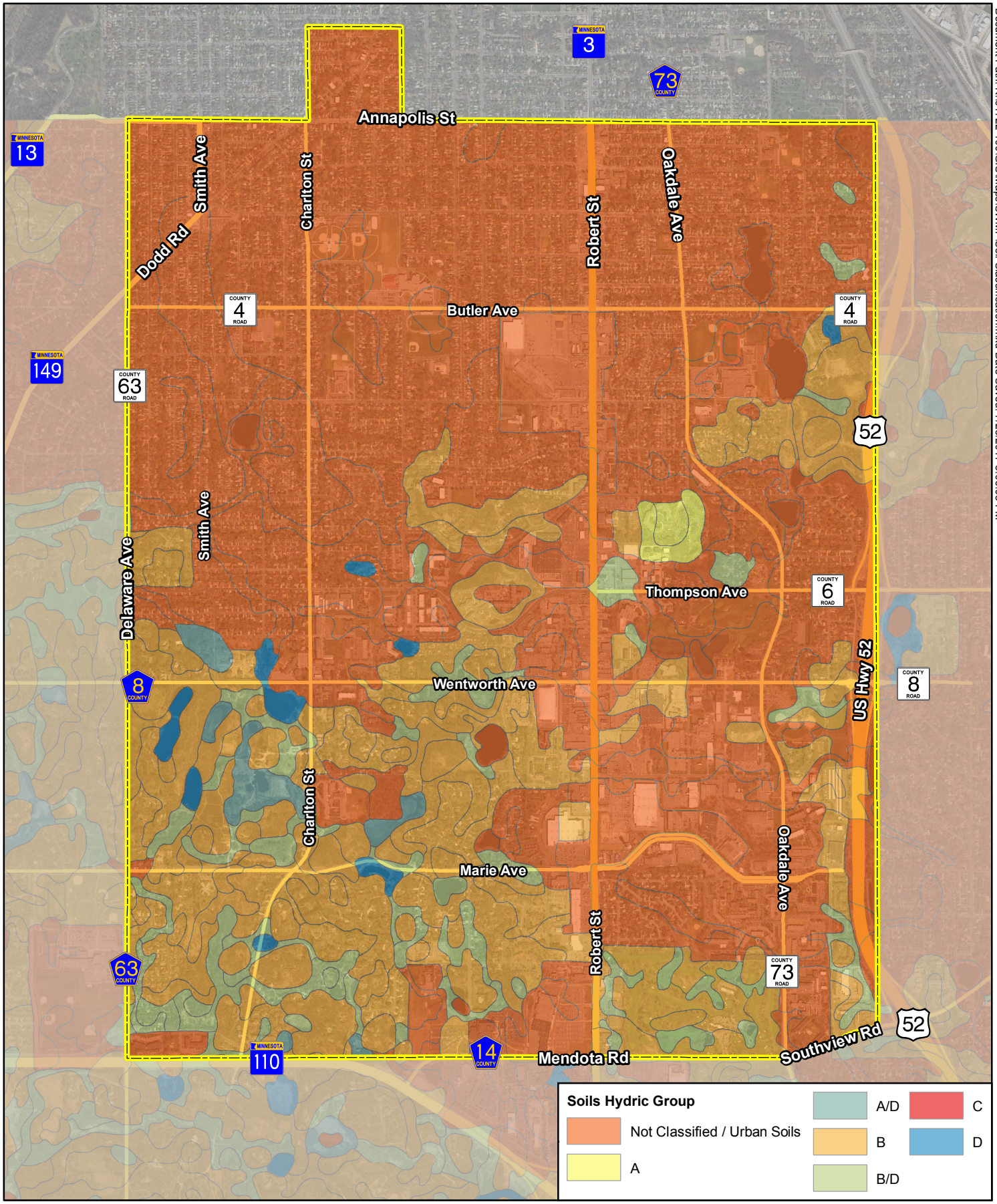
Figure 4
Topography

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



West St. Paul Surface Water Management Plan

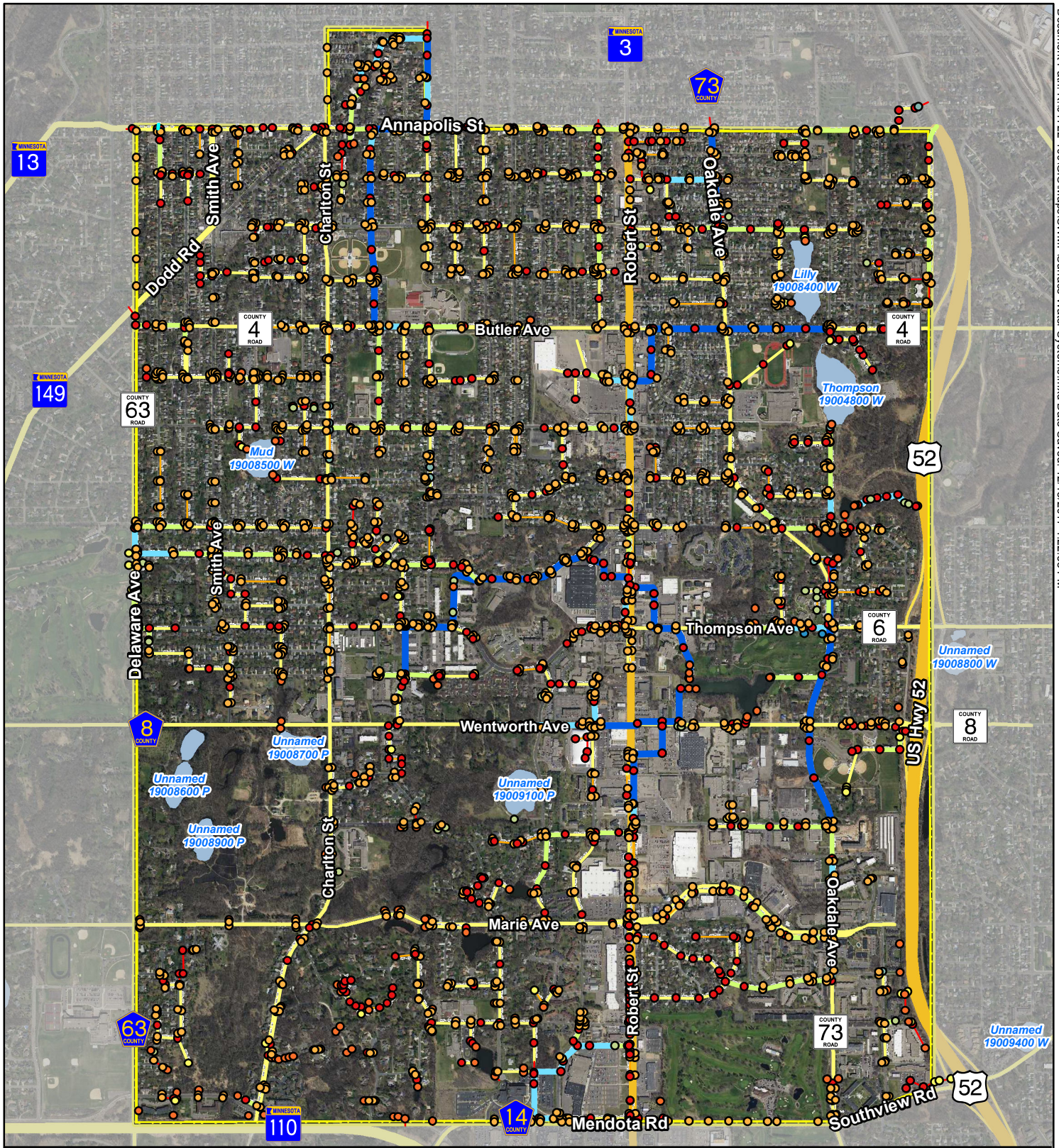
Figure 5
Soil Classification

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



Structure Type

- Catch Basin
- Culvert Opening
- Flared End
- Manhole
- Private Culvert
- Special Catch Basin
- Street Catch Basin

Pipe Diameter

- Unknown Diameter
- 12 inches or less
- 24 to 12 inches
- 36 to 24 inches
- 48 to 36 inches
- Larger than 48 inches

- MnDNR Public Waters
- **West St. Paul Boundary**

West St. Paul Surface Water Management Plan

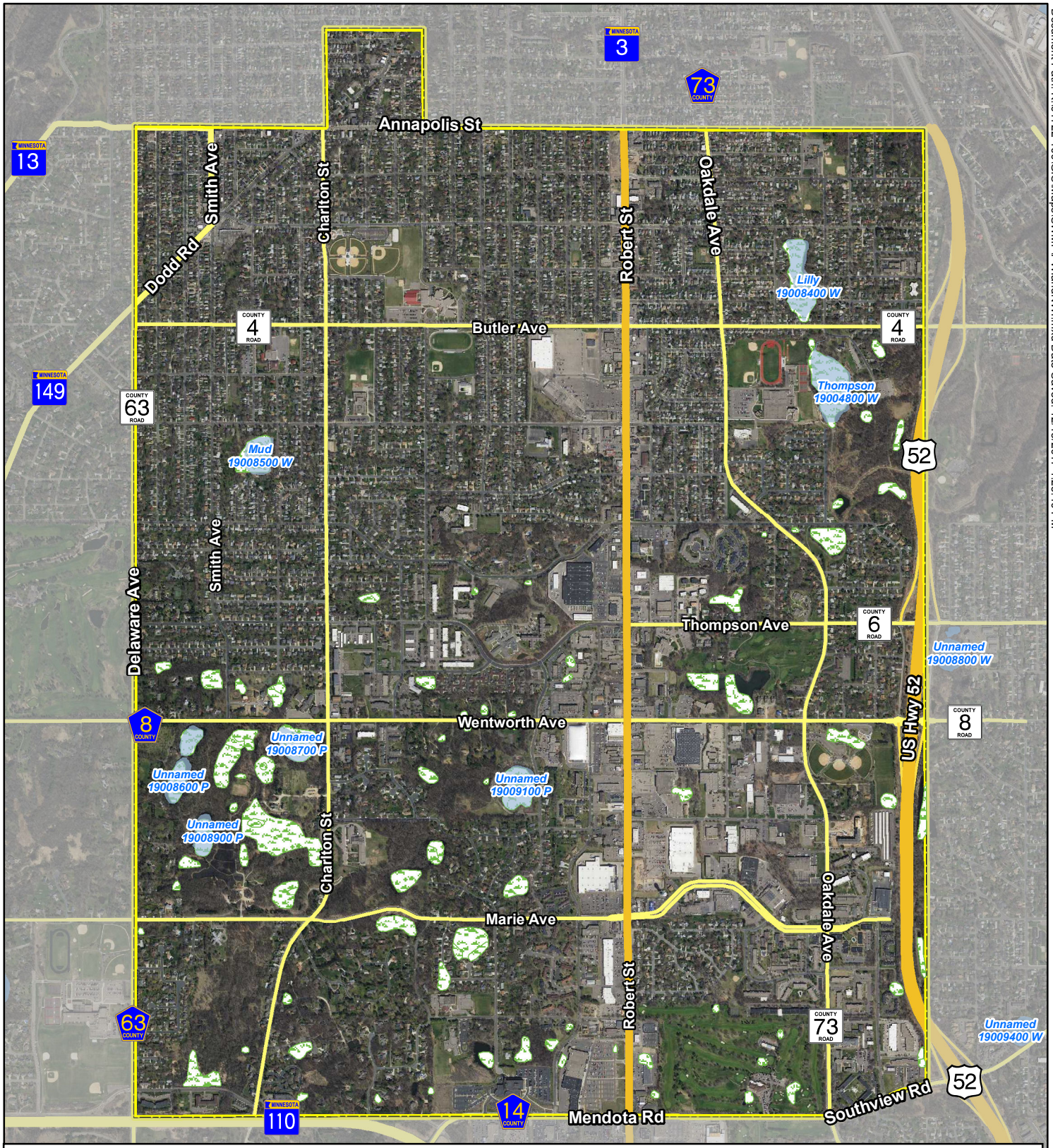
Figure 6
Surface Water Systems

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



West St. Paul Boundary

MnDNR Public Waters

NWI Wetlands

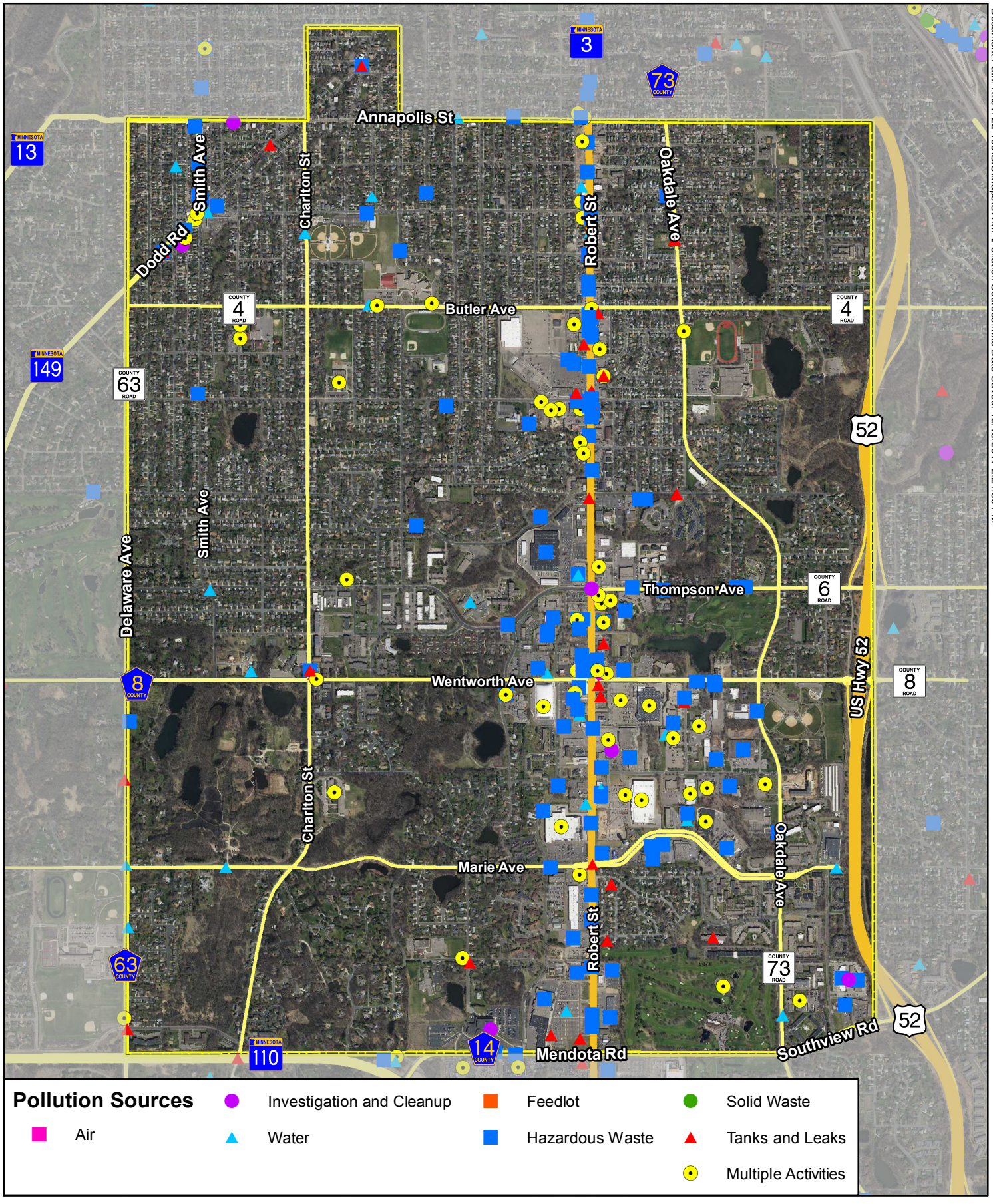
West St. Paul Surface Water Management Plan
Figure 7
National Wetlands Inventory
MNDNR Public Waters Inventory

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



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West St. Paul Surface Water Management Plan

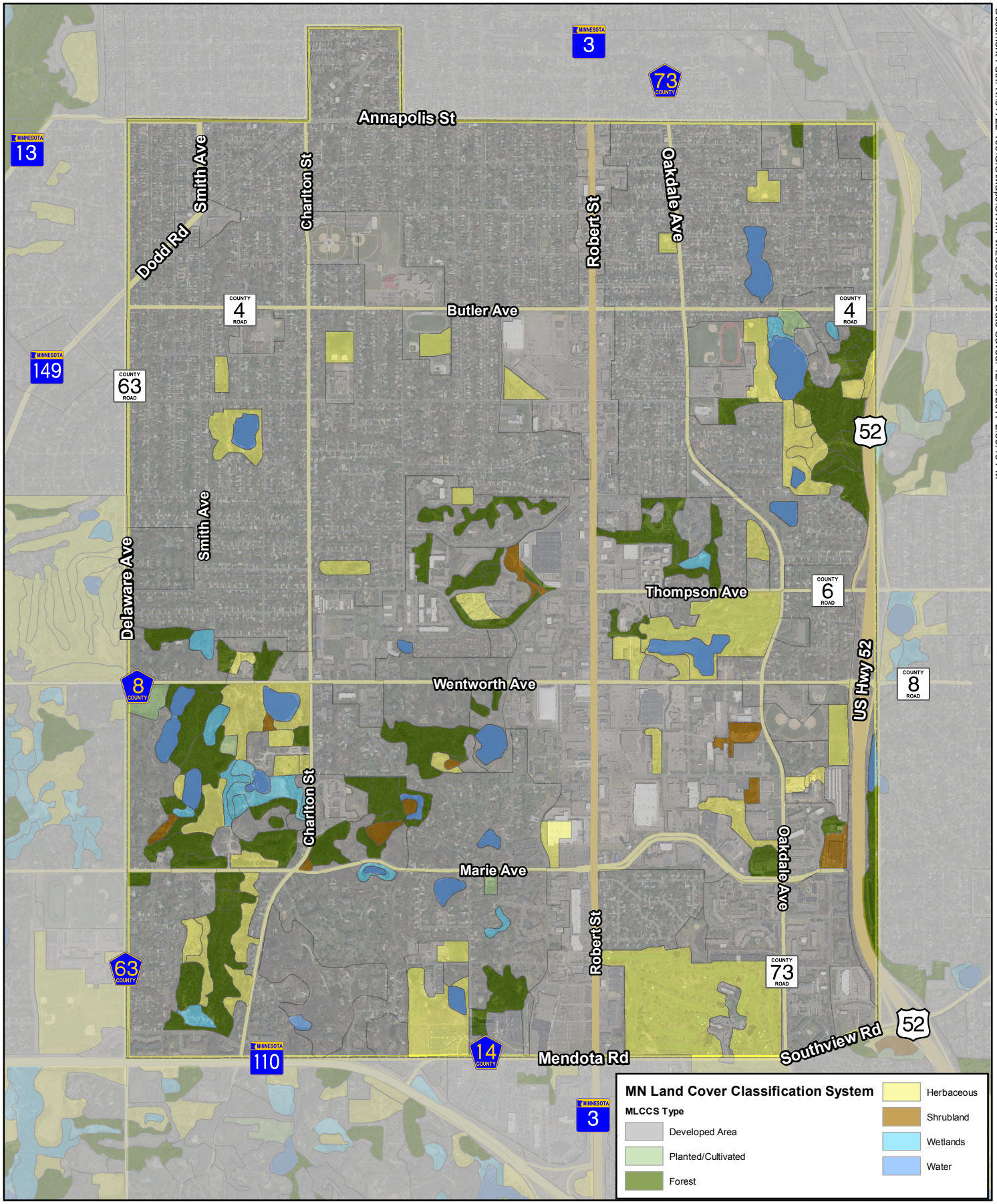
Figure 8
Pollution Sources

N

0 1,800 Feet

1 inch = 1,800 feet

WSB



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West St. Paul Surface Water Management Plan

