CITY OF PLYMOUTH

2018 STORM WATER POLLUTION PREVENTION PROGRAM (SWPPP)

DRAFT

July 2019

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INTRODUCTION

Surface water resources such as lakes, wetlands, and creeks are an important component of the quality of life for residents in the City of Plymouth. The Plymouth Storm Water Pollution Prevention Program (SWPPP) promotes citizen involvement and provides a strategy for dealing with the quantity and quality of the water resources in Plymouth.

The City of Plymouth has developed and will implement its SWPPP to reduce the discharge of pollutants from its drainage system to the maximum extent practicable to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act. The City is committed to sustainable management of its natural resources and minimum control measures are listed which will assist the City in attaining its goals.

HISTORY

The first recorded settlement in Plymouth was on the east shoreline of Medicine Lake in 1853. The first major storm drainage improvements were undertaken in Plymouth in the mid 1960s. This initial Storm Drainage Program was subsequently updated with the 1973 Storm Drainage Plan which presented an overall layout of major drainage facilities in Plymouth, including storm sewers, ponding areas, and major drainageways. The main purpose of the 1973 plan was to provide an adequate and economical means of conveying storm water runoff through Plymouth. The City completed a revision to the 1973 plan in 1980. The 1980 revisions were based on recent platting and development proposals, storm drainage improvements, and the Land Use Guide Plan. The plan provided information on storm sewer and open channel sizes, storm water flows, pond storage volumes, water levels, and costs.

A major undertaking began by the City of Plymouth in 1995 and 1996 to update its Storm Water Management Plan to include integrated resource management. The focus of the new Plymouth Water Resources Management Plan was to manage and protect both water quality as well as water quantity. The 2000 Water Resources Management Plan established a clear view of existing conditions, established goals for managing the City's surface water resources, and set a new process for public input in developing the plan. In 2008 and 2019 the City expanded surface water management to include new requirements such as the Minnesota Pollution Control Agency's Total Maximum Daily Load (TMDL) and Non-Degradation requirements. The 2019 Surface Water Management Plan includes several major elements:

1. Goals and Polices
2. Official Controls
3. Watershed Assessments
    a. Includes identification of existing & potential water resources problems and an implementation plan for the next 10 years

Other efforts included Parkers Lake Watershed and Lake Management Plan (1993); Minnesota Rules 8410, Metropolitan Area Local Water Management Plan (1992); Local Watershed Management Plans; Plymouth Natural Area Survey (1994); Wetland Inventory and Ordinances, (1994); Hennepin County Ground Water Plan (1994); up-date of Erosion Control and Shoreland Ordinances; Phosphate Free Fertilizer Use and Sale Restrictions (1995, up-dated in 2000), Land Resource Inventory (2006), Non-Degradation Report (2007), TMDL Reports, and establishing and initiating continuous work on developing educational activities throughout the City.

Since the submittal of the first SWPPP in 2003, the City has implemented and initiated many other projects, such as:

1. The completion of the Phase I & Phase II of Medicine Lake Watershed Management and Implementation Plans. The ultimate goals of these plans were to reduce at least 1000 pounds of phosphorous from the watershed and to implement an aquatic vegetation management plan to reduce internal loading by at least 15%.
2. Establishing Aquatic Vegetation Management Plans for Medicine, Parkers, Bass, Pomerleau and Schmidt Lakes.
3. Completed implementation of Parkers Lake Management and Implementation Plan
4. Developed and implemented Schmidt Lake Management Plan
5. Developed and implemented Gleason Lake Management Plan
6. Completion of the Hydrologic and Hydraulic study of the 2020 Urban Expansion Area
7. Establishing the Plymouth Pond Maintenance Policy
8. Expanding the Plymouth surface water monitoring program
9. Providing grant funds for area residents for projects that reduce turf grass, incorporate native plants, or conserve water
10. Studied and adopted an alternative fuel policy
11. Expanded street sweeping program
12. Continued expansive Environmental Education Programs
13. Reviewed, updated, and expanded the City's Goose management
14. Expanded the Purple loosestrife bio-control project
15. Established a Plants, Ponds, and Practices Tour
16. Completed the required Non-Degradation Report
17. Completed various flood protection/erosion repair projects
18. Completed various water quality improvement projects
19. Assisted with development of TMDL and Implementation Plans
20. Participates on the Bassett, Elm, and Shingle Creek watershed technical advisory committees.
21. Supported the Pike Lake Subwatershed Assessment through the Shingle Creek Watershed.

The City is also actively partnering and collaborating with its three watershed joint powers organizations, one watershed district, the Metropolitan Council, the Minnesota Department of Natural Resources, the Minnesota Board of Water and Soil Resources, and Hennepin County on a variety of different grants, projects, and environmental education.

AREA DESCRIPTION:

Location. Plymouth is located in the western portion of the seven county metropolitan area in central Hennepin County Minnesota. It is bounded on the north by Maple Grove, on the east by Golden Valley and New Hope, the south by St. Louis Park, Minnetonka, and Wayzata, and on the west by Orono, and Medina.

Topography. The topography of Plymouth can be described as rolling with isolated marsh lands, swamps, lakes, and steep slopes. Approximately 150 feet in elevation changes varying from 1030 feet above sea level in the west central part of the city to about 880 feet above sea level in the

northeastern part of the city. Water drains naturally through most of the city. Approximately 20% of the City is covered with water. Eight major lakes cover an area of about 1,542 acres with 2,857 acres of wetland areas.

Soils. The soil in Plymouth can be generally described as dense clay with few instances of lenses of mixed sand and gravel. The three basic soil types encountered include sandy clay till from the Des Moines Ice Slope of the Wisconsin Glaciations, natural sand and top soil and organic silt deposits. Bedrock is found between elevations 700 and 800 feet.

Watersheds. Plymouth lies within the larger Mississippi River basin in east central Minnesota. There are four local watersheds in the City, Shingle Creek, Bassett Creek, Minnehaha Creek, and Elm Creek with 19%, 53%, 16%, and 12% of the city in these watersheds respectively.

Growth. Plymouth has experienced rapid but steady growth over the past three decades. In 2010, the population of Plymouth was 70,576 per the U.S. Census. Both industrial and commercial sectors have also been growing along with the population growth. The City is almost 85% developed with land use of commercial, industrial, and residential land uses.

Climate. The climate is typical of the metro area. The mean annual temperature is 44 degrees Fahrenheit and the mean monthly temperature varies from 12 degrees Fahrenheit in January, to 73 degrees Fahrenheit in July. The average annual liquid precipitation is approximately 32 to 33 inches, of which annual average snowfall is 44 inches.

SWPPP DEVELOPMENT:

City staff attended workshops organized by the League of Minnesota Cities to gather information on how to develop the Storm Water Pollution Prevention Program in accordance with Minnesota Pollution Control Agency's requirements. The process of self assessment included a number of components:

- staff attended the workshop organized by the League of Minnesota Cities and the Minnesota Pollution Control Agency;
- the City conducted a review of existing ordinances;
- Review and up-date of the existing storm water pollution prevention policies and practices currently in use;
- educational and training programs which focus on storm water pollution prevention were evaluated and reviewed;
- regular internal staff meetings were conducted to discuss collaboration between the existing programs, proposed new programs, to identify any gaps in meeting the requirement of SWPPP, and finally selecting appropriate best management practices to meet the plan's objectives.

The internal staff meetings have been a major component of the self assessment part of the Plymouth SWPPP. A number of City staff from different departments and divisions have all been actively involved in this process. The group established and identified existing Best Management Practices and looked for areas where the City could improve to maximum extent practicable to meet the plan's objectives and requirements.

FUNDING MECHANISM:

The City of Plymouth has established a Storm Water Utility fee that is assessed against utility bills. The City's Storm Water Utility Revenue is generated by fees according to land use. At present, the rate is $6.86 per month per residential parcel, 3.32 times the residential rate for multi-family, and 7.18 times the residential rate for commercial and industrial. Other land uses are evaluated individually based on the amount of impervious coverage and parcel size. Details on the City's Storm Water Utility Fee can be found in Section 725 and Section 1015 of the City Code.