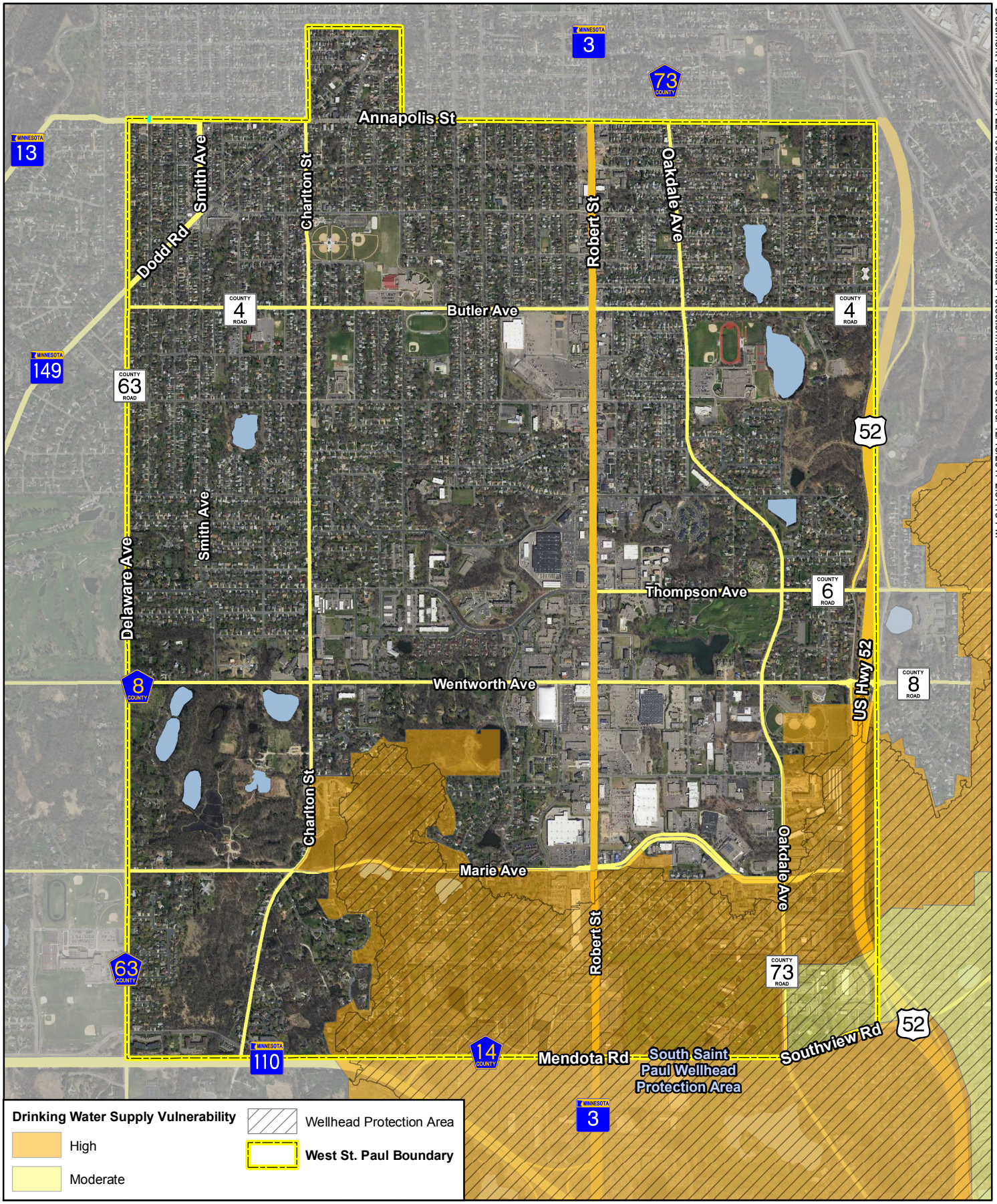
Figure 9

Minnesota Land Cover Classification System

N

0 1,800 Feet

1 inch = 1,800 feet



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West St. Paul Surface Water Management Plan
Figure 10
Wellhead Protection Areas and
Drinking Water Supply Management Areas

N

0 1,800 Feet

1 inch = 1,800 feet

WSB

APPENDIX

Appendix B – Drainage Areas

APPENDIX B
DRAINAGE AREAS

Subdistrict	Drainage Area (acre)
Pickerel Lake	
PK1C	25.2
Riverview Tunnel	
RW15C	138.0
RW19C	74.5
RW21	12.8
RW22C	118.6
RW24	22.3
RW3	32.2
RW4C	121.3
RW6C	98.5
RW7C	34.2
RW9C	66.5
Lafayette	
LF1C	44.3
LF3	39.7
Ivy Falls Creek	
IF10C	56.5
IF1A	33.0
IF1B	9.4
IF21C	74.6
IF3BC	100.5

Subdistrict	Drainage Area (acre)
Simons Ravine	
SR1	19.2
SR10	6.2
SR13	71.2
SR14C	175.9
SR15	20.1
SR18	10.8
SR19C	175.7
SR21C	47.2
SR22	58.5
SR23	5.7
SR2C	168.9
SR3	192.8
SR4	22.9
SR5C	225.1
SR6A	7.6
SR6B	10.2
SR7	11.6
SR9	4.9
Valley Creek (Marie)	
IF2C	56.6
MR11C	13.3
MR1C	56.5
MR2	16.5
MR3	13.1
MR4	5.9
MR5C	14.6
MR9C	49.6

Subdistrict	Drainage Area (acre)
Valley Creek (Delaware/110)	
D10-10	33.7
D10-17C	21.4
D10-1C	117.3
D10-24	3.6
D10-27	8.4
D10-7	7.4
Highway 110-494	
A1	33.9
A10C	64.1
A16A	6.3
A16B	14.9
A2	15.3
A21	12.9
A3C	63.5
A4	15.8
A8C	17.7
P1A	17.6
P1B	14.8
P2A	4.3
P2B	67.8
P2C	14.9
P4	7.6
T10C	17.1
T6	14.6
T7	8.4
Wentworth Street	
W1	38.0

APPENDIX

Appendix C – Pond Data and Modeling Results

APPENDIX C
POND DATA AND MODELING RESULTS

Pond Number, or Routing	Direct Drainage District	Drainage Area			2-Year Discharge Rate[1]	10-Year Discharge Rate[1]	100-Year Event[1]			Modeled NWL
		Direct	Ponded	Total			Discharge Rate	Modeled HWL	Flood Storage	
		(ac)	(ac)	(ac)	(cfs)	(cfs)	(cfs)	(ft)	acre-feet	(ft)
Pickerel Lake										
To Mississippi River via Mendota Heights	PK1C	25.2	0.0	25.2	18.9	51.9	99.7	--	--	--
Riverview Tunnel										
RW7P- Mud Lake	RW7C	34.2	0.0	34.2	0.7	2.0	3.2	1012.8	6.7	1011.2
To St. Paul through Bidwell St. Storm Sewer	RW3, RW4C, RW6C, RW9C, RW15C	456.5	34.2	490.7	72.5	167.0	298.8	--	--	--
To St. Paul through Livingston Ave. Storm Sewer	RW19C	74.5	0.0	74.5	22.6	51.0	89.8	--	--	--
To St. Paul through Robert St. Storm Sewer	RW21	12.8	0.0	12.8	8.0	17.3	29.9	--	--	--
RW24P- Lily Lake	RW24	22.3	0.0	22.3	0.0	0.0	0.7	955.5	6.6	954.5
To St. Paul through Oakdale Ave. Storm Sewer	RW22C	118.6	22.3	140.9	30.6	70.6	125.8	--	--	--
Lafayette										
To St. Paul through Annapolis St. and Kansas Ave. Storm Sewer	LF3	39.7	0.0	39.7	11.4	26.3	46.9	--	--	--
To St. Paul through Waterloo Ave. Storm Sewer	LF1C	44.3	0.0	44.3	11.3	26.8	48.3	--	--	--
Ivy Falls Creek										
IF1AP	IF1A	33.0	0.0	33.0	0.6	2.0	5.1	1018.5	4.3	1017.0
IF1BP	IF1B	9.4	33.0	42.4	3.3	6.2	9.1	1014.5	1.7	1011.3
To Mendota Heights Pond IF-P1	IF3BC, IF10C	157.0	42.4	199.3	76.1	218.7	426.9	--	--	--
To Mendota Heights Pond IF-P21	IF21C	74.6	0.0	74.6	33.6	90.6	173.2	--	--	--

APPENDIX C
POND DATA AND MODELING RESULTS

Pond Number, or Routing	Direct Drainage District	Drainage Area			2-Year Discharge Rate[1]	10-Year Discharge Rate[1]	100-Year Event[1]			Modeled NWL
		Direct	Ponded	Total			Discharge Rate	Modeled HWL	Flood Storage	
		(ac)	(ac)	(ac)	(cfs)	(cfs)	(cfs)	(ft)	acre-feet	(ft)
Simons Ravine										
SR1P	SR1	19.2	0.0	19.2	1.3	3.6	7.0	1025.1	2.2	1024.2
SR4P- Marthaler Pond	SR4	22.9	0.0	22.9	0.0	0.0	0.0	1019.3	5.0	1018.2
SR6AP	SR6A	7.6	0.0	7.6	0.0	0.0	0.8	1037.6	1.0	1036.0
SR6BP	SR6B	10.2	7.6	17.9	0.3	11.1	35.5	1003.9	0.4	1002.0
SR7P	SR7	11.6	0.0	11.6	0.0	0.0	2.0	995.0	2.7	990.0
SR9P	SR9	4.9	0.0	4.9	0.9	2.0	3.6	1007.4	0.7	1006.6
SR10P	SR10	6.2	0.0	6.2	0.2	0.6	1.3	1011.2	0.8	1010.8
SR13P- Wentworth Pond	SR2C, SR5C, SR13	465.1	82.7	547.8	34.2	59.2	78.8	951.8	103.8	939.3
SR15P	SR15	20.1	0.0	20.1	1.0	2.4	4.7	939.1	2.9	937.0
SR19P- Thompson Lake	SR19C	175.7	0.0	175.7	4.1	15.1	43.9	949.6	31.3	946.3
SR18AP- S. Emerson Pond	SR3, SR14C	368.8	743.6	1112.4	124.6	368.7	489.5	923.6	43.4	909.8
SR18BP- N. Emerson Pond	SR18	10.8	1112.4	1123.2	69.6	226.7	181.5	923.5	23.7	906.2
SR23P	SR23	5.7	0.0	5.7	0.0	0.0	0.0	943.8	1.3	942.0
To South St. Paul 17A	SR21C	47.2	1128.8	1176.0	72.2	125.1	203.8	--	--	--
To South St. Paul 15	SR22	58.5	0.0	58.5	15.9	54.6	115.4	--	--	--
Valley Creek (Marie)										
MR2P	MR2	16.5	0.0	16.5	0.0	0.3	0.7	1028.4	2.3	1028.0
MR3P	MR3	13.1	0.0	13.1	0.4	1.8	4.3	1018.8	0.9	1018.5
MR4P	MR4	5.9	13.1	19.0	0.5	1.8	4.3	1018.4	0.5	1017.9
MR11P	MR11C	13.3	0.0	13.3	0.0	0.8	10.6	1027.4	0.5	1026.0
MR9P	MR9C	49.6	13.3	62.9	1.1	6.9	22.8	1018.6	2.4	1018.0
MR8P	MR5C	14.6	98.4	112.9	0.8	1.8	2.8	1014.8	10.6	1012.0
To Mendota Heights Pond IV-P91	MR1C	56.5	112.9	169.4	1.9	15.4	45.0	--	--	--
To Mendota Heights Pond IV-P113	IF2C	56.6	0.0	56.6	20.1	64.9	133.0	--	--	--

APPENDIX C
POND DATA AND MODELING RESULTS

Pond Number, or Routing	Direct Drainage District	Drainage Area			2-Year Discharge Rate[1]	10-Year Discharge Rate[1]	100-Year Event[1]			Modeled NWL
		Direct	Ponded	Total			Discharge Rate	Modeled HWL	Flood Storage	
		(ac)	(ac)	(ac)	(cfs)	(cfs)	(cfs)	(ft)	acre-feet	(ft)
Valley Creek (Delaware/110)										
From Sunfish Lake	SF-1C, SF-4C, SF-5, SF-7, D10-24	--	--	53.0	10.3	36.4	64.8	--	--	--
D10-7P	D10-7	7.4	0.0	7.4	0.4	1.3	2.7	1003.3	0.7	1002.4
D10-10P	D10-10	33.7	0.0	33.7	2.9	10.4	53.6	1039.5	2.2	1034.2
D10-19P	D10-1C	117.3	41.1	158.5	7.0	21.7	46.3	928.2	12.5	924.8
D10-27P	D10-27	8.4	0.0	8.4	0.0	0.0	0.0	994.2	2.0	993.2
To Mendota Heights Pond IV-P57	D10-17C	21.4	219.8	241.3	32.3	91.0	169.2	--	--	--
Highway 110-494										
A13P	A8C	17.7	0.0	17.7	4.0	6.2	7.4	993.8	3.3	990.1
A16AP	A16A	6.3	0.0	6.3	0.0	0.0	0.0	1006.7	1.4	1004.0
A1P	A1	33.9	0.0	33.9	2.1	3.7	4.7	1035.9	4.1	1034.3
A21P	A21	12.9	0.0	12.9	0.0	0.0	0.0	1004.0	4.3	1004.0
A2P	A2	15.3	33.9	49.2	2.5	5.2	7.6	1033.9	2.0	1033.1
A4P	A4	15.8	49.2	64.9	2.3	5.0	7.1	1030.6	4.3	1029.1
A7P	A3C	63.5	64.9	128.5	4.2	11.4	16.9	994.3	7.3	990.6
P1AP	P1A	17.6	0.0	17.6	0.6	1.9	2.2	995.2	1.4	992.0
P1BP	P1B	14.8	0.0	14.8	0.1	0.3	0.7	977.7	1.3	976.2
P2AP	P2A	4.3	32.3	36.6	0.7	2.1	3.2	967.9	0.9	966.0
P2BP	P2B	67.8	36.6	104.4	7.5	9.7	10.3	938.6	10.1	933.5
P2CP	P2C	14.9	104.4	119.3	3.8	10.5	12.2	928.9	3.2	926.0
T6P	T6	14.6	0.0	14.6	0.0	0.0	0.0	976.8	2.3	973.4
T7P	T7	8.4	14.6	23.0	0.0	0.0	0.0	969.8	1.4	967.8
To Inver Grove Heights Pond A-17	A16B	14.9	6.3	21.3	20.6	45.9	80.2	--	--	--
To Inver Grove Heights Pond MNDT	A10C	64.1	159.1	223.2	128.2	243.1	384.9	--	--	--
To Inver Grove Heights Pond T11	T10C	17.1	23.0	40.1	22.8	51.1	89.5	--	--	--
To South St. Paul 5C		0.0	119.3	119.3	3.8	10.5	12.2	--	--	--
To South St. Paul 5F	P4	7.6	0.0	7.6	3.8	11.7	23.7	--	--	--

APPENDIX C
POND DATA AND MODELING RESULTS

Pond Number, or Routing	Direct Drainage District	Drainage Area			2-Year Discharge Rate[1]	10-Year Discharge Rate[1]	100-Year Event[1]			Modeled NWL
		Direct	Ponded	Total			Discharge Rate	Modeled HWL	Flood Storage	
		(ac)	(ac)	(ac)	(cfs)	(cfs)	(cfs)	(ft)	acre-feet	(ft)
Wentworth Street										
W1P	W1	38.0	0.0	38.0	0.0	0.0	7.4	940.8	8.0	938.0
To South St. Paul 12		0.0	38.0	38.0	0.0	0.0	7.4	--	--	--

[1]All storms were modeled using the SCS 24-hour, Type II distribution.

APPENDIX

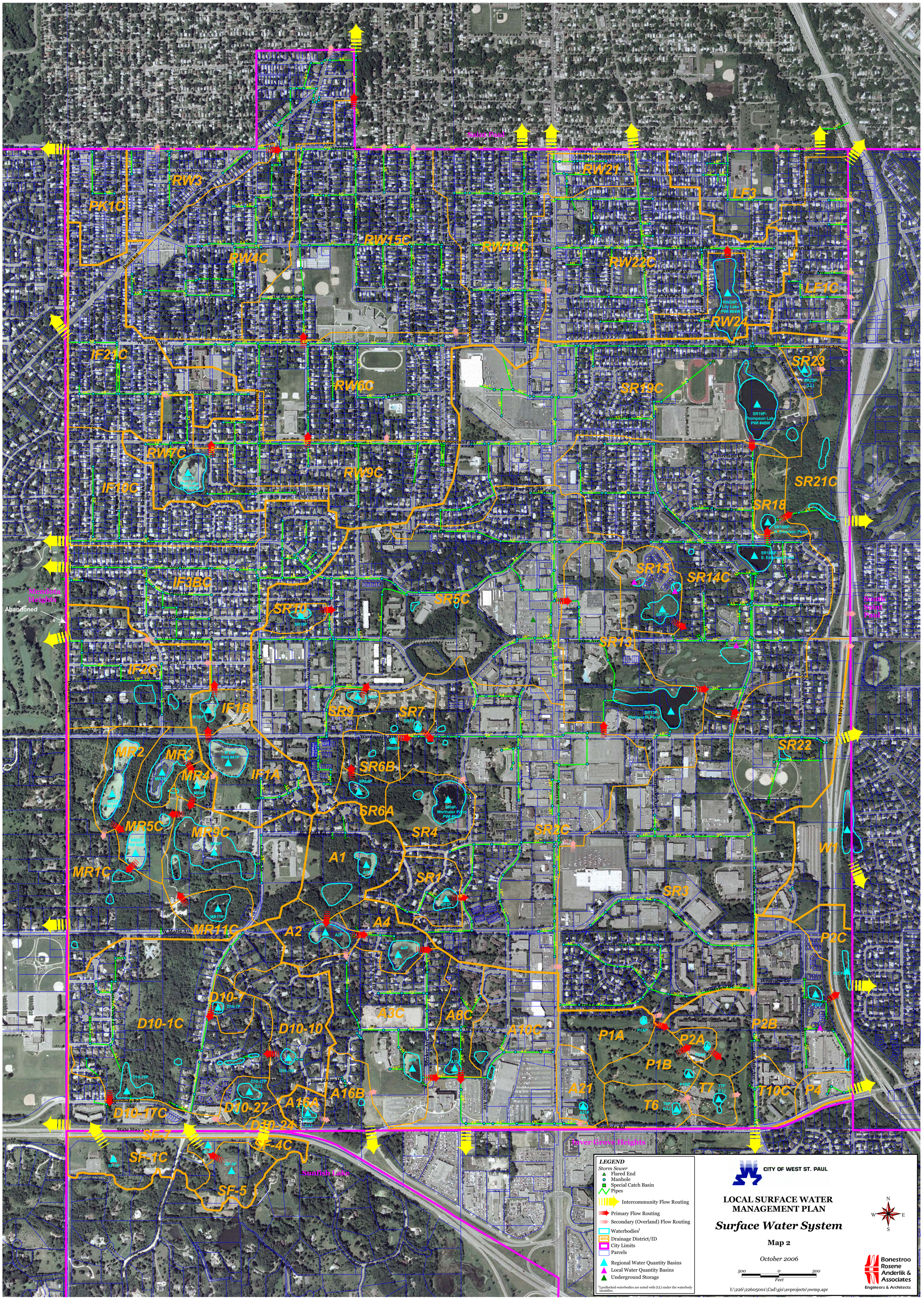
Appendix D – Summary of PondNET Modeling

APPENDIX D
PONDNET MODEL SUMMARY

Pond	Mean Depth (Feet)	Surface Area at Normal Level (Acres)	Wet Pond Volume (Ac-Ft)	Direct Watershed T.P. Removal (%)
Riverview Tunnel				
RW7P- Mud Lake	1.5	4.4	6.6	48
RW24P- Lily Lake	3.0	6.4	19.2	61
Ivy Falls Creek				
IF1AP	1.5	4.4	6.6	43
IF1BP	0.0	1.3	0.0	0
Simons Ravine				
SR1P	3.0	1.5	4.6	59
SR4P- Marthaler Pond	3.0	4.5	13.4	52
SR6AP	1.5	0.9	1.3	41
SR6BP	1.5	0.1	0.2	32
SR7P	2.5	0.3	0.6	52
SR9P	3.0	0.8	2.4	62
SR10P	3.0	0.6	1.8	62
SR13P- Wentworth Pond	2.0	6.2	12.5	32
SR15P	1.5	2.6	4.0	50
SR19P- Thompson Lake	3.0	7.3	22.0	52
SR18AP- S. Emerson Pond	3.0	2.8	8.3	18
SR18BP- N. Emerson Pond	3.2	0.8	2.5	6
SR23P	1.5	0.6	0.9	48
Valley Creek (Marie)				
MR2P	3.0	5.2	15.7	50
MR3P	1.5	4.7	7.0	36
MR4P	1.5	1.6	2.4	29
MR11P	1.5	2.1	3.1	36
MR9P	0.0	10.1	0.0	0
MR8P	3.0	2.9	8.7	45
Valley Creek (Delaware/110)				
D10-7P	2.5	0.4	1.1	57
D10-10P	1.5	0.7	1.1	42
D10-19P	0.8	2.5	1.9	24
D10-27P	1.5	1.1	1.7	52