TOTAL MAXIMUM DAILY LOAD (TMDL)

The City of Plymouth is currently subject to 18 water quality impairments (excluding mercury) and seven EPA approved TMDL plans. TMDL implementation plans are expected in the future for each of the other impairments.

A. Shingle Creek Chloride TMDL

In 1998, Shingle Creek was listed on the Federal Clean Water Act's 303(d) list of impaired waters for exceeding the chloride standard for aquatic life. The listing of Shingle Creek as impaired resulted from a limited sampling of chloride completed in 1996 by the US Geological Survey (USGS) at their discharge monitoring station at the Queen Avenue Bridge in Minneapolis. After reviewing the USGS data from Queen Avenue, the Shingle Creek Watershed Management Commission (SCWMC) has been sampling routinely for chloride in Shingle Creek. This TMDL was developed to address the 1998 listing for the impairment of aquatic life and recreation based on chloride exceedances.

The City of Plymouth is a stakeholder in the Shingle Creek Watershed. The Shingle Creek Chloride TMDL was prepared by the watershed. Stakeholders in the watershed agreed to work collectively to achieve a 71% reduction in chloride use to achieve the standard understanding that each stakeholder was working under unique financial, public safety and perception, and feasibility limitations.

The SCWMC will be the lead on the implementation of the Chloride TMDL, however, individual stakeholders (City of Plymouth) will be ultimately responsible for implementing the identified BMPs. Implementation strategies can be found in Table 1.

TABLE 1. Shingle Creek Chloride Reduction Strategies.

Implementation Item	SWPPP reference	Progress
Product application, equipment, and decisions	Appendix A 6.a.1	Ongoing
Deicer stockpiles	Appendix A 6.b.4	Ongoing
Operator training	Appendix A 1.c.1	Annually
Cleanup and snow stockpiling	Appendix A 6.a.2	Annually
Ongoing research into salt alternatives	Appendix A 6.a.1	Annually
SCWMC Activities	Appendix A 1.c.1	SCWMC
Monitoring	Appendix A 6.c.1	SCWMC
Street Sweeping	Appendix A 6.a. 2	Annually

The City of Plymouth will continue to implement the Shingle Creek Chloride TMDL plan and support the monitoring of the creek.

B. Schmidt, Pomerleau, and Bass Lakes Nutrient TMDL

In 2002, Schmidt, Pomerleau, and Bass Lakes were listed on the Federal Clean Water Act's 303(d) list of impaired waters for aquatic recreation because the lakes exceed the water quality standard for nutrients. The goal of this TMDL is to quantify the pollutant reductions needed to meet the water quality standards for nutrients in Schmidt, Pomerleau and Bass Lakes. The Schmidt, Pomerleau and Bass Lakes TMDL has been established in accordance with Section 303(d) of the Clean Water Act. This TMDL provides waste load allocations (WLAs) and load allocations (LAs) for these three lakes. Based on the State standard for nutrients, the TMDL establishes a numeric target of 40 µg/L total phosphorus concentration for Pomerleau Lake and 60 µg/L total phosphorus for Schmidt and Bass Lakes. Implementation strategies to meet the goals of this TMDL can be found in Table 2.

TABLE 2. Schmidt, Pomerleau, and Bass Lakes Nutrient Reduction Strategies.

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually
Rain Gardens	Appendix A IV.D-2	Complete (2008)
Shoreline Management and Restoration Projects	Appendix A IV.D-2	Complete
Additional Development and Redevelopment Regulations	Appendix A IV.D-2	Ongoing
Storm Drain Filters for Schmidt Lake Watershed	Appendix A IV.D-2	Complete (2011)
Feasibility Study for ponding in the Bass Lake Watershed	Appendix A IV.D-2	Complete (2012)
Schmidt Lake Wetland Restoration	Appendix A IV.D-2	TBD
Schmidt Lake Neighborhood Rain garden Project	Appendix A IV.D-2	Complete (2011)

C. Cedar Island, Pike, and Eagle Lakes Nutrient TMDL

Of the three lakes identified in this TMDL (Cedar Island, Pike, and Eagle), only Pike Lake lies within the City of Plymouth, however, surface water entering Pike Lake will eventually drain into Eagle Lake. Meeting the goals for Pike Lake is anticipated to meet Plymouth's requirements for Eagle Lake. No drainage from Plymouth goes to Cedar Island Lake. In 2002, Pike Lake was listed on the Federal Clean Water Act's 303(d) list of impaired waters for aquatic recreation because the lakes exceed the water quality standard for nutrients. Eagle Lake was added in 2008 for the same reasons. The goal of this TMDL is to quantify the pollutant reductions needed to meet the water quality standards for nutrients in Cedar Island, Pike, and Eagle Lakes. This TMDL has been established in accordance with Section 303(d) of the Clean Water Act and provides waste load allocations (WLAs) and load allocations (LAs) for these three lakes. Based on the State standard for nutrients, the TMDL establishes a numeric target of 40 µg/L total phosphorus concentration for Eagle Lake and 60 µg/L total phosphorus for Cedar Island and Pike Lakes. Implementation strategies to meet the goals of this TMDL for Pike and Eagle Lakes can be found in Table 3.

TABLE 3. Pike Lake Nutrient Reduction Strategies.

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually

Development and Redevelopment Regulations	Appendix A IV.D-3	Ongoing
Rough Fish Management	Appendix A IV.D-3	TBD
Illicit Discharge Detection including City Record Review	Appendix A IV.D-3	Ongoing

D. Medicine Lake Excess Nutrient TMDL

The Medicine Lake watershed is located in the metropolitan area of the Upper Mississippi River Basin and includes portions of the cities of Plymouth, Medicine Lake, Minnetonka, Golden Valley, New Hope, and Medina. The outlet of Medicine Lake is the headwater of Bassett Creek. Medicine Lake is the second largest lake in Hennepin County and is considered the most important recreational water body in the City of Plymouth. The Medicine Lake watershed (nearly 12,000 acres) is fully developed. Runoff from the watershed enters the lake from creeks, storm sewer outfalls, and culverts at various points along the lakeshore. The volume and pollutant levels of storm water runoff from the watershed, combined with releases of phosphorus from sediments and plants in the lake, result in periods of poor lake water quality. Available data indicates that Medicine Lake violates the State's water quality standards. The combination of high phosphorus and high chlorophyll-*a* (a measurement of algae growth) supports including Medicine Lake on the Minnesota Pollution Control Agency's (MPCA) impaired waters list.

The Clean Water Act and Environmental Protection Agency (EPA) regulations require states to develop Total Maximum Daily Loads (TMDLs) for water bodies that are not meeting water quality standards. The TMDL process establishes the allowable loading of pollutants for a water body. By following the TMDL process, states can establish controls to reduce pollution and restore and maintain the quality of the water resource. Therefore, a TMDL was designed to allow Medicine Lake to meet water quality goals.

The primary water quality target for this TMDL is the average growing season total phosphorus concentration in Medicine Lake. The State standard is 40 µg/L. The City of Plymouth has established a goal of 38 µg/L for Medicine Lake. This TMDL has been developed to meet the 38 µg/L target. The more conservative target of 38 µg/L is considered an explicit Margin of Safety (MOS) for this TMDL.

TABLE 4. Medicine Lake Nutrient Reduction Strategies.

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually
Development and Redevelopment Regulations	Appendix A IV.D-4	Ongoing
County Road 9/61 Erosion Repair	Appendix A IV.D-4	Complete (2007)
Wood Creek Erosion Repair	Appendix A IV.D-4	Complete (2009)
Timber Creek Erosion Repair	Appendix A IV.D-4	Complete (2010)
Plymouth Creek Water Quality Ponds	Appendix A IV.D-4	Complete (2011)
Plymouth Creek Stream Restoration	Appendix A IV.D-4	Complete (2012)

E. Shingle Creek & Bass Creek Impaired Biota and Dissolved Oxygen TMDL

The Shingle Creek & Bass Creek Impaired Biota and Dissolved Oxygen TMDL study addresses the dissolved oxygen impairment in Shingle Creek and biotic integrity impairments in Shingle and Bass Creeks, in Hennepin County, Minnesota. The goal of this

TMDL is to quantify the pollutant reductions needed to meet State water quality standards for dissolved oxygen in Shingle Creek and State Index of Biotic Integrity standards in Shingle and Bass Creeks.