APPENDIX D
PONDNET MODEL SUMMARY

Pond	Mean Depth (Feet)	Surface Area at Normal Level (Acres)	Wet Pond Volume (Ac-Ft)	Direct Watershed T.P. Removal (%)
Highway 110-494				
A13P	1.5	1.1	1.6	21
A16AP	1.5	0.5	0.8	48
A1P	0.0	1.6	0.0	0
A2P	2.5	2.5	6.3	50
A4P	3.0	2.5	7.4	48
A7P	3.0	1.7	5.0	44
A21P	2.5	0.2	0.5	36
P1AP	3.0	0.2	0.5	44
P1BP	3.0	0.2	0.7	50
P2AP	3.0	0.2	0.5	30
P2BP	0.8	0.7	0.5	17
2PCP	3.0	0.8	2.3	31
T6P	3.0	0.3	1.0	51
T7P	3.0	0.6	1.7	44
Wentworth Street				
W1P	2.5	2.0	4.9	47


Saint Paul
Annapolis St
W Hurley St
E Hurley St
Haskell St
Mainzer St
E Bernard St
Roeller Ave
E Arlon St
Stanley St
E Butler Ave
W Butler Ave
W Orme St
W Moreland Ave
Moreland Cir
W Logan Ave
E Logan Ave
W Imperial Dr
Ruby Dr
Edith Dr
Christine Ln
W Thompson Ave
Thompson Ave
Betty Ln
Runge Ln
W Marie Ave
Wentworth Ave
Carmel Ave
Lothenbach Ave
Kathleen Dr
Westview Dr
Pine Ridge Dr
Mendota Rd
State Hwy 13
Dodd Rd
Mina St
Dakota St
Oakdale Ave
Robert St
Dale St
Cleveland Ave
Victoria St
Stassen Dr
Rehnberg Pl
Sunfish Lake
Mendota Heights
Abandoned
South Saint Paul
River Grove Heights
RW3
PK1C
RW15C
RW19C
RW21
LF3
RW4C
RW22C
LF1C
RW24
RW24P- Lily Lake PWI #84W
IF21C
RW6C
SR19C
SR23
SR23P (LL)
SR19P- Thompson Lake PWI #48W
RW7C
RW9C
IF10C
SR21C
SR18
SR18BP- N. Emerson Pond
SR18AP- S. Emerson Pond
IF3BC
SR5C
SR15
SR14C
SR10
SR10P
SR15P
SR13
IF2C
IF1B
IF1BP
SR9
SR7
SR7P
SR6BP
SR22
MR2
MR3
MR4
IF1A
IF1AP PWI #87P
MR3P
MR4P
SR6B
SR6AP
SR6A
MR5C
MR8P PWI #89P
MR9C
MR9P
SR4
SR4P- Marthaler Pond PWI #88P (LL)
SR2C
A1
A1P
SR1
SR1P
MR1C
MR11P
MR11C
A2
A2P
A4
A4P
W1
W1P
SR3
D10-7
D10-7P
D10-1C
D10-10
D10-10P
A3C
A8C
A10C
P1A
P2A
P2B
P1AP
P1BP
P1B
T7
T7P (LL)
T6
T6P (LL)
T10C
P4
P2C
P2CP
P2BP (LL)
D10-19P
D10-27P (LL)
D10-27
D10-24
A16A
A16AP (LL)
A16B
A7P
A21
A21P (LL)
D10-17C
SF-7
SF-1C
SF-1P
SF-4C
SF-3P
SF-5
LEGEND
Storm Sewer
Flared End
Manhole
Special Catch Basin
Pipes
Intercommunity Flow Routing
Primary Flow Routing
Secondary (Overland) Flow Routing
Waterbodies[1]
MR4 Drainage District/ID
City Limits
Parcels
Regional Water Quantity Basins
Local Water Quantity Basins
Underground Storage
[1]Landlocked waterbodies are noted with (LL) under the waterbody identifier.
CITY OF WEST ST. PAUL
LOCAL SURFACE WATER MANAGEMENT PLAN
Surface Water System
Map 2
October 2006
500 0 500
Feet
N
W
E
S
I:\226\22605001\Cad\gis\avprojects\swmp.apr
Bonestroo Rosene Anderlik & Associates
Engineers & Architects

APPENDIX

Appendix E – General Permit Authorization to Discharge Stormwater for MS4s

Minnesota Pollution Control Agency

GENERAL PERMIT
AUTHORIZATION TO DISCHARGE STORMWATER
ASSOCIATED WITH SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION
SYSTEM/STATE DISPOSAL SYSTEM (NPDES/SDS) PERMIT PROGRAM

EFFECTIVE DATE: August 1, 2013 **EXPIRATION DATE: July 31, 2018**

In compliance with the provisions of the federal Clean Water Act (CWA), as amended, (33 U.S.C. 1251 et seq); 40 CFR Parts 122, 123, and 124, as amended; Minnesota Statutes Chapters 115 and 116, as amended; and Minnesota Rules Chapter 7001 and 7090.

This permit establishes conditions for discharging **stormwater** and specific other related discharges to **waters of the state.** This permit is required for discharges that are from **small Municipal Separate Storm Sewer Systems (small MS4),** as defined in this permit.

Applicants who submit a complete application in accordance with the requirements of Part II of this permit, and that receive written notification of permit coverage from the **Commissioner**, are authorized to discharge **stormwater** from **small MS4**s under the terms and conditions of this permit.

This permit shall become effective on the date identified above, and supersedes the previous **general permit** MNR040000, with an expiration date of May 31, 2011.

Signature: _____ Date May 22, 2013
John Linc Stine
Commissioner
Minnesota Pollution Control Agency

If you have questions on this permit, including the specific permit requirements, permit reporting or permit compliance status, please contact the appropriate Minnesota Pollution Control **Agency** offices.

Municipal Stormwater Program
Municipal Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
Telephone: 651-296-6300 or toll free in Minnesota: 800-657-3864

Table of Contents

PART I. AUTHORIZATION UNDER THIS PERMIT

A. Eligibility

To be eligible for authorization to discharge **stormwater** under this permit, the applicant must be an **owner** and/or **operator** (**owner**/**operator**) of a **small MS4** and meet one or more of the criteria requiring permit issuance as specified in Minn. R. 7090.1010.

1. Authorized **Stormwater** Discharges

This permit authorizes **stormwater** discharges from **small MS4s** as defined in 40 CFR § 122.26(b)(16).

2. Authorized **Non-Stormwater Discharge**s

The following categories of **non-stormwater discharge**s or flows are authorized under this permit to enter the **permittee**'s **small MS4** only if the **permittee** does not identify them as significant contributors of pollutants (i.e., **illicit discharge**s), in which case the discharges or flows shall be addressed in the **permittee**'s **SWPPP**: water line flushing, landscape irrigation, diverted stream flows, rising groundwaters, uncontaminated groundwater infiltration (as defined at 40 CFR § 35.2005(b)(20)), uncontaminated pumped groundwater, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and **wetlands**, dechlorinated swimming pool discharges, street wash water, and discharges or flows from firefighting activities.

B. Limitations on Authorization

The following discharges or activities are not authorized by this permit:

1. **Non-stormwater discharge**s, except those authorized in Part I.A.2.

2. Discharges of **stormwater** to the **small MS4** from activities requiring a separate NPDES/SDS permit. This permit does not replace or satisfy any other permitting requirements.

3. Discharges of **stormwater** to the **small MS4** from any other entity located in the drainage area or outside the drainage area. Only the **permittee**'s **small MS4** and the portions of the storm sewer system that are under the **permittee**'s operational control are authorized by this permit.

4. This permit does not replace or satisfy any environmental review requirements, including those under the Minnesota Environmental Policy Act (Minn. Stat. § 116D), or the National Environmental Policy Act (42 U.S.C. §§ 4321 - 4370 f).

5. This permit does not replace or satisfy any review requirements for endangered or threatened species, from new or expanded discharges that adversely impact or contribute to adverse impacts on a listed endangered or threatened species, or adversely modify a designated critical habitat.

6. This permit does not replace or satisfy any review requirements for historic places or archeological sites, from new or expanded discharges which adversely affect properties listed or eligible for listing in the National Register of Historic Places or affecting known or discovered archeological sites.

7. Prohibited discharges pursuant to Minn. R. 7050.0180, subp. 3, 4, and 5.

C. Permit Authorization

In order for an applicant to be authorized to discharge **stormwater** from a **small MS4** under this permit:

1. The applicant shall submit a complete application to discharge **stormwater** under this permit in accordance with Part II.

2. The **Commissioner** shall review the permit application for completeness and compliance with this permit.

   a. If an application is determined to be incomplete, the **Commissioner** will notify the applicant in writing, indicate why the application is incomplete, and request that the applicant resubmit the application.
   b. If an application is determined to be complete, the **Commissioner** shall make a preliminary determination as to whether the permit should be issued or denied in accordance with Minn. R. 7001.

3. The **Commissioner** shall provide public notice with the opportunity for a hearing on the preliminary determination.

4. Upon receipt of written notification of final approval of the application from the **Commissioner**, the applicant is authorized to discharge **stormwater** from the **small MS4** under the terms and conditions of this permit.

D. Transfer of Ownership or Control

Where the ownership or significant operational control of the **small MS4** changes after the submittal of an application under Part II, the new **owner**/**operator** must submit a new application in accordance with Part II.

E. Issuance of Individual Permits

1. The permit applicant may request an individual permit in accordance with Minn. R. 7001.0210, subp.6, for authorization to discharge **stormwater** associated with a **small MS4.**

2. The **Commissioner** may require an individual permit for the permit applicant or **permittee** covered by a **general permit**, in accordance with Minn. R. 7001.0210, subp. 6.

F. Rights and Responsibilities

1. The **Commissioner** may modify this permit or issue other permits, in accordance with Minn. R. 7001, to include more stringent effluent limitations or permit requirements that modify

or are in addition to the MCMs in Part III.D of this permit, or both. These modifications may be based on the **Commissioner**'s determination that such modifications are needed to protect water quality.

2. The **Commissioner** may designate additional **small MS4s** for coverage under this permit in accordance with Minn. R. 7090. The **owner**/**operator** of a **small MS4** that is designated for coverage must comply with the permit requirements by the dates specified in the **Commissioner**'s determination.

PART II. APPLICATION REQUIREMENTS

A. Application for Reauthorization

If a permit has been issued by the **Agency** and the **permittee** holding the permit desires to continue the permitted activity beyond the expiration date of the permit, the **permittee** shall submit a written application for permit reissuance at least 180 days before the expiration date of the existing permit. (Minn. R. 7001.0040, subp.3).

B. **New Permittee** Applicants

To become a **new permittee** authorized to discharge **stormwater** under this permit, the **owner/operator** of a **small MS4** shall submit an application, on a form provided by the **Commissioner**, in accordance with the schedule in Appendix A, Table 3, and the following requirements:

1. Submit Part 1 of the permit application (includes the permit application fee).

2. Submit Part 2 of the permit application, with the **Stormwater Pollution Prevention Program** (**SWPPP**) document completed in accordance with Part II.D.

C. **Existing Permittee** Applicants

All **existing permittee**s seeking to continue discharging **stormwater** associated with a **small MS4** after the **effective date** of this permit shall submit Part 2 of the permit application, on a form provided by the **Commissioner**, in accordance with the schedule in Appendix A, Table 1, with the **SWPPP** document completed in accordance with Part II.D. NOTE: **Existing permittee**s were required to submit Part 1 of the permit application prior to the expiration date (May 31, 2011) of the **Agency**'s ***small MS4 general permit*** *No.MNR040000,* effective June 1, 2006, (see Part II.A above).

D. **Stormwater Pollution Prevention Program** (**SWPPP**) Document

All applicants shall submit a **SWPPP** document with Part 2 of the application form when seeking coverage under this permit. The **SWPPP** document shall become an enforceable part of this permit upon approval by the **Commissioner**. Modifications to the **SWPPP** document that are required or allowed by this permit (see Part III.G) shall also become enforceable provisions. The **SWPPP** document shall be submitted on a form provided by the **Commissioner** and shall include the following:

1. A description of partnerships with another regulated **small MS4**(s), into which the applicant has entered, in order to satisfy one or more requirements of this permit.

2. A description of all Regulatory Mechanism(s) (e.g., contract language, an ordinance, permits, standards, etc.) the applicant has developed, implemented, and enforced that satisfies the requirements of each program specified under Part III.D.3, 4, and 5. The description shall include the type(s) of Regulatory Mechanism(s) the applicant has in place at the time of application that will be used to satisfy the requirements. If the Regulatory Mechanism(s) have not been developed at the time of application (e.g., **new permittee** applicants), or revised to meet new requirements of this permit (e.g., **existing permittee** applicants); the

applicant shall describe tasks and corresponding schedules necessary to satisfy the permit requirements in accordance with the schedule in Appendix A, Table 2 (**existing permittee** applicants), or Table 3 (**new permittee** applicants).

3. A description of existing Enforcement Response Procedures (ERPs) the applicant has developed and implemented that satisfy the requirements of Part III.B.1. If the applicant has not yet developed ERPs (e.g., **new permittee** applicants), or existing ERPs must be updated to satisfy new requirements, the description must include tasks and corresponding schedules necessary to satisfy the permit requirements in accordance with the schedule in Appendix A, Table 2 (**existing permittee** applicants), or Table 3 (**new permittee** applicants).

4. A description of the status of the applicant's storm sewer system map and inventory as required by Part III.C. The description must indicate whether each requirement of Part III.C.1, is satisfied, and for Part III.C.2, is complete, at the time of application. For each requirement of Part III.C that is not satisfied at the time of application, the applicant shall include tasks and corresponding schedules necessary to satisfy the mapping and inventory requirements in accordance with the schedule in Appendix A, Table 2 (**existing permittee** applicants), or Table 3 (**new permittee** applicants).

5. For each Minimum Control Measure (MCM) outlined in Part III.D:

    a. The **Best Management Practices** (**BMP**s) the applicant will implement, or has implemented, for each MCM.
    b. The measurable goals for each of the **BMP**s identified in Part II.D.5.a, including as appropriate, the months and years in which the applicant will undertake required actions, including interim milestones and the frequency of the action, in narrative or numeric form, as appropriate.
    c. Name(s) of individual(s) or position titles responsible for implementing and/or coordinating each component of the MCM.

6. For each **applicable Waste Load Allocation (WLA)** approved prior to the **effective date** of this permit, the applicant shall submit the following information as part of the **SWPPP** document:

    a. **TMDL** project name(s)
    b. Numeric **WLA**(s), including units
    c. Type of **WLA** (i.e., categorical or individual)
    d. **Pollutant**(s) **of concern**
    e. Applicable flow data specific to each **applicable WLA**
    f. For each **applicable WLA** not met at the time of application, a compliance schedule is required. Compliance schedules can be developed to include multiple **WLA**s associated with a **TMDL** project and shall include:

        (1) Interim milestones, expressed as **BMP**s or progress toward implementation of **BMP**s to be achieved during the term of this permit
        (2) Dates for implementation of interim milestones
        (3) Strategies for continued **BMP** implementation beyond the term of this permit
        (4) Target dates the **applicable WLA**(s) will be achieved

g. For each **applicable WLA** the **permittee** is reasonably confident is being met at the time of application, the **permittee** must provide the following documentation:

(1) Implemented **BMPs** used to meet each **applicable WLA**
(2) A narrative describing the **permittee's** strategy for long-term continuation of meeting each **applicable WLA**.

7. For the requirements of Part III.F, **Alum or Ferric Chloride Phosphorus Treatment System**s, if applicable, the applicant shall submit the following:

a. **Geographic coordinate**s of the system
b. Name(s) of individual(s) or position titles responsible for the operation of the system
c. Information listed in Part III.F.3.a(1)-(6), if the system is constructed at the time the application is submitted to the **Agency**
d. Indicate if the system complies with the requirements of Part III.F
e. If applicable, for each Part III.F requirement that the applicant's system does not comply with at the time of application, describe tasks and corresponding schedules necessary to bring the system into compliance in accordance with the schedule in Appendix A, Table 2 (**existing permittee** applicants), or Table 3 (**new permittee** applicants).

PART III. **STORMWATER POLLUTION PREVENTION PROGRAM (SWPPP)**

The **permittee** shall develop, implement, and enforce a **SWPPP** designed to **reduce** the discharge of pollutants from the **small MS4** to the **Maximum Extent Practicable** (**MEP**), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act.

If the **permittee** enters into a partnership for purposes of meeting **SWPPP** requirements, the **permittee** maintains legal responsibility for compliance with this permit.

Existing permittees shall revise their **SWPPP** developed under the **Agency**'s ***small MS4 general permit*** *No.MNR040000* that was effective June, 1, 2006, to meet the requirements of this permit in accordance with the schedule in Appendix A, Table 2. **New permittee**s shall develop, implement, and enforce their **SWPPP** in accordance with the schedule in Appendix A, Table 3. The **permittee**'s **SWPPP** shall consist of the following:

A. Regulatory Mechanism(s)

To the extent allowable under state, tribal or local law, the **permittee** shall develop, implement, and enforce a Regulatory Mechanism(s) to meet the terms and conditions of Part III.D.3, 4, and 5. A Regulatory Mechanism(s) for the purposes of this permit may consist of contract language, an ordinance, permits, standards, or any other mechanism, that will be enforced by the **permittee**.

B. Enforcement Response Procedures (ERPs)

1. The **permittee** shall develop and implement written ERPs to enforce and compel compliance with the Regulatory Mechanism(s) developed and implemented by the **permittee** in accordance with Part III.A.

2. Enforcement conducted by the **permittee** pursuant to the ERPs shall be documented. Documentation shall include, at a minimum, the following:

   a. Name of the **person** responsible for violating the terms and conditions of the **permittee**'s Regulatory Mechanism(s)
   b. Date(s) and location(s) of the observed violation(s)
   c. Description of the violation(s), including reference(s) to relevant Regulatory Mechanism(s)
   d. Corrective action(s) (including completion schedule) issued by the **permittee**
   e. Date(s) and type(s) of enforcement used to compel compliance (e.g., written notice, citation, stop work order, withholding of local authorizations, etc.)
   f. Referrals to other regulatory organizations (if any)
   g. Date(s) violation(s) resolved

C. Mapping and Inventory

1. Mapping

New permittees shall develop, and **existing permittee**s shall update, a storm sewer system map that depicts the following:

a. The **permittee's** entire **small MS4** as a goal, but at a minimum, all **pipe**s 12 inches or greater in diameter, including **stormwater flow direction** in those **pipe**s
b. **Outfall**s, including a unique identification (ID) number assigned by the **permittee**, and an associated **geographic coordinate**
c. **Structural stormwater BMP**s that are part of the **permittee**'s **small MS4**
d. All **receiving water**s

2. Inventory (2009 Minnesota Session Law, Ch. 172. Sec. 28).

a. The **permittee** shall complete an inventory of:

(1) All ponds within the **permittee**'s jurisdiction that are constructed and operated for purposes of water quality treatment, **stormwater** detention, and flood control, and that are used for the collection of **stormwater** via constructed conveyances. **Stormwater** ponds do not include areas of temporary ponding, such as ponds that exist only during a construction project or short-term accumulations of water in road ditches.
(2) All **wetland**s and lakes, within the **permittee**'s jurisdiction, that collect **stormwater** via constructed conveyances.

b. **The permittee** shall complete and submit the inventory to the **Agency** on a form provided by the **Commissioner**. Each feature inventoried shall include the following information:

(1) A unique identification (ID) number assigned by the **permittee**
(2) A **geographic coordinate**
(3) Type of feature (e.g., pond, **wetland**, or lake). This may be determined by using best professional judgment.

D. Minimum Control Measures (MCMs)

The **permittee** shall incorporate the following six MCMs into the **SWPPP**. The **permittee** shall document as part of the **SWPPP**, a description of **BMP**s used for each MCM, the responsible **person**(s) and department(s) in charge, an implementation schedule, and measureable goals that will be used to determine the success of each **BMP**.

1. Public Education and Outreach

New permittees shall develop and implement, and **existing permittee**s shall revise their current program, as necessary, and continue to implement, a public education program to distribute educational materials or equivalent outreach that informs the public of the impact **stormwater** discharges have on water bodies and that includes actions citizens, businesses, and other local organizations can take to **reduce** the discharge of pollutants to **stormwater**. The program shall also include:

a. Distribution of educational materials or equivalent outreach focused on:

(1) Specifically selected **stormwater**-related issue(s) of high priority to the **permittee** to be emphasized during this permit term (e.g., specific **TMDL** reduction targets, changing local business practices, promoting adoption of residential **BMP**s, lake

improvements through lake associations, responsible management of pet waste, household chemicals, yard waste, deicing materials, etc.)