The Shingle Creek watershed covers 44.7 square miles in east-central Hennepin County, Minnesota. Shingle Creek begins at the junction of Bass Creek and Eagle Creek in the City of Brooklyn Park, flows easterly, then southerly for a total of 11.3 miles before discharging into the Mississippi River in Minneapolis. Bass Creek is the outlet of Bass Lake, and is about 2.4 miles long. Bass Creek is formed at the weir that controls the level of Boulder Ridge Pond, the last in a series of wetlands downstream of Bass Lake. The watershed is fully developed with dense urban and suburban land uses

Shingle Creek has been substantially altered from conditions documented in the 1855 Public Land Survey. A portion was straightened and dredged in 1910 to serve as County Ditch #13. Over time most of the rest of the stream has been channelized, widened and dredged to better convey stormwater discharged to the stream. Bass Creek appears to be an historically intermittent channel too small to be recorded on the Public Land Survey and then later ditched to drain wetlands and/or provide agricultural drainage, or it was created to provide those functions.

A Stressor Identification study evaluated the potential causes of the impaired biotic integrity of both streams. Potential candidate causes of the impairments that were ruled out include: temperature, pH, nutrients, turbidity/TSS, and toxic chemicals. Five stressors that are potential candidate causes were examined in more detail: low dissolved oxygen; altered habitat; loss of connectedness; altered hydrology; and ionic strength, specifically chloride. The evidence for altered hydrology is strongest followed closely by low dissolved oxygen and lack of habitat. While the loss of connectedness and ionic strength are plausible stressors and are likely contributing to the impairment, there is less direct evidence of their role.

Hydraulic models for Shingle Creek were developed to assess the conditions resulting in persistent low dissolved oxygen. A scenario assessment determined that the likely causes were low-oxygen discharge from headwaters wetlands and excessive sediment oxygen demand resulting from the overwide channel. Stream restoration on both Shingle Creek and Bass Creek to create a low-flow channel, add reaeration structures, and enhance habitat and improvements to headwaters wetlands would have the most impact in increasing dissolved oxygen and improving biotic integrity.

TABLE 4. Shingle Creek & Bass Creek Impaired Biota and Dissolved Oxygen Improvement Strategies.

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually
Development and Redevelopment Regulations	Appendix A IV.D-5	Ongoing
Monitoring	Appendix A IV.D-5	Ongoing

F. Lake Hiawatha Nutrient TMDL

A TMDL has been developed for Lake Hiawatha to address a nutrient impairment. Chlorophyll-*a* or Secchi depth observations coupled with ambient water quality monitoring data indicate that

excess total phosphorus (TP) is causing the impairments in Lake Hiawatha. The City of Plymouth has been allocated a reduction of 19.6 pounds annually.

TABLE 5. Lake Hiawatha Nutrient TMDL Improvement Strategies.

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually

G. Upper Minnehaha Creek Watershed Nutrient and Bacteria TMDL

This Total Maximum Daily Load (TMDL) study addresses nutrient impairments in twenty lakes and an *E. coli* impairment in Painter Creek within the Minnehaha Creek Watershed District (MCWD), which is located within the Upper Mississippi River Basin. The City of Plymouth is not affected by the *E. coli* impairment. The MCWD covers approximately 178 square miles in Hennepin and Carver Counties, including parts of Minneapolis, Minnesota and its western suburbs. The watershed drains to Minnehaha Creek and ultimately the Mississippi River. The water bodies addressed in this study are located within a distinct hydrologic basin within the MCWD referred to as the "Upper Watershed," which drains through agricultural land and suburbs west of Minneapolis to Lake Minnetonka, which outlets into Minnehaha Creek. The goal of this TMDL is to quantify the pollutant reductions needed to meet State water quality standards for nutrients in the lakes and *E. coli* standards in Painter Creek.