(2) **Illicit discharge** recognition and reporting **illicit discharge**s to the **permittee**

b. An implementation plan that consists of the following:

(1) Target audience(s), including measurable goals for each audience
(2) Responsible **Person**(s) in charge of overall plan implementation
(3) Specific activities and schedules to reach measurable goals for each target audience
(4) A description of any coordination with and/or use of other **stormwater** education and outreach programs being conducted by other entities, if applicable
(5) Annual evaluation to measure the extent to which measurable goals for each target audience are attained

c. Documentation of the following information:

(1) A description of any specific **stormwater**-related issues identified by the **permittee** under Part III.D.1.a(1)
(2) All information required under Part III.D.1.b
(3) Any modifications made to the program as a result of the annual evaluation under Part III.D.1.b(5)
(4) Activities held, including dates, to reach measurable goals
(5) Quantities and descriptions of educational materials distributed, including dates distributed

2. Public Participation/Involvement

a. **New permittee**s shall develop and implement, and **existing permittee**s shall revise their current program, as necessary, and continue to implement, a Public Participation/Involvement program to solicit public input on the **SWPPP**. The **permittee** shall:

(1) Provide a minimum of one (1) opportunity annually for the public to provide input on the adequacy of the **SWPPP**. Public meetings can be conducted to satisfy this requirement provided appropriate local public notice requirements are followed and opportunity to review and comment on the **SWPPP** is provided.
(2) Provide access to the **SWPPP** document, Annual Reports, and other documentation that supports or describes the **SWPPP** (e.g., Regulatory Mechanism(s), etc.) for public review, upon request. All public data requests are subject to the Minnesota Government Data Practices Act, Minn. Stat. § 13.
(3) Consider public input, oral and written, submitted by the public to the **permittee**, regarding the **SWPPP**.

b. Document the following information:

(1) All relevant written input submitted by **person**s regarding the **SWPPP**
(2) All responses from the **permittee** to written input received regarding the **SWPPP**, including any modifications made to the **SWPPP** as a result of the written input received

(3) Date(s) and location(s) of events held for purposes of compliance with this requirement
(4) Notices provided to the public of any events scheduled to meet this requirement, including any electronic correspondence (e.g., website, e-mail distribution lists, notices, etc.)

3. **Illicit Discharge** Detection and Elimination (IDDE)

New permittees shall develop, implement, and enforce, and **existing permittee**s shall revise their current program as necessary, and continue to implement and enforce, a program to detect and eliminate **illicit discharge**s into the **small MS4**. The IDDE program shall consist of the following:

a. Map of the **small MS4** as required by Part III.C.1.
b. Regulatory Mechanism(s) that effectively prohibits **non-stormwater discharge**s into the **small MS4**, except those **non-stormwater discharge**s authorized under Part I.B.1.
c. Incorporation of **illicit discharge** detection into all inspection and maintenance activities conducted under Part III.D.6.e and f. Where feasible, **illicit discharge** inspections shall be conducted during dry-weather conditions (e.g., periods of 72 or more hours of no precipitation).
d. Detecting and tracking the source of **illicit discharge**s using visual inspections. The **permittee** may also include the use of mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures that may be effective investigative tools.
e. Training of all field staff, in accordance with the requirements of Part III.D.6.g(2), in **illicit discharge** recognition (including conditions which could cause **illicit discharge**s), and reporting **illicit discharge**s for further investigation.
f. Identification of priority areas likely to have **illicit discharge**s, including at a minimum, evaluating land uses associated with business/industrial activities, areas where **illicit discharge**s have been identified in the past, and areas with storage of large quantities of **significant materials** that could result in an **illicit discharge**. Based on this evaluation, the **permittee** shall conduct additional **illicit discharge** inspections in those areas identified as having a higher likelihood for **illicit discharge**s.
g. For timely response to known, suspected, and reported **illicit discharge**s:

(1) Procedures for investigating, locating, and eliminating the source of **illicit discharge**s.
(2) Procedures for responding to spills, including emergency response procedures to prevent spills from entering the **small MS4**. The procedures shall also include the immediate notification of the Minnesota Department of Public Safety Duty Officer at 1-800-422-0798 (toll free) or 651-649-5451 (Metro area), if the source of the **illicit discharge** is a spill or leak as defined in Minn. Stat. § 115.061.
(3) When the source of the **illicit discharge** is found, ERPs required by Part III.B (if necessary) to eliminate the **illicit discharge** and require any needed corrective action(s).

h. Documentation of the following information:

(1) Date(s) and location(s) of IDDE inspections conducted in accordance with Part III.D.3.c and f
(2) Reports of alleged **illicit discharge**s received, including date(s) of the report(s), and any follow-up action(s) taken by the **permittee**
(3) Date(s) of discovery of all **illicit discharge**s
(4) Identification of **outfall**s, or other areas, where **illicit discharges** have been discovered
(5) Sources (including a description and the responsible party) of **illicit discharges** (if known)
(6) Action(s) taken by the **permittee**, including date(s), to address discovered **illicit discharges**

4. Construction Site **Stormwater** Runoff Control

New permittees shall develop, implement, and enforce, and **existing permittee**s shall revise their current program, as necessary, and continue to implement and enforce, a Construction Site **Stormwater** Runoff Control program that **reduce**s pollutants in **stormwater** runoff to the **small MS4** from **construction activity** with a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger **common plan of development or sale**, that occurs within the **permittee**'s jurisdiction. The program shall incorporate the following components:

a. Regulatory Mechanism(s)

A Regulatory Mechanism(s) that establishes requirements for erosion and sediment controls and waste controls that is at least as stringent as the **Agency's *general permit*** *to Discharge Stormwater Associated with Construction Activity No.MN R100001* (as of the **effective date** of this permit). The **permittee**'s Regulatory Mechanism(s) shall require that owners and operators of **construction activity** develop site plans that must be submitted to the **permittee** for review and approval, prior to the start of **construction activity**. Site plans must be kept up-to-date by the owners and operators of **construction activity** with regard to **stormwater** runoff controls. The Regulatory Mechanism(s) must require that site plans incorporate the following erosion and sediment controls and waste controls as described in the above referenced permit:

(1) **BMPs** to minimize erosion
(2) **BMP**s to minimize the discharge of sediment and other pollutants
(3) **BMP**s for dewatering activities
(4) Site inspections and records of rainfall events
(5) **BMP** maintenance
(6) Management of solid and hazardous wastes on each project site
(7) Final stabilization upon the completion of **construction activity**, including the use of perennial vegetative cover on all exposed soils or other equivalent means
(8) Criteria for the use of temporary sediment basins

b. Site plan review

The program shall include written procedures for site plan reviews conducted by the **permittee** prior to the start of **construction activity**, to ensure compliance with requirements of the Regulatory Mechanism(s). The site plan review procedure shall include notification to owners and operators proposing **construction activity** of the need to apply for and obtain coverage under the **Agency**'s ***general permit*** *to Discharge Stormwater Associated with Construction Activity No.MN R100001.*

c. Public input

The program shall include written procedures for receipt and consideration of reports of noncompliance or other **stormwater** related information on **construction activity** submitted by the public to the **permittee.**

d. Site inspections

The program shall include written procedures for conducting site inspections, to determine compliance with the **permittee**'s Regulatory Mechanism(s). The written procedures shall:

(1) Include procedures for identifying priority sites for inspection. Prioritization can be based on such parameters as topography, soil characteristics, type of **receiving water**(s), stage of construction, compliance history, weather conditions, or other local characteristics and issues.
(2) Identify frequency at which site inspections will be conducted
(3) Identify name(s) of individual(s) or position titles responsible for conducting site inspections
(4) Include a checklist or other written means to document site inspections when determining compliance.

e. ERPs required by Part III.B of this permit

f. Documentation of the following information:

(1) For each site plan review – The project name, location, total acreage to be disturbed, owner and operator of the proposed **construction activity**, and any **stormwater** related comments and supporting documentation used by the **permittee** to determine project approval or denial.
(2) For each site inspection - Inspection checklists or other written means used to document site inspections

5. Post-Construction **Stormwater** Management

New permittees shall develop, implement, and enforce, and **existing permittee**s shall revise their current program, as necessary, and continue to implement and enforce, a Post-Construction **Stormwater** Management program that prevents or **reduce**s **water pollution** after **construction activity** is completed, related to **new development** and **redevelopment** projects with land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger **common plan of development or sale**, within the **permittee**'s jurisdiction and that discharge to the **permittee**'s **small MS4**. The program shall consist, at a minimum, of the following:

a. A Regulatory Mechanism(s) that incorporates:

(1) A requirement that owners and/or operators of **construction activity** submit site plans with post-construction **stormwater** management **BMP**s to the **permittee** for review and approval, prior to start of **construction activity**

(2) Conditions for Post-Construction **Stormwater** Management:

The **permittee** shall develop and implement a Post-Construction **Stormwater** Management program that requires the use of any combination of **BMP**s, with highest preference given to **Green Infrastructure** techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a **construction activity** to the **MEP**:

(a) For **new development** projects – no net increase from pre-project conditions (on an annual average basis) of:

1) **Stormwater** discharge Volume**,** unless precluded by the **stormwater** management limitations in Part III.D.5.a(3)(a)
2) **Stormwater** discharges of Total Suspended Solids (TSS)
3) **Stormwater** discharges of Total Phosphorus (TP)

(b) For **redevelopment** projects – a net reduction from pre-project conditions (on an annual average basis) of:

1) **Stormwater** discharge Volume**,** unless precluded by the **stormwater** management limitations in Part III.D.5.a(3)(a)
2) **Stormwater** discharges of TSS
3) **Stormwater** discharges of TP

(3) **Stormwater** management limitations and exceptions

(a) Limitations

1) The **permittee**'s Regulatory Mechanism(s) shall prohibit the use of infiltration techniques to achieve the conditions for post-construction **stormwater** management in Part III.D.5.a(2) when the infiltration **structural stormwater BMP** will receive discharges from, or be constructed in areas:

a) Where industrial facilities are not authorized to infiltrate industrial **stormwater** under an **NPDES/SDS** Industrial **Stormwater** Permit issued by the **Agency**
b) Where vehicle fueling and maintenance occur
c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally **saturated soil**s or the top of bedrock
d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating **stormwater**

2) The **permittee**'s Regulatory Mechanism(s) shall restrict the use of infiltration techniques to achieve the conditions for post-construction **stormwater** management, without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas:

a) With predominately Hydrologic Soil Group D (clay) soils
b) Within 1,000 feet up-gradient, or 100 feet down-gradient of **active karst** features
c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13
d) Where soil infiltration rates are more than 8.3 inches per hour

3) For linear projects where the lack of right-of-way precludes the installation of volume control practices that meet the conditions for post-construction **stormwater** management in Part.III.D.5.a(2), the **permittee**'s Regulatory Mechanism(s) may allow exceptions as described in Part III.D.5.a(3)(b). The **permittee**'s Regulatory Mechanism(s) shall ensure that a reasonable attempt be made to obtain right-of-way during the project planning process.

(b) Exceptions for **stormwater** discharge volume

The **permittee**'s Regulatory Mechanism(s) may allow for lesser volume control on the site of the original **construction activity** than that in Part III.D.5.a(2) only under the following circumstances:

1) The owner and/or operator of a **construction activity** is precluded from infiltrating **stormwater** through a designed system due to any of the infiltration related limitations described above, and
2) The owner and/or operator of the **construction activity** implements, to the **MEP**, volume reduction techniques, other than infiltration, (e.g., evapotranspiration, reuse/harvesting, conservation design, green roofs, etc.) on the site of the original **construction activity** that **reduce**s **stormwater** discharge volume, but may not meet the conditions for post-construction **stormwater** management in Part III.D.5.a(2).

(4) Mitigation provisions

There may be circumstances where the **permittee** or other owners and operators of a **construction activity** cannot cost effectively meet the conditions for post-construction **stormwater** management for TSS and/or TP in Part III.D.5.a(2) on the site of the original **construction activity**. For this purpose, the **permittee** shall identify, or may require owners or operators of a **construction activity** to identify, locations where mitigation projects can be completed. The **permittee**'s Regulatory Mechanism(s) shall ensure that any **stormwater** discharges of TSS and/or TP not addressed on the site of the original **construction activity** are addressed through mitigation and, at a minimum, shall ensure the following requirements are met:

(a) Mitigation project areas are selected in the following order of preference:
    1) Locations that yield benefits to the same **receiving water** that receives runoff from the original **construction activity**
    2) Locations within the same Department of Natural Resource (**DNR**) **catchment area** as the original **construction activity**
    3) Locations in the next adjacent **DNR catchment area** up-stream
    4) Locations anywhere within the **permittee**'s jurisdiction
(b) Mitigation projects must involve the creation of new **structural stormwater BMP**s or the retrofit of existing **structural stormwater BMP**s, or the use of a properly designed regional **structural stormwater BMP**.
(c) Routine maintenance of **structural stormwater BMP**s already required by this permit cannot be used to meet mitigation requirements of this Part.
(d) Mitigation projects shall be completed within 24 months after the start of the original **construction activity**.
(e) The **permittee** shall determine, and document, who is responsible for long-term maintenance on all mitigation projects of this Part.
(f) If the **permittee** receives payment from the owner and/or operator of a **construction activity** for mitigation purposes in lieu of the owner or operator of that **construction activity** meeting the conditions for post-construction **stormwater** management in Part III.D.5.a(2), the **permittee** shall apply any such payment received to a public **stormwater** project, and all projects must be in compliance with Part III.D.5.a(4)(a)-(e).

(5) Long-term maintenance of **structural stormwater BMP**s

The **permittee**'s Regulatory Mechanism(s) shall provide for the establishment of legal mechanism(s) between the **permittee** and owners or operators responsible for the long-term maintenance of **structural stormwater BMP**s not owned or operated by the **permittee**, that have been implemented to meet the conditions for post-construction **stormwater** management in Part III.D.5.a(2). This only includes **structural stormwater BMPs** constructed after the **effective date** of this permit, that are directly connected to the **permittee**'s **MS4**, and that are in the **permittee**'s jurisdiction. The legal mechanism shall include provisions that, at a minimum:

(a) Allow the **permittee** to conduct inspections of **structural stormwater BMP**s not owned or operated by the **permittee**, perform necessary maintenance, and assess costs for those **structural stormwater BMP**s when the **permittee**

determines that the owner and/or operator of that **structural stormwater BMP** has not conducted maintenance.

(b) Include conditions that are designed to preserve the **permittee**'s right to ensure maintenance responsibility, for **structural stormwater BMP**s not owned or operated by the **permittee**, when those responsibilities are legally transferred to another party.

(c) Include conditions that are designed to protect/preserve **structural stormwater BMP**s and site features that are implemented to comply with Part III.D.5.a(2). If site configurations or **structural stormwater BMP**s change, causing decreased **structural stormwater BMP** effectiveness, new or improved **structural stormwater BMP**s must be implemented to ensure the conditions for post-construction **stormwater** management in Part III.D.5.a(2) continue to be met.

b. Site plan review

The program shall include written procedures for site plan reviews conducted by the **permittee** prior to the start of **construction activity**, to ensure compliance with requirements of the Regulatory Mechanism(s).

c. Documentation of the following information:

(1) Any supporting documentation used by the **permittee** to determine compliance with Part III.D.5.a, including the project name, location, owner and operator of the **construction activity**, any checklists used for conducting site plan reviews, and any calculations used to determine compliance

(2) All supporting documentation associated with mitigation projects authorized by the **permittee**

(3) Payments received and used in accordance with Part III.D.5.a(4)(f)

(4) All legal mechanisms drafted in accordance with Part III.D.5.a(5), including date(s) of the agreement(s) and name(s) of all responsible parties involved

6. Pollution Prevention/Good Housekeeping For Municipal Operations

New permittees shall develop and implement, and **existing permittee**s shall revise their current program, as necessary, and continue to implement, an operations and maintenance program that prevents or **reduce**s the discharge of pollutants from **permittee** owned/operated facilities and operations to the **small MS4**. The operations and maintenance program shall include, at a minimum, the following:

a. Facilities Inventory

The **permittee** shall develop and maintain an inventory of **permittee** owned/operated facilities that contribute pollutants to **stormwater** discharges. Facilities to be inventoried may include, but is not limited to: composting, equipment storage and maintenance, hazardous waste disposal, hazardous waste handling and transfer; landfills, solid waste handling and transfer, parks, pesticide storage, public parking lots, public golf courses; public swimming pools, public works yards, recycling, salt storage, vehicle storage and maintenance (e.g., fueling and washing) yards, and materials storage yards.

b. Development and Implementation of **BMP**s for inventoried facilities and municipal operations

Considering the source of pollutants and sensitivity of **receiving water**s (e.g., Outstanding Resource Value Waters (ORVWs), **impaired water**s, trout streams, etc.), the **permittee** shall develop and implement **BMP**s that prevent or **reduce** pollutants in **stormwater** discharges from the **small MS4** and from:

(1) All inventoried facilities that discharge to the **MS4**, and
(2) The following municipal operations that may contribute pollutants to **stormwater** discharges, where applicable:

(a) Waste disposal and storage, including dumpsters
(b) Management of temporary and permanent stockpiles of materials such as street sweepings, snow, deicing materials (e.g., salt), sand and sediment removal piles
(c) Vehicle fueling, washing and maintenance
(d) Routine street and parking lot sweeping
(e) Emergency response, including spill prevention plans
(f) Cleaning of maintenance equipment, building exteriors, dumpsters, and the disposal of associated waste and wastewater
(g) Use, storage, and disposal of **significant materials**
(h) Landscaping, park, and lawn maintenance
(i) Road maintenance, including pothole repair, road shoulder maintenance, pavement marking, sealing, and repaving
(j) Right-of-way maintenance, including mowing
(k) Application of herbicides, pesticides, and fertilizers
(l) Cold-weather operations, including plowing or other snow removal practices, sand use, and application of deicing compounds

c. Development and implementation of **BMP**s for **MS4** discharges that may affect Source Water Protection Areas (Minn. R. 4720.5100-4720.5590)

The **permittee** shall incorporate **BMP**s into the **SWPPP** to protect any of the following drinking water sources that the **MS4** discharge may affect, and the **permittee** shall include the map of these sources with the **SWPPP** if they have been mapped:

(1) Wells and source waters for DWSMAs identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330
(2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health (MDH) under the federal Safe Drinking Water Act, U.S.C. §§ 300j – 13

d. Pond Assessment Procedures and Schedule

The **permittee** shall develop procedures and a schedule for the purpose of determining the TSS and TP treatment effectiveness of all **permittee** owned/operated ponds constructed and used for the collection and treatment of **stormwater**. The schedule (which may exceed this permit term) shall be based on measureable goals and priorities established by the **permittee**.

e. Inspections

(1) Unless inspection frequency is adjusted as described below, the **permittee** shall conduct annual inspections of **structural stormwater BMPs** (excluding **stormwater** ponds which are under a separate schedule below) to determine structural integrity, proper function and maintenance needs.

Inspections of **structural stormwater BMP**s shall be conducted annually unless the **permittee** determines if either of the following conditions apply: 1) Complaints received or patterns of maintenance indicate a greater frequency is necessary, or 2) Maintenance or sediment removal is not required after completion of the first two annual inspections; in which case the **permittee** may reduce the frequency of inspections to once every two (2) years. However, **existing permittee**s are authorized under this permit to continue using inspection frequency adjustments, previously determined under the *general **stormwater** permit for **small MS4**s No.MNR040000*, effective June 1, 2006, provided that documentation requirements in Part III.D.6.h(2) are satisfied.

(2) Prior to the expiration date of this permit, the **permittee** shall conduct at least one inspection of all ponds and **outfall**s (excluding underground **outfall**s) in order to determine structural integrity, proper function, and maintenance needs.

(3) The **permittee** shall conduct quarterly inspections of stockpiles, and storage and material handling areas as inventoried in Part III.D.6.a, to determine maintenance needs and proper function of **BMP**s.

f. Maintenance

Based on inspection findings, the **permittee** shall determine if repair, replacement, or maintenance measures are necessary in order to ensure the structural integrity, proper function, and treatment effectiveness of **structural stormwater BMP**s. Necessary maintenance shall be completed as soon as possible to prevent or **reduce** the discharge of pollutants to **stormwater**.

g. Employee Training

The **permittee** shall develop and implement a **stormwater** management training program commensurate with employee's job-duties as they relate to the **permittee**'s **SWPPP**, including reporting and assessment activities. The **permittee** may use training materials from the United States Environmental Protection Agency (USEPA), state and regional agencies, or other organizations as appropriate to meet this requirement. The employee training program shall:

(1) Address the importance of protecting water quality
(2) Cover the requirements of the permit relevant to the job duties of the employee
(3) Include a schedule that establishes initial training for new and/or seasonal employees, and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements

h. Documentation of the following information:

(1) Date(s) and description of findings of all inspections conducted in accordance with Part III.D.6.e
(2) Any adjustments to inspection frequency as authorized under Part III.D.6.e(1)
(3) A description of maintenance conducted, including dates, as a result of inspection findings
(4) Pond sediment excavation and removal activities, including:
  (a) The unique ID number (consistent with that required in Part III.C.2.a) of each **stormwater** pond from which sediment is removed
  (b) The volume (e.g., cubic yards) of sediment removed from each **stormwater** pond
  (c) Results from any testing of sediment from each removal activity
  (d) Location(s) of final disposal of sediment from each **stormwater** pond
(5) Employee **stormwater** management training events, including a list of topics covered, names of employees in attendance, and date of each event

E. Discharges to **Impaired Water**s with a USEPA-Approved **TMDL** that Includes an **Applicable WLA**

For each **applicable WLA** approved prior to the **effective date** of this permit, the **BMPs** included in the compliance schedule at application constitute a discharge requirement for the **permittee**. The **permittee** shall demonstrate continuing progress toward meeting each discharge requirement, on a form provided by the **Commissioner**, by submitting the following:

1. An assessment of progress toward meeting each discharge requirement, including a list of all **BMP**s being applied to achieve each **applicable WLA**. For each **structural stormwater BMP**, the **permittee** shall provide a unique identification (ID) number and **geographic coordinate**. If the listed **structural stormwater BMP** is also inventoried as required by Part III.C.2, the same ID number shall be used.

2. A list of all **BMP**s the **permittee** submitted at the time of application in the **SWPPP** document compliance schedule(s) and the stage of implementation for each **BMP**, including any **BMP**s specifically identified for the **small MS4** in the **TMDL** report that the **permittee** plans to implement

3. An up-dated estimate of the cumulative reductions in loading achieved for each **pollutant of concern** associated with each **applicable WLA**

4. An up-dated narrative describing any adaptive management strategies used (including projected dates) for making progress toward achieving each **applicable WLA**

F. **Alum or Ferric Chloride Phosphorus Treatment System**s

If the **permittee** uses an **alum or ferric chloride phosphorus treatment system**, the **permittee** shall comply with the following:

1. Minimum Requirements of an **Alum or Ferric Chloride Phosphorus Treatment System**

   a. Limitations

      (1) The **permittee** shall use the treatment system for the treatment of phosphorus in **stormwater. Non-stormwater discharges** shall not be treated by this system.
      (2) The treatment system must be contained within the conveyances and **structural stormwater BMPs** of a **small MS4**. The utilized conveyances and **structural stormwater BMPs** shall not include any **receiving water**s.
      (3) Phosphorus treatment systems utilizing chemicals other than alum or ferric chloride must receive written approval from the **Agency**.
      (4) In-lake phosphorus treatment activities are not authorized under this permit.

   b. Treatment System Design

      (1) The treatment system shall be constructed in a manner that diverts the **stormwater** flow to be treated from the main conveyance system.
      (2) A **High Flow Bypass** shall be part of the inlet design.
      (3) A flocculent storage/settling area shall be incorporated into the design, and adequate maintenance access must be provided (minimum of 8 feet wide) for the removal of accumulated sediment.

2. Monitoring During Operation

   a. A designated **person** shall perform visual monitoring of the treatment system for proper performance at least once every seven (7) days, and within 24 hours after a rainfall event greater than 2.5 inches in 24 hours. Following visual monitoring which occurs within 24 hours after a rainfall event, the next visual monitoring must be conducted within seven (7) days after that rainfall event.
   b. Three benchmark monitoring stations shall be established. Table B-1 shall be used for the parameters, units of measure, and frequency of measurement for each station.
   c. Samples shall be collected as grab samples or flow-weighted 24-hour composite samples.
   d. Each sample, excluding pH samples, must be analyzed by a laboratory certified by the MDH and/or the MPCA, and:

      (1) Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200.
      (2) Detection limits for dissolved phosphorus, dissolved aluminum, and dissolved iron shall be a minimum of 6 micrograms per liter (µg/L), 10 µg/L, and 20 µg/L, respectively.
      (3) pH must be measured within 15 minutes of sample collection using calibrated and maintained equipment.

Table B-1:
Monitoring Parameters During Operation

Station	Alum Parameters	Ferric Parameters	Units	Frequency
Upstream-Background	Total Phosphorus	Total Phosphorus	mg/L	1 x week
	Dissolved Phosphorus	Dissolved Phosphorus	mg/L	1 x week
	Total Aluminum	Total Iron	mg/L	1 x month
	Dissolved Aluminum	Dissolved Iron	mg/L	1 x week
	pH	pH	SU	1 x week
	Flow	Flow	Mgd	Daily
Alum or Ferric Chloride Feed	Alum	Ferric	Gallons	Daily Total Dosed In Gallons
Discharge From Treatment	Total Phosphorus	Total Phosphorus	mg/L	1 x week
	Dissolved Phosphorus	Dissolved Phosphorus	mg/L	1 x week
	Total Aluminum	Total Iron	mg/L	1 x month
	Dissolved Aluminum	Dissolved Iron	mg/L	1 x week
	pH	pH	SU	1 x week
	Flow	Flow	Mgd	Daily

e. In the following situations, the **permittee** shall perform corrective action(s) and immediately notify the Minnesota Department of Public Safety Duty Officer at 1-800-422-0798 (toll free) or 651-649-5451 (Metro area):

(1) The pH of the discharged water is not within the range of 6.0 and 9.0
(2) Any indications of toxicity or measurements exceeding **water quality standards**
(3) A spill, as defined in Minn. Stat. § 115.01, subd. 13, of alum or ferric chloride

3. Reporting and Recordkeeping

a. Annual Reporting

The **permittee** shall submit the following information with the Annual Report in Part IV.B. The Annual Report must include a month-by-month summary of:

(1) Date(s) of operation
(2) Chemical(s) used for treatment
(3) Gallons of water treated
(4) Gallons of alum or ferric chloride treatment used
(5) Calculated pounds of phosphorus removed
(6) Any performance issues and the corrective action(s), including the date(s) when corrective action(s) were taken

b. On-Site Recordkeeping

A record of the following design parameters shall be kept on-site:

(1) Site-specific jar testing conducted using typical and representative water samples in accordance with ASTM D2035-08 (2003)
(2) Baseline concentrations of the following parameters in the influent and **receiving water**s:

(a) Aluminum or Iron
(b) Phosphorus

(3) The following system parameters and how each was determined:

(a) Flocculent settling velocity
(b) Minimum required retention time
(c) Rate of diversion of **stormwater** into the system
(d) The flow rate from the discharge of the outlet structure
(e) Range of expected dosing rates

4. Treatment System Management

The following site-specific procedures shall be developed and a copy kept on-site:

a. Procedures for the installation, operation and maintenance of all pumps, generators, control systems, and other equipment
b. Specific parameters for determining when the solids must be removed from the system and how the solids will be handled and disposed of
c. Procedures for cleaning up and/or containing a spill of each chemical stored on-site

G. **Stormwater Pollution Prevention Program (SWPPP)** Modification

1. The **Commissioner** may require the **permittee** to modify the **SWPPP** as needed, in accordance with the procedures of Minn. R. 7001, and may consider the following factors:

a. Discharges from the **small MS4** are impacting the quality of **receiving waters.**
b. More stringent requirements are necessary to comply with state or federal regulations.
c. Additional conditions are deemed necessary to comply with the goals and applicable requirements of the Clean Water Act and protect water quality.

2. Modifications that the **permittee** chooses to make to the **SWPPP** document developed under Part II.D, other than modifications authorized in Part III.G.3 below, must be approved by the **Commissioner** in accordance with the procedures of Minn. R. 7001. All requests must be in writing, setting forth schedules for compliance. The request must discuss alternative program modifications, assure compliance with requirements of the permit, and meet other applicable laws.

3. The **SWPPP** document may only be modified by the **permittee** without prior approval of the **Commissioner** provided it is in accordance with a. or b. below, and the **Commissioner** is notified of the modification in the Annual Report for the year the modification is made.

a. A **BMP** is added, and none subtracted, from the **SWPPP** document.
b. A less effective **BMP** identified in the **SWPPP** document is replaced with a more effective **BMP**. The alternate **BMP** shall address the same, or similar, concerns as the ineffective or failed **BMP**.

PART IV. ANNUAL **SWPPP** ASSESSMENT, ANNUAL REPORTING, AND RECORD KEEPING

A. Annual **SWPPP** Assessment

The **permittee** shall conduct an Annual Assessment of their **SWPPP** to determine program compliance, the appropriateness of **BMP**s, and progress towards achieving the measurable goals identified in their **SWPPP** document. The Annual **SWPPP** Assessment shall be performed prior to completion of each Annual Report.

B. Annual Reporting

The **permittee** shall submit an Annual Report to the **Agency** by June 30th of each calendar year. The Annual Report shall cover the portion of the previous calendar year during which the **permittee** was authorized to discharge **stormwater** under this permit. The Annual Report shall be submitted to the **Agency**, on a form provided by the **Commissioner**, that will at a minimum, consist of the following:

1. The status of compliance with permit terms and conditions, including an assessment of the appropriateness of **BMPs** identified by the **permittee** and progress towards achieving the identified measurable goals for each of the MCMs in Part III.D.1-6. The assessment must be based on results of information collected and analyzed, including monitoring (if any), inspection findings, and public input received during the reporting period.

2. The **stormwater** activities the **permittee** plans to undertake during the next reporting cycle

3. A change in any identified **BMP**s or measurable goals for any of the MCMs in Part III.D.1-6

4. Information required in Part III.E, to demonstrate progress in meeting **applicable WLA**s

5. Information required to be recorded or documented in Part III

6. A statement that the **permittee** is relying on a partnership(s) with another regulated **Small MS4**(s) to satisfy one or more permit requirements (if applicable), and what agreements the **permittee** has entered into in support of this effort

C. Record Keeping

1. The **permittee** shall keep records required by the **NPDES** permit for at least three (3) years beyond the term of this permit. The **permittee** shall submit records to the **Commissioner** only if specifically asked to do so.

2. The **permittee** shall make records, including components of the **SWPPP**, available to the public at reasonable times during regular business hours (see 40 CFR § 122.7 for confidentiality provision).

3. The **permittee** shall retain copies of the permit application, all documentation necessary to comply with **SWPPP** requirements, all data and information used by the **permittee** to complete the application process, and any information developed as a requirement of this permit or as requested by the **Commissioner**, for a period of at least three (3) years beyond the date of permit expiration. This period is automatically extended during the course of an

unresolved enforcement action regarding the **small MS4** or as requested by the **Commissioner**.

D. Where to Submit

The **permittee** shall use an electronic submittal process, when provided by the **Agency**, when submitting information required by this permit. When submitting information electronically is not possible, the **permittee** may use the following mailing address:

Minnesota Pollution Control Agency (MPCA)
Attn: WQ Submittals Center
520 Lafayette Road North
St. Paul, MN 55155-4194

PART V. GENERAL CONDITIONS

A. The **Agency**'s issuance of a 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, item A)

B. The **Agency**'s issuance of a permit does not prevent the future adoption by the **Agency** 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, item B)

C. The permit does not convey a property right or an exclusive privilege. (Minn. R. 7001.0150, subp. 3, item C)

D. The **Agency**'s issuance of a permit does not obligate the **Agency** to enforce local laws, rules, or plans beyond that authorized by Minnesota statutes. (Minn. R. 7001.0150, subp.3, item D)

E. The **permittee** shall perform the actions or conduct the activity authorized by the permit in accordance with the plans and specifications approved by the **Agency** and in compliance with the conditions of the permit. (Minn. R. 7001.0150, subp. 3, item E)

F. 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.)

G. The **permittee** may not knowingly make a false or misleading statement, representation, or certification in a record, report, plan, or other document required to be submitted to the **Agency** or to the **Commissioner** by the permit. The **permittee** shall immediately upon discovery report to the **Commissioner** an error or omission in these records, reports, plans, or other documents. (Minn. Stat. § 609.671; Minn.R. 7001.0150, subp.3, item G.; and Minn. R. 7001.1090, subp. 1, items G and H)

H. The **permittee** shall, when requested by the **Commissioner**, 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, subp. 3, item H)

I. When authorized by Minn. Stat. §§ 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, item I)

J. If the **permittee** discovers, through any means, including notification by the **Agency**, that noncompliance with a condition of the permit has occurred, the **permittee** shall take all reasonable steps to minimize the adverse impacts on human health, public drinking water supplies, or the environment resulting from the noncompliance. (Minn. R. 7001.0150, subp.3, item J)

K. 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**. Within five days of the discovery of the noncompliance, the **permittee** shall submit to the **Commissioner** a written description of the noncompliance; the cause of the noncompliance, the exact dates of the period of the noncompliance, if the noncompliance has not been corrected; the anticipated time it is expected to continue, and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (Minn. R. 7001.0150, subp.3, item K)

L. The **permittee** shall report noncompliance with the permit not reported under item K as a part of the next report, which the **permittee** is required to submit under this permit. If no reports are required within 30 days of the discovery of the noncompliance, the **permittee** shall submit the information listed in item K within 30 days of the discovery of the noncompliance. (Minn. R. 7001.0150, subp.3, item L)

M. The **permittee** shall give advance notice to the **Commissioner** as soon as possible of planned physical alterations or additions to the permitted facility (**MS4**) or activity that may result in noncompliance with a Minnesota or federal pollution control statute or rule or a condition of the permit. (Minn. R. 7001.0150, subp. 3, item M)

N. 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, subp.3, item N)

O. The permit authorizes the **permittee** to perform the activities described in the permit under the conditions of the permit. In issuing the permit, the state and **Agency** assume no responsibility for damage to **person**s, 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 the permit. To the extent the state and **Agency** may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act, Minn. Stat. § 3.736. (Minn. R. 7001.0150, subp. 3, item O)

P. This permit incorporates by reference the applicable portions of 40 CFR §§ 122.41 and 122.42 parts (c) and (d), and Minn. R. 7001.1090, which are enforceable parts of this permit.

APPENDIX A

SCHEDULES

Table 1
Application Submittal Schedule for **Existing permittee**s

Group 1 Within 90 days after permit **effective date**		
Alexandria, City	Glencoe, City	Oak Grove, City
Andover, City	Grand Rapids, City	Orono, City
Anoka Technical College	Greenwood, City	Ramsey, City
Arden Hills, City	Hibbing, City	Sartell, City
Birchwood Village, City	Hilltop, City	South St Paul, City
Cambridge, City	Inver Hills Community College	St Bonifacius, City
Centerville, City	Little Falls, City	St Cloud Technical College
Chaska, City	Long Lake, City	St Louis County
Dakota County Technical College	Maple Plain, City	St Paul Park, City
Detroit Lakes, City	Minnetonka Beach, City	Waite Park, City
Excelsior, City	Monticello, City	Woodland, City
	Northland Comm & Technical College	
Group 2 Within 120 days after permit **effective date**		
Anoka, City	Hutchinson, City	Nowthen, City
Anoka-Ramsey Community College	La Crescent, City	Proctor, City
Baxter, City	Lake Superior College - Duluth	Red Wing, City
Brainerd, City	Landfall, City	Shakopee, City
Buffalo, City	Lauderdale, City	South Washington WD
Champlin, City	Litchfield, City	Spring Park, City
Clay County	Mendota, City	St Joseph, City
Coon Creek WD	Midway Township	St Michael, City
Dayton, City	MN State Comm and Tech College-Moorhead	Stearns County
Dilworth, City	Moorhead, City	Tonka Bay, City
East Grand Forks, City	Mounds View, City	West St Paul, City
Elk River, City	North Oaks, City	Willernie, City
Elko New Market, City		Winona, City
Fridley, City		
Group 3 Within 150 days after permit **effective date**		
Albert Lea, City	Hennepin Technical College Eden Prairie	Owatonna, City
Anoka County	Hermantown, City	Pine Springs, City
Apple Valley, City	Hopkins, City	Plymouth, City
Austin, City	Houston County	Prior Lake, City
Bemidji, City	Hugo, City	Prior Lake-Spring Lake WSD
Benton County	Independence, City	Ramsey County Public Works
Big Lake, City	Inver Grove Heights, City	Ramsey-Washington Metro WD
Big Lake Township	Jackson Township	Redwood Falls, City
Blaine, City	La Crescent Township	Rice Creek WD
Bloomington, City	Laketown Township	Rice Lake Township
Brockway Township	Lakeville, City	Richfield, City

Brooklyn Center, City	Lake Elmo, City	Robbinsdale, City
Brooklyn Park, City	Le Sauk Township	Rochester, City
Burnsville, City	Lexington, City	Rochester Community & Tech College
Capitol Region WD	Lilydale, City	Rochester Township
Carver, City	Lino Lakes, City	Rosemount, City
Carver County	Little Canada, City	Roseville, City
Cascade Township	Loretto, City	Sauk Rapids, City
Century College	Louisville Township	Sauk Rapids Township
Chanhassen, City	Mahtomedi, City	Savage, City
Circle Pines, City	Mankato, City	Osseo, City
Cloquet, City	Maplewood, City	Otsego, City
Columbia Heights, City	Maple Grove, City	Scott County
Coon Rapids, City	Marion Township	Sherburne County
Corcoran, City	Marshall, City	Shoreview, City
Cottage Grove, City	Medicine Lake, City	Shorewood, City
Credit River Township	Medina, City	Spring Lake Park, City
Crystal, City	Mendota Heights, City	Spring Lake, Township
Dakota County	Metropolitan State University	Saint Paul College
Deephaven, City	Minden Township	St Anthony Village, City
Dellwood, City	Minnehaha Creek WD	St Cloud, City
Duluth, City	Minnesota Correctional-Lino Lakes	St Cloud State University
Duluth Township	Minnesota Correctional-St Cloud	St Joseph Township
Eagan, City	Minnetonka, City	St Louis Park, City
East Bethel, City	Minnetrista, City	St Peter, City
Eden Prairie, City	MNDOT Metro District	Stillwater, City
Edina, City	MNDOT Outstate District	Sunfish Lake, City
Empire Township	MN State University-Moorhead	U of M-Duluth
Fairmont, City	Montevideo, City	U of M-Twin Cities Campus
Falcon Heights, City	Mound, City	Vadnais Heights, City
Faribault, City	Mpls Community/Technical College	Valley Branch WD
Farmington, City	New Brighton, City	Victoria, City
Federal Medical Center	New Hope, City	Waconia, City
Fergus Falls, City	New Ulm, City	Waseca, City
Forest Lake, City	Newport City	Washington County
Gem Lake, City	Normandale Community College	Watab Township
Golden Valley, City	North Branch, City	Wayzata, City
Grant, City	North Hennepin Community College	West Lakeland Township
Ham Lake, City	North Mankato, City	White Bear Lake, City
Hastings, City	North St Paul, City	White Bear Township
Haven Township	Northfield, City	Willmar, City
Haverhill Township	Oakdale, City	Woodbury, City
Hennepin County	Olmsted County	Worthington, City
Hennepin Technical College Brooklyn Pk		

Table 2

Existing Permittees – Schedule of Permit Requirements

Permit Requirement	*Schedule*
PART II. APPLICATION REQUIREMENTS • *Submit Part 2 of the permit application with the **SWPPP** document completed in accordance with Part II.D.*	• See Table 1 above.
PART III. **STORMWATER POLLUTION PREVENTION PROGRAM (SWPPP)** • *Complete revisions to incorporate requirements of Part III.A-F into current **SWPPP**.* <u>Part III.C Mapping and Inventory</u> Part III.C.2 Inventory • *Complete and submit inventory in accordance with Part III.C.2.* <u>Part III.D.6 Pollution Prevention/Good Housekeeping For Municipal Operations</u> Part III.D.6.e Inspections • *Conduct inspections.* <u>Part III.E **Impaired Waters** and **TMDL**s (if applicable)</u> • Submit all information required by Part III.E. <u>Part III.F. **Alum or Ferric Chloride Phosphorus Treatment System**s (if applicable)</u> • *Meet requirements for treatment systems under Part III.F.*	• Within 12 months of the date permit coverage is extended, unless other timelines have been specifically established in this permit and identified below. • Within 12 months of the date permit coverage is extended. • Annually (Part III.D.6.e(1) and (2)), Quarterly (Part III.D.6.e(3)). • With each Annual Report required in Part IV.B. • Within 12 months of the date permit coverage is extended.
PART IV. ANNUAL **SWPPP** ASSESSMENT, ANNUAL REPORTING AND RECORD KEEPING <u>Part IV.A Annual **SWPPP** Assessment</u> • *Conduct assessment of the **SWPPP**.* <u>Part IV.B Annual Reporting</u> • *Submit an Annual Report*	• Annually and prior to completion of each Annual Report. • By June 30th of each calendar year.

Table 3

New Permittees – Schedule of Permit Requirements

Permit Requirement	*Schedule*
PART II. APPLICATION REQUIREMENTS • *Submit Part 1, and Part 2 of the permit application with the proposed **SWPPP** document as required by Part II.D.*	• Within 18 months of written notification from the **Commissioner** that the **MS4** meets the criteria in Minn. R. 7090.1010, Subpart 1.A. or B. and permit coverage is required.
PART III. **STORMWATER POLLUTION PREVENTION PROGRAM (SWPPP)** • *Complete all requirements of Part III.A-F.* <u>Part III.A Regulatory Mechanism(s)</u> **Illicit Discharge** Detection and Elimination (see Part III.D.3)	• Within 36 months of the date permit coverage is extended, unless other timelines have been specifically established in this permit and identified below; or • Within timelines established by the **Commissioner** under Part I.F.2.