Fifteen of these lakes are defined as deep lakes for which the North Central Hardwood Forest ecoregion numeric water quality standards are a summer average total phosphorus concentration of 40 µg/L, 14 µg/L chlorophyll-*a*, and greater than 1.4 meter in Secchi depth. The other six lakes are shallow, for which the numeric water quality standards are a summer average total phosphorus concentration of 60 µg/L, 20 µg/L chlorophyll-*a*, and greater than one meter in Secchi depth.

Nutrient budgets were developed for all twenty lakes along with lake response models to set the TMDL and Load and Wasteload Allocations. A robust lake and stream monitoring dataset was available and was the basis of the nutrient budget calculations. Wasteload reductions ranging from no reduction to a 93 percent reduction and load reductions ranging from no reduction to 79 percent reduction will be necessary to meet water quality standards.

TABLE 6. Gleason Lake TMDL Improvement Strategies (185lb reduction needed).

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually
City View Acres Rain Gardens	Appendix A IV.D - 6	Complete (2008)
City View Acres Storm Water Pond	Appendix A IV.D - 6	Complete (2008)
19th and Dunkirk Storm Water Pond Enhancement	Appendix A IV.D - 6	Proposed (2020)
Maple Creek Stream Restoration	Appendix A IV.D - 6	Proposed (2021)

TABLE 7. Holy Name Lake TMDL Improvement Strategies (5lb reduction needed).

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually

TABLE 8. Mooney Lake TMDL Improvement Strategies (50lb reduction needed).

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually

Pond Maintenance	Appendix A IV.D – 6	Complete (2014)

TABLE 9. Kreatz Lake (listed as Snyder in TMDL document) TMDL Improvement Strategies (3lb reduction needed).

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually

TABLE 10. Hadley Lake TMDL Improvement Strategies (21lb reduction needed).

Implementation Item	SWPPP reference	Progress
Annual Education	Appendix A 1.c.1	Annually
Street Sweeping	Appendix A 6.a.2	Annually
Hawthorne Ponds Rain Garden	Appendix A IV.D - 6	Complete (2008)

MINIMUM CONTROL MEASURES SUMMARY:

This minimum control measures summary lists the existing Best Management Practices (BMP) chosen by the City of Plymouth (see Appendix B for BMP Summary Sheets). The minimum control measures outlined in this plan will be met through a variety of measurable goals such as educational efforts, training programs, and development of ordinances and policies. Measurable goals and implementation schedules are included in each minimum control measure sheet and submitted with the annual report.

Minimum Control Measure #1: Public Education and Outreach:

Key to Unique BMP ID Numbers	Required BMP Title	Permit Reference
1a-1	Distribute Educational Materials	**V.G.1.a**
1b-1	Implement an Education Program	**V.G.1.b**
1c-1	Education Program: Public Education and Outreach	**V.G.1.c**
1c-2	Education Program: Public Participation	**V.G.1.c**
1c-3	Education Program: Illicit Discharge Detection and Elimination	**V.G.1.c**
1c-4	Education Program: Construction Site Run-off Control	**V.G.1.c**
1c-5	Education Program: Post-Construction Stormwater Management in New Development and Redevelopment	**V.G.1.c**
1c-6	Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations	**V.G.1.c**
1d-1	Coordination of Education Program	**V.G.1.d**
1e-1	Annual Public Meeting	**V.G.1.e**

Minimum Control Measure #2: Public Participation and Involvement:

Key to Unique BMP ID Numbers	Required BMP Title	Permit Reference
2a-1	Comply with Public Notice Requirements	**V.G.2.a**
2b-1	Solicit Public Input and opinion on the Adequacy of the SWPPP	**V.G.2.b**
2c-1	Consider Public Input	**V.G.2.c**

Minimum Control Measure #3: Illicit Discharge Detection and Elimination:

Key to Unique BMP ID Numbers	Required BMP Title	Permit Reference
3a-1	Storm Sewer System Map	**V.G.3.a**
3b-1	Regulatory Control Program	**V.G.3.b**
3c-1	Illicit Discharge Detection and Elimination Plan	**V.G.3.c**
3d-1	Public and Employee Illicit Discharge Information Program	**V.G.3.d**
3e-1	Identification of Non Stormwater Discharges and Flows	**V.G.3.e**

Minimum Control Measure #4: Construction Site Stormwater Runoff Control:

Key to Unique BMP ID Numbers	Required BMP Title	Permit Reference
4a-1	Ordinance or other Regulatory Mechanism	**V.G.4.a**
4b-1	Construction Site Implementation of Erosion and Sediment Control BMPs	**V.G.4.b**
4c-1	Waste Controls for Construction Site Operators	**V.G.4.c**
4d-1	Procedure for Site Plan Review	**V.G.4.d**
4e-1	Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance	**V.G.4.e**
4f-1	Establishment of Procedures for Site Inspections and Enforcement	**V.G.4.f**
4g-1	Erosion and Sediment Control Training	
4h-1	Engineering Guidelines for Developers	

Minimum Control Measure #5: Post Construction Stormwater Management in New Development and Redevelopment:

Key to Unique BMP ID Numbers	Required BMP Title	Permit Reference
5a-1	Development an Implementation of Structural and/or Non-structural BMPs	**V.G.5.a**
5b-1	Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment	**V.G.5.b**
5c-1	Long-term Operation and Maintenance of BMPs	**V.G.5.c**
5d-1	Ordinances	
5e-1	NEMO	

Minimum Control Measure #6: Pollution Prevention/Good Housekeeping:

Key to Unique BMP ID Numbers	Required BMP Title	Permit Reference
6a-1	Municipal Operations and Maintenance Program	V.G.6.a
6a-2	Street Sweeping	
6b-2	Annual Inspection of All Structural Pollution Control Devices	V.G.6.b.2
6b-3	Inspection of a Minimum of 20 percent of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis	V.G.6.b.3
6b-4	Annual Inspection of All Exposed Stockpile, Storage and Material Handling Areas	V.G.6.b.4
6b-5	Inspection Follow-up Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures	V.G.6.b.5

6b-6	Record Reporting and Retention of all Inspections and Responses to the Inspections	V.G.6.b.6
6b-7	Evaluation of Inspection Frequency	V.G.6.b.7
6c-1	Monitoring	

APPENDIX A

BMP SUMMARY SHEETS

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1a-1

***BMP Title:** Distribute Educational Materials
BMP Description: In conjunction with BMP 1c-1, educational materials will be prepared and distributed to targeted audiences.
***Measurable Goals:** See BMP 1c-1
Specific Components and Notes: See BMP 1c-1
***Responsible Party for this BMP:** Name: Ben Scharenbroich, Senior Engineering Technician Department: Plymouth Public Works Department Phone: 763-509-5500 E-mail: bscharenbroich@plymouthmn.gov

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1b-1

***BMP Title:** Implement an Education Program
BMP Description: In conjunction with BMP 1c-1, an educational program will be implemented to educate targeted audiences in Plymouth. A Storm Water Education Plan and annual work plan will be developed by Plymouth's Environmental Education Coordinator to coordinate with educational efforts undertaken by other divisions within the City, including Water Resources, Planning, Building, Forestry and Public Works.
***Measurable Goals:** See BMP 1c-1
Specific Components and Notes: See BMP 1c-1
***Responsible Party for this BMP:** Name: Ben Scharenbroich, Senior Engineering Technician Department: Plymouth Public Works Department Phone: 763-509-5500 E-mail: bscharenbroich@plymouthmn.gov

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-1

***BMP Title:** Education Program: Public Education and Outreach

Audiences Involved:
All City of Plymouth residents, property owners, local officials, contractors, City employees, business owners and school children in grades K – 12.

***Educational Goals for Each Audience:**
Increase public awareness and understanding of storm water issues within the City. Inform and educate the public about the impacts on water quality of storm water run off. Increase public participation in storm water best management practices. Increase public support for best management practices instituted by the City and other units of government. Implement the Shingle Creek Chloride, Schmidt, Pomerleau, and Bass Lakes Excess Nutrient TMDL plan, Cedar Island, Pike, and Eagle Lakes Nutrient TMDL plan and support the activities of the Shingle Creek Watershed Management Commission.