• *Develop, implement, and enforce Regulatory Mechanism.*	• Within 12 months of the date permit coverage is extended.
Construction Site **Stormwater** Runoff Control (see Part III.D.4)	
• *Develop, implement, and enforce Regulatory Mechanism.*	• Within six (6) months of the date permit coverage is extended.
Post-Construction **Stormwater** Management (see Part III.D.5)	
• *Develop, implement, and enforce Regulatory Mechanism.*	• Within 24 months of the date permit coverage is extended.
Part III.B Enforcement Response Procedures (ERPs)	
• *Develop and implement written ERPs for the Regulatory Mechanism(s) required under Part III.A.*	• Within 24 months of the date permit coverage is extended.
Part III.C Mapping and Inventory Part III.C.1 Mapping	
• *Develop a storm sewer system map.*	• Within 24 months of the date permit coverage is extended.
Part III.C.2 Inventory	
• *Complete and submit inventory in accordance with Part III.C.2.*	• Within 24 months of the date permit coverage is extended.
Part III.D Minimum Control Measures Part III.D.4 Construction Site **Stormwater** Runoff Control	
• *Develop, implement, and enforce a Construction Site **Stormwater** Runoff Control program.*	• Within six (6) months of the date permit coverage is extended. See Part III.A Regulatory Mechanism(s).
Part III.D.5 Post-Construction **Stormwater** Management	
• *Develop, implement, and enforce a Post-Construction **Stormwater** Management program.*	• Within 24 months of the date permit coverage is extended. See Part III.A Regulatory Mechanism(s).
Part III.D.6 Pollution Prevention/Good Housekeeping for Municipal Operations Part III.D.6.e Inspections	
• *Conduct inspections.*	• Annually (Part III.D.6.e(1) and (2)), Quarterly (Part III.D.6.e(3)).
Part III.E **Impaired Water**s and **TMDL**s (if applicable)	
• *Submit all information required by Part III.E.*	• With each Annual Report required in Part IV.B.
Part III.F. **Alum or Ferric Chloride Phosphorus Treatment System**s (if applicable)	
• *Meet requirements for treatment systems under Part III.F.*	• Within 12 months of the date permit coverage is extended.
PART IV. ANNUAL **SWPPP** ASSESSMENT, ANNUAL REPORTING AND RECORD KEEPING Part IV.A Annual **SWPPP** Assessment	
• *Conduct assessment of the **SWPPP**.*	• Annually and prior to completion of each Annual Report.
Part IV.B Annual Reporting	
• *Submit an Annual Report.*	• By June 30th of each calendar year.

APPENDIX B

DEFINITIONS AND ABBREVIATIONS

The definitions in this Part are for purposes of this permit only.

1. "**Active Karst**" means geographic areas underlain by carbonate bedrock (or other forms of bedrock that can erode or dissolve) with less than 50 feet of sediment cover.

2. **"Agency"** means the Minnesota Pollution Control **Agency** or MPCA. (Minn. Stat. § 116.36, subd. 2.)

3. "**Alum or Ferric Chloride Phosphorus Treatment System**" means the diversion of flowing **stormwater** from a **MS4**, removal of phosphorus through the use a continuous feed of alum or ferric chloride additive, flocculation, and the return of the treated **stormwater** back into a **MS4** or **receiving water**.

4. "**Applicable WLA**" – means a **Waste Load Allocation** assigned to the **permittee** and approved by the USEPA.

5. "**Best Management Practices"** or **"BMPs"** means practices to prevent or **reduce** the pollution of the **waters of the state**, including schedules of activities, prohibitions of practices, and other management practices, and also includes treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge, or waste disposal or drainage from raw material storage. (Minn. R. 7001.1020, subp.5.)

6. **"Commissioner"** means the **Commissioner** of the Minnesota Pollution Control **Agency** or the **Commissioner**'s designee. (Minn. Stat. § 116.36, subd. 3.)

7. "**Common Plan of Development or Sale**" means a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land-disturbing activities may occur.

8. "**Construction Activity**" includes **construction activity** as defined in 40 CFR § 122.26(b)(14)(x) and **small construction activity** as defined in 40 CFR § 122.26(b)(15). This includes a disturbance to the land that results in a change in the topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated **stormwater** runoff, leading to soil erosion and movement of sediment into **surface waters** or drainage systems. Examples of **construction activity** may include clearing, grading, filling, and excavating. **Construction activity** includes the disturbance of less than one acre of total land area that is a part of a larger **common plan of development or sale** if the larger common plan will ultimately disturb one (1) acre or more.

9. **"DNR Catchment Area"** means the Hydrologic Unit 08 areas delineated and digitized by the Minnesota DNR. The catchment areas are available for download at the Minnesota DNR Data Deli website. **DNR catchment area**s may be locally corrected, in which case the local corrections may be used.

10. **"Effective Date"** means the date, located on the front cover of this permit, on which this permit shall become effective.

11. **"Existing Permittee"** means an **Owner**/**Operator** of a **small MS4** that has been authorized to discharge **stormwater** under a previously issued **general permit** for **small MS4**s in the state of Minnesota.

12. **"General permit"** means a permit issued under Minn. R. 7001.0210 to a category of **permittee**s whose operations, emissions, activities, discharges, or facilities are the same or substantially similar. (Minn. R. 7001.0010, subp.4.)

13. **"Geographic Coordinate"** means the point location of a **stormwater** feature expressed by X, Y coordinates of a standard Cartesian coordinate system (i.e. latitude/longitude) that can be readily converted to Universal Transverse Mercator (UTM), Zone 15N in the NAD83 datum. For polygon features, the **geographic coordinate** will typically define the approximate center of a **stormwater** feature.

14. **"Green Infrastructure"** means a wide array of practices at multiple scales that manage wet weather and that maintains or restores natural hydrology by infiltrating, evapotranspiring, or harvesting and using stormwater. On a regional scale, green infrastructure is the preservation or restoration of natural landscape features, such as forests, floodplains and wetlands, coupled with policies such as infill and redevelopment that reduce overall imperviousness in a watershed. On the local scale, green infrastructure consists of site and neighborhood-specific practices, such as bioretention, trees, green roofs, permeable pavements and cisterns.

15. **"High Flow Bypass"** means a function of an inlet device that allows a certain flow of water through, but diverts any higher flows away. **High flow bypass**es are generally used for **BMPs** that can only treat a designed amount of flow and that would be negatively affected by higher flows.

16. **"Illicit Discharge"** means any discharge to a **municipal separate storm sewer** that is not composed entirely of stormwater except discharges pursuant to a NPDES permit (other than the **NPDES** permit for discharges from the **municipal separate storm sewer**) and discharges resulting from firefighting activities. (40 CFR § 122.26(b)(2))

17. **"Impaired Water"** means waters identified as impaired by the **Agency**, and approved by the USEPA, pursuant to section 303(d) of the Clean Water Act (33 U.S.C. § 303(d)).

18. **"Maximum Extent Practicable"** or **"MEP"** means the statutory standard (33 U.S.C. § 1342(p)(3)(B)(iii)) that establishes the level of pollutant reductions that an **Owner** or **Operator** of **Regulated MS4s** must achieve. The USEPA has intentionally not provided a precise definition of **MEP** to allow maximum flexibility in **MS4** permitting. The pollutant reductions that represent **MEP** may be different for each **small MS4**, given the unique local hydrologic and geologic concerns that may exist and the differing possible pollutant control strategies. Therefore, each **permittee** will determine appropriate **BMPs** to satisfy each of the six Minimum Control Measures (MCMs) through an evaluative process. The USEPA envisions application of the **MEP** standard as an iterative process.

19. **"Municipal separate storm sewer system"** or **"MS4"** means a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains:

    a. owned or operated by a state, city, town, county, district, association, or other public body, created by or pursuant to state law, having jurisdiction over disposal of sewage, industrial

wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district, or drainage district or similar entity, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management **Agency** under section 208 of the federal Clean Water Act, United States Code, title 33, section 1288, that discharges into **waters of the state**

b. designed or used for collecting or conveying stormwater

c. that is not a combined sewer; and

d. that is not part of a publicly owned treatment works as defined in 40 CFR § 122.2

Municipal separate storm sewer systems do not include separate storm sewers in very discrete areas, such as individual buildings. (Minn. R. 7090.0080, subp. 8).

20. **"New development"** means all **construction activity** that is not defined as **redevelopment.**

21. **"New Permittee"** means an **Owner**/**Operator** of a **small MS4** that has not been authorized to discharge **stormwater** under a previously issued General **Stormwater** Permit for **small MS4**s in the state of Minnesota and that applies for, and obtains coverage under this permit.

22. **"Non-Stormwater Discharge"** means any discharge not composed entirely of **stormwater**.

23. **"Operator"** means the **person** with primary operational control and legal responsibility for the **municipal separate storm sewer system**. (Minn. R. 7090.0080, subp.10.)

24. **"Outfall"** means the point source where a **municipal separate storm sewer system** discharges to a **receiving water**, or the **stormwater** discharge permanently leaves the **permittee**'s **MS4**. It does not include diffuse runoff or conveyances that connect segments of the same stream or water systems (e.g., when a conveyance temporarily leaves an **MS4** at a road crossing).

25. **"Owner"** means the **person** that owns the **municipal separate storm sewer system**. (Minn. R. 7090.0080, subp.11.)

26. **"Permittee"** means a **person** or **person**s, that signs the permit application submitted to the **Agency** and is responsible for compliance with the terms and conditions of this permit.

27. **"Person"** means the state or any Agency or institution thereof, any municipality, governmental subdivision, public or private corporation, individual, partnership, or other entity, including, but not limited to, association, commission or any interstate body, and includes any officer or governing or managing body of any municipality, governmental subdivision, or public or private corporation, or other entity.(Minn. Stat. § 115.01, subd. 10.)

28. **"Pipe"** means a closed manmade conveyance device used to transport **stormwater** from location to location. The definition of **pipe** does not include foundation drain **pipe**s, irrigation **pipe**s, land drain tile **pipe**s, culverts, and road sub-grade drain **pipe**s.

29. **"Pollutant of Concern"** means a pollutant specifically identified in a USEPA-approved **TMDL** report as causing a water quality impairment.

30. **"Receiving Water"** means any lake, river, stream or **wetland** that receives **stormwater** discharges from an **MS4.**

31. **"Redevelopment"** means any **construction activity** where, prior to the start of construction, the areas to be disturbed have 15 percent or more of impervious surface(s).

32. **"Reduce"** means **reduce** to the **Maximum Extent Practicable** (**MEP**) unless otherwise defined in the context in which it is used.

33. **"Saturated Soil"** means the highest seasonal elevation in the soil that is in a reduced chemical state because of soil voids being filled with water. **Saturated soil** is evidenced by the presence of redoximorphic features or other information.

34. **"Significant Materials"** includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); any chemical the facility is required to report pursuant to Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA); fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with **stormwater** discharges. When determining whether a material is significant, the physical and chemical characteristics of the material should be considered (e.g. the material's solubility, transportability, and toxicity characteristics) to determine the material's pollution potential. (40 CFR § 122.26(b)(12).

35. **"Small Municipal Separate Storm Sewer System"** or **"small MS4",** means all separate storm sewers that are:

    1. Owned or operated by the United States, a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, **stormwater**, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management Agency under section 208 of the CWA that discharges to waters of the United States.

    2. Not defined as "large" or "medium" **Municipal Separate Storm Sewer Systems** pursuant to 40 CFR § 122.26 paragraphs (b)(4) and (b)(7) or designated under paragraph (a)(1)(v).

    3. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

36. **"Stormwater"** means **stormwater** runoff, snow melt runoff, and surface runoff and drainage. (Minn. R. 7090.0080, subp.12.)

37. **"Stormwater flow direction"** means the direction of predominant flow within a **pipe**. Flow direction can be discerned if **pipe** elevations can be displayed on the storm sewer system map.

38. **"Stormwater Pollution Prevention Program"** or **"SWPPP"** means a comprehensive program developed by the **permittee** to manage and **reduce** the discharge of pollutants in **stormwater** to and from the **small MS4**.

39. **"Structural Stormwater BMP"** means a stationary and permanent **BMP** that is designed, constructed and operated to prevent or **reduce** the discharge of pollutants in **stormwater.**

40. **"Total Maximum Daily Load"** or **"TMDL"** means the sum of the individual **Waste Load Allocations** for point sources and load allocations for nonpoint sources and natural background, as more fully defined in 40 CFR § 130.2, paragraph (i). A **TMDL** sets and allocates the maximum amount of a pollutant that may be introduced into a **water of the state** and still assure attainment and maintenance of **water quality standards**. (Minn. R. 7052.0010 subp. 42)

41. **"Waste Load Allocation"** or **"WLA"** means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution, as more fully defined in Code of Federal Regulations, title 40, section 130.2, paragraph (h). In the absence of a **TMDL** approved by USEPA under 40 CFR § 130.7, or an assessment and remediation plan developed and approved according to Minn. R. 7052.0200, subp. 1.C, a **WLA** is the allocation for an individual point source that ensures that the level of water quality to be achieved by the point source is derived from and complies with all applicable **water quality standards** and criteria. (Minn. R. 7052.0010 subp. 45)

42. **"Water pollution"** means (a) the discharge of any pollutant into any waters of the state or the contamination of any waters of the state so as to create a nuisance or render such waters unclean, or noxious, or impure so as to be actually or potentially harmful or detrimental or injurious to public health, safety or welfare, to domestic, agricultural, commercial, industrial, recreational or other legitimate uses, or to livestock, animals, birds, fish or other aquatic life; or (b) the alteration made or induced by human activity of the chemical, physical, biological, or radiological integrity of waters of the state. (Minn. Stat. § 115.01, subd. 13)

43. **"Water Quality Standards"** means those provisions contained in Minn. R. 7050 and 7052.

44. **"Waters of the State"** means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof. (Minn. Stat. § 115.01, subd. 22.)

45. **"Wetlands"** are those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. **Wetlands** generally include swamps, marshes, bogs, and similar areas. Constructed **wetlands** designed for wastewater treatment are not **waters of the state**. **Wetlands** must have the following attributes:

    1. A predominance of hydric soils

    2. Inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in a saturated soil condition and

3. Under normal circumstances support a prevalence of such vegetation. (Minn. R. 7050.0186, subp. 1a.B.)

ABBREVIATIONS AND ACRONYMS

- BMP - Best Management Practice
- CFR – Code of Federal Regulations
- CWA – Clean Water Act or the Federal Water Pollution Control Act, 33 U.S.C. §1251 *et seq)*
- DNR – Department of Natural Resources
- DWSMA – Drinking Water Supply Management Area
- ERPs– Enforcement Response Procedures
- IDDE - Illicit Discharge Detection and Elimination
- MCM – Minimum Control Measure
- MDH – Minnesota Department of Health
- MEP – Maximum Extent Practicable
- MS4 - Municipal Separate Storm Sewer System
- NPDES - National Pollutant Discharge Elimination System
- ORVW - Outstanding Resource Value Water
- SDS – State Disposal System
- TMDL - Total Maximum Daily Load
- TP – Total Phosphorus
- TSS - Total Suspended Solids
- USEPA - United States Environmental Protection Agency
- WLA – Waste Load Allocation

APPENDIX

Appendix F – City of West St. Paul MS4 SWPPP Application for Reauthorization

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

MS4 SWPPP Application for Reauthorization

for the NPDES/SDS General Small Municipal Separate Storm Sewer System (MS4) Permit MNR040000 reissued with an effective date of August 1, 2013

Stormwater Pollution Prevention Program (SWPPP) Document

Doc Type: Permit Application

Instructions: This application is for authorization to discharge stormwater associated with Municipal Separate Storm Sewer Systems (MS4s) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program. **No fee** is required with the submittal of this application. Please refer to "Example" for detailed instructions found on the Minnesota Pollution Control Agency (MPCA) MS4 website at http://www.pca.state.mn.us/ms4.

Submittal: This *MS4 SWPPP Application for Reauthorization* form must be submitted electronically via e-mail to the MPCA at ms4permitprogram.pca@state.mn.us from the person that is duly authorized to certify this form. All questions with an asterisk (*) are required fields. All applications will be returned if required fields are not completed.

Questions: Contact Claudia Hochstein at 651-757-2881 or claudia.hochstein@state.mn.us, Dan Miller at 651-757-2246 or daniel.miller@state.mn.us, or call toll-free at 800-657-3864.

General Contact Information (*Required fields)

MS4 Owner (with ownership or operational responsibility, or control of the MS4)

*MS4 permittee name: City of West Saint Paul *County: Dakota
(city, county, municipality, government agency or other entity)

*Mailing address: 1616 Humboldt Avenue

*City: West Saint Paul *State: MN *Zip code: 55118

*Phone (including area code): (651) 552-4102 *E-mail: shatfield@cityofwsp.org

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

*Last name: Saam *First name: Matt
(department head, MS4 coordinator, consultant, etc.)

*Title: City Engineer

*Mailing address: 1616 Humboldt Avenue

*City: West Saint Paul *State: MN *Zip code: 55118

*Phone (including area code): (651) 552-4130 *E-mail: msaam@cityofwsp.org

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

Last name: Knoff First name: Mark
(department head, MS4 coordinator, consultant, etc.)

Title: Consultant

Mailing address: Foth Infrastructure & Environment, LLC, Eagle Point II, 8550 Hudson Boulevard North, Suite 100

City: Lake Elmo State: MN Zip code: 55042

Phone (including area code): (651)288-8563 E-mail: mark.knoff@foth.com

Verification

1. I seek to continue discharging stormwater associated with a small MS4 after the effective date of this Permit, and shall submit this *MS4 SWPPP Application for Reauthorization* form, in accordance with the schedule in Appendix A, Table 1, with the SWPPP document completed in accordance with the Permit (Part II.D.). ☒ Yes
2. I have read and understand the NPDES/SDS MS4 General Permit and certify that we intend to comply with all requirements of the Permit. ☒ Yes

Certification (All fields are required)

☒ Yes - *I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted.*

I certify that based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of civil and criminal penalties.

This certification is required by Minn. Stat. §§ 7001.0070 and 7001.0540. The authorized person with overall, MS4 legal responsibility must certify the application (principal executive officer or a ranking elected official).

By typing my name in the following box, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing my application.

Name: Matt Fulton
(This document has been electronically signed)

Title: City Manager Date (mm/dd/yyyy): 12/02/2013

Mailing address: 1616 Humboldt Avenue

City: West Saint Paul State: MN Zip code: 55118

Phone (including area code): 651-552-4101 E-mail: MFulton@cityofwsp.org

Note: *The application will not be processed without certification.*

Stormwater Pollution Prevention Program Document

I. Partnerships: (Part II.D.1)

A. List the **regulated small MS4(s)** with which you have established a partnership in order to satisfy one or more requirements of this Permit. Indicate which Minimum Control Measure (MCM) requirements or other program components that each partnership helps to accomplish (List all that apply). Check the box below if you currently have no established partnerships with other regulated MS4s. If you have more than five partnerships, hit the tab key after the last line to generate a new row.

☐ No partnerships with regulated small MS4s

Name and description of partnership	MCM/Other permit requirements involved
Dakota County, mapping support	MCM 3

B. If you have additional information that you would like to communicate about your partnerships with other regulated small MS4(s), provide it in the space below, or include an attachment to the SWPPP Document, with the following file naming convention: *MS4NameHere_Partnerships.*

There are no other formal partnerships for the purposes of meeting MCM or other permit requirements. The City plans to utilize strategic partnerships as they become available to enhance their storm water pollution prevention program. The City also has a partnership with Dakota County to assess the health of the wetlands in the community. This information can be used in the analysis of the effectiveness of our stormwater program, but is not a formal part of the program.

II. Description of Regulatory Mechanisms: (Part II.D.2)

Illicit discharges

A. Do you have a regulatory mechanism(s) that effectively prohibits non-stormwater discharges into your small MS4, except those non-stormwater discharges authorized under the Permit (Part III.D.3.b.)? ☒ Yes ☐ No

1. If **yes:**

   a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):
   ☒ Ordinance ☐ Contract language
   ☐ Policy/Standards ☐ Permits
   ☐ Rules
   ☐ Other, explain: _____

   b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

   Citation:

   West Saint Paul City Code Section 700.25, Storm Water Illicit Discharge and Illicit Connection

   West Saint Paul City Code Section 120, Administrative Citations

   Direct link:

   ☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_IDDEreg.*

2. If **no:**

   Describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

   The City, with the assistance of a consultant, will review and update our IDDE regulatory mechanism to meet the new requirements of the MS4 general permit. This effort will be completed within 12 months of the date permit

coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance.

Construction site stormwater runoff control

A. Do you have a regulatory mechanism(s) that establishes requirements for erosion and sediment controls and waste controls? ☒ Yes ☐ No

1. If **yes:**

a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☒ Ordinance ☐ Contract language
☒ Policy/Standards ☒ Permits
☐ Rules
☐ Other, explain: _____

b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

West Saint Paul Zoning Ordinance Section 40, STORMWATER MANAGEMENT, specifically:

West Saint Paul Zoning Ordinance Section 40.1, POLICY

West Saint Paul Zoning Ordinance Section 40.2 DEFINITIONS

West Saint Paul Zoning Ordinance Section 40.3(1) GENERAL POLICY ON STORMWATER RUNOFF RATES

West Saint Paul Zoning Ordinance Section 40.3(2) THE STORMWATER POLLUTION CONTROL PLAN AND GRADING PLAN

West Saint Paul Zoning Ordinance Section 40(3) INSPECTIONS OF THE SOTRMWATER POLLUTION CONTROL PLAN MEASURES

West Saint Paul Zoning Ordinance Section 40(4), MINIMUM REQUIREMENTS OF THE STORMWATER POLLUTION CONTROL PLAN

West Saint Paul Zoning Ordinance Section 40(5), GENERAL STORMWATER POLLUTION CONTROL PLAN CRITERIA

West Saint Paul Zoning Ordinance Section 40(6), MINIMUM STORMWATER POLLUTION CONTROL PLAN MEASURES AND RELATED INSPECTIONS

West Saint Paul Zoning Ordinance Section 40(10), MODELS/METHODOLOGIES/COMPUTATIONS

West Saint Paul Zoning Ordinance Section 40.4 REVIEW

West Saint Paul Zoning Ordinance Section 40.5 MODIFICATION OF PLAN

West Saint Paul Zoning Ordinance Section 40.6 FINANCIAL SECURITIES

West Saint Paul Zoning Ordinance Section 40.7 NOTIFICATION OF FAILURE OF THE STORMWATER POLLUTION CONTROL PLAN

West Saint Paul Zoning Ordinance Section 40.8 EXCEPTIONS

West Saint Paul Zoning Ordinance Section 40.9 ENFORCEMENT AND PENALTIES

West Saint Paul Zoning Ordinance Section 40.10 RIGHT OF ENTRY AND INSPECTION

West Saint Paul Zoning Ordinance Section 40.11 ABROGATION AND GREATER RESTRICTIONS

Direct link:

http://www.cityofwsp.org/vertical/Sites/%7B2CF6FEAE-EDC4-4E50-A078-817B219E41B8%7D/uploads/Letterhead_2012_Flow_chart_Planning.pdf

http://www.cityofwsp.org/vertical/Sites/%7B2CF6FEAE-EDC4-4E50-A078-817B219E41B8%7D/uploads/Letterhead_2012_Flow_chart_Building.pdf

http://www.cityofwsp.org/vertical/Sites/%7B2CF6FEAE-EDC4-4E50-A078-817B219E41B8%7D/uploads/Letterhead_2012_Commercial_building_permit_submittal_requirements.pdf

http://www.cityofwsp.org/vertical/Sites/%7B2CF6FEAE-EDC4-4E50-A078-817B219E41B8%7D/uploads/Combined_Building_Permit_2013-Building_Plumbing_Signs_12-19-12.pdf

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_CSWreg.*

B. Is your regulatory mechanism at least as stringent as the MPCA general permit to Discharge Stormwater Associated with Construction Activity (as of the effective date of the MS4 Permit)? ☐Yes ☒ No

If you answered **yes** to the above question, proceed to C.

If you answered **no** to either of the above permit requirements listed in A. or B., describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

We will update our construction site stormwater runoff control regulatory mechanism to be at least as stringent as the MPCA NPDES Stormwater Construction Activity Permit. The City has hired a consultant to recommend language that will comply with the new MS4 permit. This effort will be completed within 12 months of the date permit coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance.

C. Answer **yes** or **no** to indicate whether your regulatory mechanism(s) requires owners and operators of construction activity to develop site plans that incorporate the following erosion and sediment controls and waste controls as described in the Permit (Part III.D.4.a.(1)-(8)), and as listed below:

1.	Best Management Practices (BMPs) to minimize erosion.	☐ Yes ☒ No
2.	BMPs to minimize the discharge of sediment and other pollutants.	☐ Yes ☒ No
3.	BMPs for dewatering activities.	☐ Yes ☒ No
4.	Site inspections and records of rainfall events	☐ Yes ☒ No
5.	BMP maintenance	☐ Yes ☒ No
6.	Management of solid and hazardous wastes on each project site.	☐ Yes ☒ No
7.	Final stabilization upon the completion of construction activity, including the use of perennial vegetative cover on all exposed soils or other equivalent means.	☐ Yes ☒ No
8.	Criteria for the use of temporary sediment basins.	☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

All areas listed above, except C4 (Records) and C6 are addressed in West Saint Paul Zoning Ordinance Section 40.3(4)-(7) & (10). Areas C4 and C6 will be incorporated into a revised ordinance and areas C1-C3, C5 and C6-8 will amended to meet the new permit requirements. The City has hired a consultant to recommend language that will comply with the new MS4 permit. The ordiance amendment will be completed within 12 months of the date permit coverage is extended. Items C1 through C8 will be incorporated into a site plan checklist within 12 months of the date permit coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance.

Post-construction stormwater management

A. Do you have a regulatory mechanism(s) to address post-construction stormwater management activities?
☒ Yes ☐ No

1. If **yes:**

a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☒ Ordinance ☐ Contract language
☐ Policy/Standards ☐ Permits
☐ Rules
☐ Other, explain: _____

b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

West Saint Paul Zoning Ordinance Section 40 STORMWATER MANAGEMENT, specifically

West Saint Paul Zoning Ordinance Section 40.2 DEFINITIONS

West Saint Paul Zoning Ordinance Section 40.3(1) GENERAL POLICY ON STORMWATER RUNOFF RATES

West Saint Paul Zoning Ordinance Section 40(5), GENERAL STORMWATER POLLUTION CONTROL PLAN

CRITERIA

West Saint Paul Zoning Ordinance Section 40(6)a, MINIMUM STORMWATER POLLUTION CONTROL PLAN MEASURES AND RELATED INSPECTIONS

West Saint Paul Zoning Ordinance 40.3(7) PERMANENT STORM WATER POLLUTION CONTROLS

West Saint Paul Zoning Ordinance 40.3(8) MINIMUM DESIGN STANDARDS FOR STORMWATER WET DETENTION FACILITIES

West Saint Paul Zoning Ordinance Section 40.3(9) MINIMUM PROTECTION FOR NATURAL WETLANDS

West Saint Paul Zoning Ordinance Section 40(10), MODELS/METHODOLOGIES/COMPUTATIONS

Direct link:

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_PostCSWreg.*

B. Answer **yes** or **no** below to indicate whether you have a regulatory mechanism(s) in place that meets the following requirements as described in the Permit (Part III.D.5.a.):

1. **Site plan review:** Requirements that owners and/or operators of construction activity submit site plans with post-construction stormwater management BMPs to the permittee for review and approval, prior to start of construction activity. ☒ Yes ☐ No

2. **Conditions for post construction stormwater management:** Requires the use of any combination of BMPs, with highest preference given to Green Infrastructure techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a construction activity to the Maximum Extent Practicable (MEP):

   a. For new development projects – no net increase from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

      1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
      2) Stormwater discharges of Total Suspended Solids (TSS).
      3) Stormwater discharges of Total Phosphorus (TP).

   b. For redevelopment projects – a net reduction from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

      1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
      2) Stormwater discharges of TSS.
      3) Stormwater discharges of TP.

3. **Stormwater management limitations and exceptions:**

   a. Limitations

      1) Prohibit the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) when the infiltration structural stormwater BMP will receive discharges from, or be constructed in areas: ☐ Yes ☒ No
         a) Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the MPCA.
         b) Where vehicle fueling and maintenance occur.
         c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
         d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater.

      2) Restrict the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas: ☐ Yes ☒ No
         a) With predominately Hydrologic Soil Group D (clay) soils.
         b) Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features.
         c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13.
         d) Where soil infiltration rates are more than 8.3 inches per hour.

      3) For linear projects where the lack of right-of-way precludes the installation of volume control practices that meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), the permittee's regulatory mechanism(s) may allow ☐ Yes ☒ No

exceptions as described in the Permit (Part III.D.5.a(3)(b)). The permittee's regulatory mechanism(s) shall ensure that a reasonable attempt be made to obtain right-of-way during the project planning process.

4. **Mitigation provisions:** The permittee's regulatory mechanism(s) shall ensure that any stormwater discharges of TSS and/or TP not addressed on the site of the original construction activity are addressed through mitigation and, at a minimum, shall ensure the following requirements are met:

   a. Mitigation project areas are selected in the following order of preference: ☐ Yes ☒ No
      1) Locations that yield benefits to the same receiving water that receives runoff from the original construction activity.
      2) Locations within the same Minnesota Department of Natural Resource (DNR) catchment area as the original construction activity.
      3) Locations in the next adjacent DNR catchment area up-stream
      4) Locations anywhere within the permittee's jurisdiction.

   b. Mitigation projects must involve the creation of new structural stormwater BMPs or the retrofit of existing structural stormwater BMPs, or the use of a properly designed regional structural stormwater BMP. ☐ Yes ☒ No

   c. Routine maintenance of structural stormwater BMPs already required by this permit cannot be used to meet mitigation requirements of this part. ☐ Yes ☒ No

   d. Mitigation projects shall be completed within 24 months after the start of the original construction activity. ☐ Yes ☒ No

   e. The permittee shall determine, and document, who will be responsible for long-term maintenance on all mitigation projects of this part. ☐ Yes ☒ No

   f. If the permittee receives payment from the owner and/or operator of a construction activity for mitigation purposes in lieu of the owner or operator of that construction activity meeting the conditions for post-construction stormwater management in Part III.D.5.a(2), the permittee shall apply any such payment received to a public stormwater project, and all projects must be in compliance with Part III.D.5.a(4)(a)-(e). ☐ Yes ☒ No

5. **Long-term maintenance of structural stormwater BMPs:** The permittee's regulatory mechanism(s) shall provide for the establishment of legal mechanisms between the permittee and owners or operators responsible for the long-term maintenance of structural stormwater BMPs not owned or operated by the permittee, that have been implemented to meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)). This only includes structural stormwater BMPs constructed after the effective date of this permit and that are directly connected to the permittee's MS4, and that are in the permittee's jurisdiction. The legal mechanism shall include provisions that, at a minimum:

   a. Allow the permittee to conduct inspections of structural stormwater BMPs not owned or operated by the permittee, perform necessary maintenance, and assess costs for those structural stormwater BMPs when the permittee determines that the owner and/or operator of that structural stormwater BMP has not conducted maintenance. ☐ Yes ☒ No

   b. Include conditions that are designed to preserve the permittee's right to ensure maintenance responsibility, for structural stormwater BMPs not owned or operated by the permittee, when those responsibilities are legally transferred to another party. ☐ Yes ☒ No

   c. Include conditions that are designed to protect/preserve structural stormwater BMPs and site features that are implemented to comply with the Permit (Part III.D.5.a(2)). If site configurations or structural stormwater BMPs change, causing decreased structural stormwater BMP effectiveness, new or improved structural stormwater BMPs must be implemented to ensure the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) continue to be met. ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within twelve (12) months of the date permit coverage is extended, these permit requirements are met:

B2-5: Amend the current post-construction ordinance, which only has some minor guidance related to green infrastructure techniques and practices (B2) and right to inspect (B5c); and does not cover the other tasks in B3 through B5. A majority of the development in the City is redevelopment. The City has hired a consultant to suggest amendments to the current ordinance that will meet the new requirements of the MS4 general permit. The consultant will be working with the city engineer and other city departments to coordinate the changes. The ordinance will be amended within 12 months of the date permit coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance. Applicable items will be addressed in a site planning checklist that the City will develop in conjunction with the ordinance.

III. Enforcement Response Procedures (ERPs): (Part II.D.3)

A. Do you have existing ERPs that satisfy the requirements of the Permit (Part III.B.)? ☐ Yes ☒ No

1. If **yes**, attach them to this form as an electronic document, with the following file naming convention: *MS4NameHere_ERPs.*
2. If **no**, describe the tasks and corresponding schedules that will be taken to assure that, with twelve (12) months of the date permit coverage is extended, these permit requirements are met:

   Some enforcement response procedures are already covered in several ordinances to include City Code Section 120 subd. 4.a., Zoning Ordinance 40.7(4) and 40.9(1). The City has hired a consultant to develop a written procedure that will satisfy these requirements. We have already met to discuss the requirements as part of updating the City's stormwater program to meet the new MS4 permit requirements. Any ordinance amendments and ERP's will be developed and implemented within 12 months of the date permit coverage is extended. For all ordinance updates, a draft will be completed nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance.

B. Describe your ERPs:

We do not currently have formalized ERPs, see above implementation plan. See below for our current working draft:

Examples of categories of violations the city may consider including in their plan:

- *Failure to apply for permit coverage*
- *Failure to prepare a Storm Water Pollution Prevention Plan (SWPPP)*
- *Inadequate SWPPP*
- *Failure to implement Best Management Practices (BMPs)*
- *Failure to maintain BMPs*
- *Failure to conduct or document inspections*
- *Non-stormwater discharge to the storm sewer system*

Examples of factors the City may consider in the selection of enforcement response:

- *Whether there is an isolated or infrequent violation*
- *Frequent or repeat violations*
- *Other types of noncompliance involved*
- *Degree of impact to the environment*

Examples of Enforcement Responses the City may consider including in their plan:

- *Notice of Violation (NOV) - A written document issued by Regulator (us) to a permittee or other regulatee informing them of the party's violation(s) of the applicable permit, statute or regulation*
- *Expedited Settlement Offer (ESO) - A consent agreement and final penalty order issued by us, in specified circumstances, where violations of the applicable permit, statute or regulation may be resolved quickly through an expedited process in which the violator:*
  - *corrects identified deficiencies*
  - *signs an agreement with us certifying that deficiencies have been corrected*
  - *pays a penalty*
- *Administrative Order (AO) - A written document issued by us which contains findings of fact and which directs a permittee or other regulatee to achieve compliance with the applicable permit, statute or regulation*
- *Administrative Penalty Order (APO) - An order entered by us assessing penalties against a permittee or other regulatee for violating the applicable permit, statute or regulation*
- *A Civil Action - A judicial action that typically seeks both penalties and injunctive relief for violating the applicable permit, statute or regulation*

The are several codified enforcement responses that the City already utilizes, to include: stop work orders, not issuing certificates of occupancy until the deficiency is corrected, requiring financial security for storm water compliance prior to beginning the project and criminal judicial action as circumstances dictate.

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

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

The City works with Dakota County to prepare the system map and asset inventory using GIS. The City passes the collected data to the Dakota County GIS technician for inclusion in the City's map layers and data attributes.

B. Answer **yes** or **no** to indicate whether your storm sewer system map addresses the following requirements from the Permit (Part III.C.1.a-d), as listed below:

1. The permittee's entire small MS4 as a goal, but at a minimum, all pipes 12 inches or greater in diameter, including stormwater flow direction in those pipes. ☒ Yes ☐ No
2. Outfalls, including a unique identification (ID) number assigned by the permittee, and an associated geographic coordinate. ☐ Yes ☒ No
3. Structural stormwater BMPs that are part of the permittee's small MS4. ☐ Yes ☒ No
4. All receiving waters. ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

The map must be reviewed and updated to ensure that all structural BMPs have been identified and that each has a unique identifier and geographic coordinates. The City will work with Dakota County to create a list of unique identifiers and geographic coordinates for each outfall within the MS4. The City has hired a consultant to use the data to complete the required inventory.

C. Answer **yes** or **no** to indicate whether you have completed the requirements of 2009 Minnesota Session Law, Ch. 172. Sec. 28: with the following inventories, according to the specifications of the Permit (Part III.C.2.a.-b.), including:

1. All ponds within the permittee's jurisdiction that are constructed and operated for purposes of water quality treatment, stormwater detention, and flood control, and that are used for the collection of stormwater via constructed conveyances. ☒ Yes ☐ No
2. All wetlands and lakes, within the permittee's jurisdiction, that collect stormwater via constructed conveyances. ☒ Yes ☐ No

D. Answer **yes** or **no** to indicate whether you have completed the following information for each feature inventoried.

1. A unique identification (ID) number assigned by the permittee. ☒ Yes ☐ No
2. A geographic coordinate. ☐ Yes ☒ No
3. Type of feature (e.g., pond, wetland, or lake). This may be determined by using best professional judgment. ☐ Yes ☒ No

If you have answered **yes** to all above requirements, and you have already submitted the Pond Inventory Form to the MPCA, then you do not need to resubmit the inventory form below.

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

The City will work with Dakota County and the information will be gathered from the GIS system and unique identifiers assigned so that the inventory form can be completed by the City's consultant within 12 months of the date permit coverage is extended.

E. Answer **yes** or **no** to indicate if you are attaching your pond, wetland and lake inventory to the MPCA on the form provided on the MPCA website at: http://www.pca.state.mn.us/ms4 , according to the specifications of Permit (Part III.C.2.b.(1)-(3)). Attach with the following file naming convention: *MS4NameHere_inventory*. ☐ Yes ☒ No

If you answered **no,** the inventory form must be submitted to the MPCA MS4 Permit Program within 12 months of the date permit coverage is extended.

V. Minimum Control Measures (MCMs) (Part II.D.5)

A. MCM1: Public education and outreach

1. The Permit requires that, within 12 months of the date permit coverage is extended, existing permittees revise their education and outreach program that focuses on illicit discharge recognition and reporting, as well as other specifically selected stormwater-related issue(s) of high priority to the permittee during this permit term. Describe your **current** educational program, including **any high-priority topics included**:

The City uses an array of public education efforts to address stormwater issues across a broad spectrum of citizens. Current methodologies include using the City's newsletter and brochures to reach large numbers of citizens. Educational

topics vary each year based upon needs identified by staff. The City also has a website. The City's SWPPP and SWMP are available on the website. The site also addresses development and has links to documents that outline the submittal requirements and permit applications. Friends of the Mississippi were used to develop a catch basin stenciling program. Stenciling materials and support are provided to groups interested in participating in the program. The City has also worked with Dakota County to educate residents on the benefits of rain gardens.

2. List the categories of BMPs that address your public education and outreach program, including the distribution of educational materials and a program implementation plan. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the U.S. Environmental Protection Agency's (EPA) *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Newsletter	Published four times per year, publish 3 articles per year related to storm water, available electronically and distributed via mail each quarter. Retain copies of the published articles.
Website	Measure number of hits. Update website to account for changes due to the new permit requirements in Year 2. Review the website annually.
Brochures	Brochures are distributed annually to all households in the utility bill. Brochures are available at city hall. Appropriate permit applicants are provided brochures with information on the permit application, construction site runoff control policies and post-construction runoff control. Update annually as new information becomes available.
Storm Drain Stenciling	Stencil at least 30 drains per year.

BMP categories to be implemented	Measurable goals and timeframes

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

   City Engineer

B. MCM2: Public participation and involvement

1. The Permit (Part III.D.2.a.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement a public participation/involvement program to solicit public input on the SWPPP. Describe your current program:

   The City conducts an annual meeting after a 30-day public notice period. The SWPPP document is posted on-line on the City's website year-round. Staff receives comments during the 30-day notice period and during the meeting. All comments are reviewed by staff and a formal response is prepared for the record. The SWPPP document is amended as deemed by the council. Records documenting the process are kept. The annual meeting is televised and replayed on CCTV for a period of about 12 months.

2. List the categories of BMPs that address your public participation/involvement program, including solicitation and documentation of public input on the SWPPP. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Annual Storm Water Meeting	Hold an annual meeting and have access to annual meeting on CCTV and online.
Appropriate public notice	Publish meeting notice 30 days prior to the meeting in the local paper (Southwest Review) and City's website.
Availability of Storm Water Pollution Prevention Program Document	Provide a copy of the SWPPP on the City's website, library and city hall for viewing at any point in the year.

Public Comment	Written and oral comments will be accepted during the 30-day notice period and at the annual meeting. The City will review and formally respond to all comments and amend the SWPPP document as appropriate.

BMP categories to be implemented	**Measurable goals and timeframes**

3. Do you have a process for receiving and documenting citizen input? ☐ Yes ☒ No

   If you answered **no** to the above permit requirement, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

   The City will develop documentation procedures that are in compliance with the new permit within twelve months of the date that permit coverage is extended. A draft copy of recommended procedures will be completed within six months of the date permit coverage is extended. City staff will review the procedures and make suggested changes to the city engineer during months six through nine. The city engineer will incorporate the changes into the procedures during the last three month period.

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

   City Engineer

C. MCM 3: Illicit discharge detection and elimination

1. The Permit (Part III.D.3.) requires that, within 12 months of the date permit coverage is extended, existing permittees revise their current program as necessary, and continue to implement and enforce a program to detect and eliminate illicit discharges into the small MS4. Describe your current program:

   Educational material that specifically addresses illicit discharge is published in the City's newsletter and on the City's website. Currently, the city has a CONTACT US button available on the Homepage of the website that residents can use to forward any issues that they would like staff to address. The City also has an email, Hotline and point of contact that can be used by citizens to report any type of code violation, including illicit discharge, on the Code Enforcement page of the website.

   The City has all existing stormwater pipe, as well as ponds, lakes and streams within the MS4 mapped. The map is updated annually to include any new or redevelopment projects.

2. Does your Illicit Discharge Detection and Elimination Program meet the following requirements, as found in the Permit (Part III.D.3.c.-g.)?

   a. Incorporation of illicit discharge detection into all inspection and maintenance activities conducted under the Permit (Part III.D.6.e.-f.)Where feasible, illicit discharge inspections shall be conducted during dry-weather conditions (e.g., periods of 72 or more hours of no precipitation). ☐ Yes ☒ No

   b. Detecting and tracking the source of illicit discharges using visual inspections. The permittee may also include use of mobile cameras, collecting and analyzing water samples, and/or other detailed procedures that may be effective investigative tools. ☐ Yes ☒ No

   c. Training of all field staff, in accordance with the requirements of the Permit (Part III.D.6.g.(2)), in illicit discharge recognition (including conditions which could cause illicit discharges), and reporting illicit discharges for further investigation. ☐ Yes ☒ No

   d. Identification of priority areas likely to have illicit discharges, including at a minimum, evaluating land use associated with business/industrial activities, areas where illicit discharges have been identified in the past, and areas with storage of large quantities of significant materials that could result in an illicit discharge. ☐ Yes ☒ No

   e. Procedures for the timely response to known, suspected, and reported illicit discharges. ☐ Yes ☒ No

   f. Procedures for investigating, locating, and eliminating the source of illicit discharges. ☐ Yes ☒ No

   g. Procedures for responding to spills, including emergency response procedures to prevent spills from entering the small MS4. The procedures shall also include the immediate notification of the Minnesota Department of Public Safety Duty Officer, if the source of the illicit discharge is a spill or leak as defined in Minn. Stat. § 115.061. ☐ Yes ☒ No

   h. When the source of the illicit discharge is found, the permittee shall use the ERPs required by the Permit (Part III.B.) to eliminate the illicit discharge and require any needed corrective action(s). ☐ Yes ☒ No

   If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

   C.2.a. The City currently has an illicit discharge ordinance, however the ordinance does not meet the new MS4 NPDES permit requirements. Any ordinance amendments and IDDE procedures will be developed and implemented within 12

months of the date permit coverage is extended. For all ordinance updates, a draft will be completed within nine months after the date permit coverage is extended to allow adequate time for the City's administrative process to promulgate an amended ordinance. The City has hired a consultant to help develop language that complies with the new MS4 permit.

C.2.b, d-g. The City is will develop an IDDE program that addresses each of these particular items to include identifying and tracking illicit discharges, identifying priority areas, eliminating illicit discharges, spill response procedures and updating the training program for the approriate City personnel. Staff will begin outlining program needs in January 2014. Program needs will be identified within three months after permit coverage is extended. Over the next nine months, staff will work on developing and implementing the IDDE program. The program, including any supporting documentation for training, detection, identification, responding and eliminating illicit discharges and spill response procedures will be completed within the 12 month time period.

C.2.h The City is working with a consultant to develop ERPs to comply with the new MS4 permit. The consultant will prepare ERPs for MCMs 3, 4 & 5. A final draft will be presented to the City staff for review within nine months of the date permit coverage is extended.

3. List the categories of BMPs that address your illicit discharge, detection and elimination program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Ordinance	Review the illicit discharge and public nuisance ordinances every general permit renewal to ensure that it continues to comply with the MS4 NPDES/SDS General Storm Water Permit. Update ordinance within 12 months permit coverage is extended.
Illicit Discharge Hotline	Hotline number is posted on the City's website and in the newsletter.
Spill Response and Reduction Program	Review the spill reduction and response plan annually in coordination with the City fire department and county.
Training	Train all new field employees in Parks Recreation and Public works, Community Development, Fire and Police for spotting and handling illicit discharges. Renew training every year.
Inspections	Inspect and document dry weather flow of 20% of all outlets on an annual basis.
Sanitary Sewer Overflow Program	Clean one-fourth (1/4th) of sanitary sewer on an annual basis.
Structural BMPs	Number of ESC activities required during any construction activity. Number of additional BMPs required.

BMP categories to be implemented	**Measurable goals and timeframes**
Inspections	Quarterly inspections of high-priority outfalls, and around high-risk establishments (fast food restaurants, dumpsters, car washes, mechanics, oil changes).

4. Do you have procedures for record-keeping within your Illicit Discharge Detection and Elimination (IDDE) program as specified within the Permit (Part III.D.3.h.)? ☐ Yes ☒ No

   If you answered **no**, indicate how you will develop procedures for record-keeping of your Illicit Discharge, Detection and Elimination Program, within 12 months of the date permit coverage is extended:

   The City Engineer's staff will work with the City's administrative staff, including IT, to develop an IDDE reporting form and electronic method for filing and storing IDDE records. Within three months after permit extension, staff will meet to discuss the most effective procedure to maintain the records. During the next six months staff will work concurrently on the forms and electronic storage solution. The record-keeping procedures will be tested and implemented during the next three month period to meet the 12 month deadline.

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

   City Engineer

D. MCM 4: Construction site stormwater runoff control

1. The Permit (Part III.D.4) requires that, within 12 months of the date permit coverage is extended, existing permittees shall

revise their current program, as necessary, and continue to implement and enforce a construction site stormwater runoff control program. Describe your current program:

Most construction in West Saint Paul is redevelopment. The City has developed a flow chart that outlines the process that developers and contractors need to follow for site plan review. The process is broken down into two parts: prior to the construction process and after development/planning process. A guideline is also available that indicates the permit submittal requirements for the project. All of this information is available on the City's website.

The City has a CONTACT US button available on the Homepage of the website that residents can use to forward any issues that they would like staff to address. The City also has an email, Hotline and point of contact that can be used by citizens to report any type of code violation, including construction site issues, on the Code Enforcement page of the website.

For construction, the City has established a list of six minimum BMPs for construction activity. The list is provided to developers and contractors. The City has implemented an inspection program for construction site activity and continues to evaluate its effectiveness.

2. Does your program address the following BMPs for construction stormwater erosion and sediment control as required in the Permit (Part III.D.4.b.):
   a. Have you established written procedures for site plan reviews that you conduct prior to the start of construction activity? ☒ Yes ☐ No
   b. Does the site plan review procedure include notification to owners and operators proposing construction activity that they need to apply for and obtain coverage under the MPCA's general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*? ☒ Yes ☐ No
   c. Does your program include written procedures for receipt and consideration of reports of noncompliance or other stormwater related information on construction activity submitted by the public to the permittee? ☒ Yes ☐ No
   d. Have you included written procedures for the following aspects of site inspections to determine compliance with your regulatory mechanism(s):
      1) Does your program include procedures for identifying priority sites for inspection? ☐ Yes ☒ No
      2) Does your program identify a frequency at which you will conduct construction site inspections? ☐ Yes ☒ No
      3) Does your program identify the names of individual(s) or position titles of those responsible for conducting construction site inspections? ☐ Yes ☒ No
      4) Does your program include a checklist or other written means to document construction site inspections when determining compliance? ☐ Yes ☒ No
   e. Does your program document and retain construction project name, location, total acreage to be disturbed, and owner/operator information? ☒ Yes ☐ No
   f. Does your program document stormwater-related comments and/or supporting information used to determine project approval or denial? ☒ Yes ☐ No
   g. Does your program retain construction site inspection checklists or other written materials used to document site inspections? ☐ Yes ☒ No

   If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

   2.d. The City will develop a construction site inspection program that meets the requirements of the new MS4 general permit. The Standard Operating Procedure will include items 2.d.(1), (2) & (3). A site inspection checklist will be developed during the process to meet the requirement of 2.d.(4).

   2.g. In conjunction with item 4 in the IDDE section, staff will develop records retention procedures using the same timeline.

   Staff will use the general timetable previously described in other MCMs. Staff will identify all permit requirements and steps needed to meet the requirements within three months after permit coverage is extended. Staff will use the next nine months to prepare and implement all required changes to the program to meet the new permit requirements. Engineering and Community Development staff will work together on the construction activity portion of the permit.

3. List the categories of BMPs that address your construction site stormwater runoff control program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Structural BMPs	Annually review and publish a list of minimally required erosion

	and sediment control BMPs for construction activities.
Permit Application System	Process all applications within 2 weeks of receipt. Number of permits processed/approved.
Site Plan Review	Update procedures for site plan review on a biennial basis and incorporate into the checklist created in BMP categories to be implemented.
Owner Inspections	Conduct weekly inspections after every storm event that is large enough to result in runoff from the site by either the developer or the developer's designated representative.
Customer Complaint Hotline	This is the City's Code Enforcement Hotline and is posted on the City's website and annual in the City newsletter. Document/track complaints.
Training	Train all new field employees in Parks Recreation and Public Works, Community Development in new construction and land disturbance and storm water system management. Renew training every year for all other identified field employees.

BMP categories to be implemented	**Measurable goals and timeframes**
Inspections	Conduct inspections at all permitted sites annually. Inspections occur every month during the growing season.
Education	Develop a fact sheet to accompany training and permit application to assist contractors with understanding permit regulations. Make available on the website and give it to contractors when they apply for a permit. Number of hits. Number of fact sheets given to contractors.
Ordinance/Permit Update	Update our city permit and ordinance to meet MPCA General Permit to Discharge Storm Water Associated with Construction Activity.
Checklist for Site Plan Review	Update procedures for site plan review to meet new storm water permit requirements and incorporate into a checklist.
Prioritize Inspections	Ensure at least 20% of inspections conducted annually are performed at deemed high priority inspection sites (e.g., near sensitive receiving waters, projects larger than 5 acres)

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

   City Engineer

E. MCM 5: Post-construction stormwater management

1. The Permit (Part III.D.5.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a post-construction stormwater management program. Describe your current program:

   Zoning Ordinance, Section 40 outlines current post-construction requirements for developers and contrators and it outlines post-construction permanent storm water controls, minimum design standards for water wet detention facilities and minimum protection for wetlands. It also outlines required inspection periods for post-construction activities.

   Post-construction stormwater management is also covered in the City's site review process. The City has developed a flow chart that outlines the process that developers and contractors need to follow for site plan review. The process is broken down into two parts: prior to the construction process and after development/planning process. A guideline is also available that indicates the permit submittal requirements for the project. All of this information is available on the City's website.

2. Have you established written procedures for site plan reviews that you will conduct prior to the start of construction activity? ☒ Yes ☐ No

3. Answer **yes** or **no** to indicate whether you have the following listed procedures for documentation of post-construction stormwater management according to the specifications of Permit (Part III.D.5.c.):

   a. Any supporting documentation that you use to determine compliance with the Permit (Part III.D.5.a), including the project name, location, owner and operator of the construction activity, any checklists used for conducting site plan reviews, and any calculations used to determine compliance? ☐ Yes ☒ No

   b. All supporting documentation associated with mitigation projects that you authorize? ☐ Yes ☒ No

   c. Payments received and used in accordance with Permit (Part III.D.5.a.(4)(f))? ☐ Yes ☒ No

   d. All legal mechanisms drafted in accordance with the Permit (Part III.D.5.a.(5)), including date(s) of the agreement(s) and names of all responsible parties involved? ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the steps that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

The City Engineer's staff will work with the City's administrative staff, including Planning, Finance and IT, to develop a process and procedure to comply with the new permit requiremetns for post construction. During the first six months after permit coverage, staff will meet to develop a process and procedures for implementation. Staff will use that information to develop a process diagram, update the site plan checklist and write a standard operating procedure. It is expected to take six months to complete the second phase.

3.a. The City will update their site plan checklist. It will contain the information and will be filed with the permit application. The current zoning ordinace requires that all computations appear in the plans submitted for review.

3.b. The City will develop a process and written procedure to document any post-construction mitigation.

3.c. The City will develop a process and written procedure to document payments in lieu of on-site, post-construction, structural BMPs necessary for permit compliance.

3.d. The City will create draft language that will be included in all development contracts that have private stormwater structures. The City will use a consultant to modify its ordinance to include the requirements.

4. List the categories of BMPs that address your post-construction stormwater management program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Site Plan Review	Update procedures for site plan review on a biennial basis and incorporate into the checklist created in BMP categories to be implemented.
Ordinance	Outline permanent storm water pollution controls, minimum design standards for detention facilities and minimum protection for wetland control and review during site plan review. Review and update when new general storm water permit is issued.
Municipal Water Resources Management Plan	Review and update when new general storm water permit is issued.
Inspections	Annual inspections of at least 20% of completed city-owned outlets, ponds and basins. Annual inspections of pollution control devices (other BMPs).
Training	Train all new field employees in Parks Recreation and Public works, Community Development in storm water system management. Renew training every year.

BMP categories to be implemented	**Measurable goals and timeframes**
Update ordinance to meet new permit requirements	Within 12 months of extension of permit coverage, revise ordinance to meet permit requirements.
Develop written procedures for site plan review	Within 12 months of extension of permit coverage, develop site plan review procedures that must be completed prior to the start of construction activity.
Document pertinent project information	Maintain all related documents pertaining to each new or redevelopment project in more user-friendly filing system for better records management. Implement within 12 months.
BMP Construction Guidance	Develop BMP Construction Guidance document for developers and contractors within 12 months of permit coverage extension.

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

   City Engineer

F. MCM 6: Pollution prevention/good housekeeping for municipal operations

1. The Permit (Part III.D.6.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement an operations and maintenance program that prevents or reduces the discharge of pollutants from the permittee owned/operated facilities and operations to the small MS4. Describe your current program:

   The City conducts inspections and maintenance of its stormwater system (outfalls, ponds, basins and control devices) on a regular basis. Maintenance activities are implemented within one year after discovery or to the MEP. The City's training program covers such activities as: parks and open space maintenance; fleet and building maintenance; new construction and land disturbances; and stormwater systems maintenance. Streets are swept twice each year, once in the spring and once in the fall to reduce the potential for large amounts of debris entering the sotrmwater system. For winter operations, staff evaluates their salt/sand operations annually and evaluates new deicing products as they become available.

2. Do you have a facilities inventory as outlined in the Permit (Part III.D.6.a.)? ☐ Yes ☒ No

3. If you answered **no** to the above permit requirement in question 2, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

   The Engineering Department will identify a staff member to direct and coordinate the inventory after permit coverage is extended. During the summer of 2014, the City will work with summer seasonal employee(s) to identify and create an inventory of City facilities that have the potential to contribute pollutants to stormwater discharges. The list of potential sites will be completed by October 2014 and subsequently reviewed by the project coordinator. After review, the inventory will be given to Dakota County to be added to the City's GIS database and map. The inventory and map will be completed within 12 months of the date permit coverage is extended.

4. List the categories of BMPs that address your pollution prevention/good housekeeping for municipal operations program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. For an explanation of measurable goals, refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Training	Train all new field employees in Parks Recreation and Public works proper deicing operations, fertilizer and herbicide control, equipment maintenance and stock pile storage and handling. Renew training annually.
Street Sweeping	Sweep city streets at least twice per year.
Inspect City Stockpile Maintenance	Conduct annual inspections and identify improvements. Increase frequency to quarterly in 2015.
Record Keeping	Maintain all records three years beyond the term of the permit.
Pond Inspections	Number of inspections, inspection results and recommended actions. Inspect ponds biennially unless increased maintenance requirements dictate otherwise.

BMP categories to be implemented	**Measurable goals and timeframes**
Facility Inventory	Develop facility inventory within 12 months permit coverage is extended for City-owned properties and buildings. Consider other city-owned facilities to inventory in Year 2.
Pond Assessment Procedures & Schedule	In Year 1, develop procedures for determining TSS and TP treatment effectiveness of city-owned ponds used for treatment of storm water. Implement schedule in Years 2 – 5.
Develop Maintenance Yard Inspection Program	Utilize a checklist quarterly for the inspection that documents findings and allows staff to compare to previous inspections.
Update Spill Prevention & Control Plans for Municipal Facilities	Update plans describing spill prevention and control procedures by the end of Year 2. Conduct annual spill prevention and response training sessions for all municipal employees. Distribute educational materials, e.g., posters and pamphlets, to each municipal facility by the end of Year 3. Include in initial employee training. Report the number of employees and new employees trained.
Storm Water Inspection Program	Create an inspection plan and timetable in Year 1. Complete all inspections in accordance with the plan by the expiration of the

permit.

5. Does discharge from your MS4 affect a Source Water Protection Area (Permit Part III.D.6.c.)? ☐ Yes ☒ No

   a. If **no**, continue to 6.

   b. If **yes**, the Minnesota Department of Health (MDH) is in the process of mapping the following items. Maps are available at http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm. Is a map including the following items available for your MS4:

      1) Wells and source waters for drinking water supply management areas identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330? ☐ Yes ☐ No

      2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health under the federal Safe Drinking Water Act, U.S.C. §§ 300j – 13? ☐ Yes ☐ No

   c. Have you developed and implemented BMPs to protect any of the above drinking water sources? ☐ Yes ☐ No

6. Have you developed procedures and a schedule for the purpose of determining the TSS and TP treatment effectiveness of all permittee owned/operated ponds constructed and used for the collection and treatment of stormwater, according to the Permit (Part III.D.6.d.)? ☐ Yes ☒ No

7. Do you have inspection procedures that meet the requirements of the Permit (Part III.D.6.e.(1)-(3)) for structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas? ☐ Yes ☒ No

8. Have you developed and implemented a stormwater management training program commensurate with each employee's job duties that:

   a. Addresses the importance of protecting water quality? ☒ Yes ☐ No

   b. Covers the requirements of the permit relevant to the duties of the employee? ☒ Yes ☐ No

   c. Includes a schedule that establishes initial training for new and/or seasonal employees and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements? ☐ Yes ☒ No

9. Do you keep documentation of inspections, maintenance, and training as required by the Permit (Part III.D.6.h.(1)-(5))? ☒ Yes ☐ No

   If you answered **no** to any of the above permit requirements listed in **Questions 5 – 9**, then describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

   F.6. The City is currently examining methods for assessing ponds to determine TSS and TP effectiveness, as we mentioned in our BMP table. This study will develop procedures for determining TSS and TP treatment effectiveness of city-owned ponds used for treatment of stormwater. A schedule will be implemented in year 2 – 5.

   F.7. The City currently meets the pond temporal inspection requirements. An inspection plan and time table that meets the requirements of Part III.D.6.e (1)-(3) will be developed in year one and implemented in year two of the permit. All ponds, outfalls and BMP structures will be inspected by the expiration date of the permit.

   F.8. Staff will work with HR to schedule initial stormwater training for all new employees and seasonal employees where appropriate. Program will be implemented within 12 months after permit coverage is extended.

   F.9. The City has a documentation system for inspections, maintenance and training. However, the current system does not meet all of the requirements of the new permit. The system will be updated within the 12 months after permit coverage is extended to incorporate the new requirements.

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

    City Engineer

VI. Compliance Schedule for an Approved Total Maximum Daily Load (TMDL) with an Applicable Waste Load Allocation (WLA) (Part II.D.6.)

A. Do you have an approved TMDL with a Waste Load Allocation (WLA) prior to the effective date of the Permit? ☐ Yes ☒ No

   1. If **no**, continue to section VII.

   2. If **yes**, fill out and attach the MS4 Permit TMDL Attachment Spreadsheet with the following

naming convention**:** *MS4NameHere_TMDL.*

This form is found on the MPCA MS4 website: http://www.pca.state.mn.us/ms4.

VII. Alum or Ferric Chloride Phosphorus Treatment Systems (Part II.D.7.)

A. Do you own and/or operate any Alum or Ferric Chloride Phosphorus Treatment Systems which are regulated by this Permit (Part III.F.)? ☐ Yes ☒ No

1. If **no**, this section requires no further information.
2. If **yes**, you own and/or operate an Alum or Ferric Chloride Phosphorus Treatment System within your small MS4, then you must submit the Alum or Ferric Chloride Phosphorus Treatment Systems Form supplement to this document, with the following naming convention: *MS4NameHere_TreatmentSystem*.
   This form is found on the MPCA MS4 website: http://www.pca.state.mn.us/ms4.

VIII. Add any Additional Comments to Describe Your Program