***Activities Used to Reach Educational Goals:**
Develop and implement an education plan in cooperation with the Bassett Creek, Elm Creek and Shingle Creek WMOs, Plymouth's Environmental Quality Committee and a number of divisions within the City of Plymouth (as enumerated in 1b-1) to integrate MS4, watershed plans, Plymouth's Water Resources Management Plan and other water resource education programs in the City of Plymouth. All six of the Minimum Control Measures will be addressed in the education plan. Plan will include:

1. Training and outreach in collaboration with other government and non-government organizations
    a) Bassett Creek Watershed Management Organization, Elm Creek Watershed Management Organization and Shingle Creek Watershed Management Organization education committees
        - West Metro Water Alliance (WMWA)
    b) Watershed Partners' Clean Water MN campaign
    c) Street and parking lot salt management workshops in collaboration with watersheds
    d) Blue Thumb – PLANTING FOR CLEAN WATER committee and overall participation
    e) CLIMB Theater – Elementary School Education

2. Distribute articles and information on:
    a) Stormwater management
    b) Illicit discharges
    c) Construction site erosion control
    d) Post-construction erosion control
    e) Salt application practices to protect water quality
    f) Shoreline management
    g) Composting

h) Pollution prevention
i) Low impact development
j) Landscaping for water quality
k) Storm drains lead to lakes and streams

3. Provide water quality information at City and community events including:
    a) Environmental Quality Fair
    b) Plymouth Kids Fest
    c) City Sampler
    d) Music In Plymouth
4. Utilize local media outlets to promote stormwater awareness and to encourage best management practices.
5. Hold an MS4 public meeting.
6. Provide speakers and workshops for property owners on shoreline, landscaping and yard care BMPs to protect water quality.
7. Work with area schools to incorporate information on stormwater management into classroom learning.
8. Highlight stormwater issues through City sponsored community events and programs that focus on public participation.
    a) Volunteer Adopt-A-Storm Drain program
    b) Volunteer Adopt-A-Street program
    c) Volunteer pet waste clean up at City park
    d) Volunteer pet waste station monitor
9. Provide grants to individuals and organizations within the City to promote rain gardens.
10. Provide stormwater and water quality information to movie audience.

***Activity Implementation Plan**

Activity #1

Years 1-5) Collaborate in planning and projects with the education committees of the Bassett Creek, Elm Creek and Shingle Creek Watershed Management Organizations.

Years 1-5) Participate in planning and support of metro-wide stormwater education campaign with Watershed Partners. This includes ads on cable TV, radio and in newspapers, among other stormwater education initiatives.

Years 2-5) Promote participation in salt application workshops to reduce the amount of salt applied to streets and parking lots to all applicators in the City and staff.

Activity #2

Year 1-5) Address stormwater management at least once per year in the *Environmental Extra* newsletter published one time each year.

Year 1-5) Publish illicit discharge regulations on City web site.

Year 1-5) Publish *Requirements for Builders, Remodelers and Property Owners* erosion control brochure.

Year 1, 4) Publish *Housekeeping and BMP Guide for Property Managers* brochure.

Year 1-5) Publish *A salt reduction guide for your business* brochure.

Year 1-5) Publish *Shoreline buffers protect property and your lake* brochure.

Year 1-5) Publish *Plymouth Yard Care Guide* with sections on back yard composting.

Year 1-5) Publish pollution prevention articles in *Environmental Extra*.

Year 1-5) Produce engineering memos for each City-approved project that outline requirements for low impact building and landscaping upon request.
Year 1-5) Publish articles in the *Environmental Extra* and brochures for workshops and events on landscaping for water quality.
Year 1-5) Articles in *Environmental Extra*, brochures and lake association newsletters address the issue that storm drains lead to lakes and streams.

Activity #3
Year 1-5) Include watershed and water quality lessons in classroom curricula of Environmental Quality Fair host school, including aquatic invertebrate investigation and watershed experiment. Invite exhibitors with stormwater best management information to the event.
Year 1-5) Include stormwater, lawn care best management practices and landscaping for clean water exhibits in the Plymouth Home Expo.
Year 1-5) Include stormwater, lawn care best management practices, streets to streams, and landscaping for clean water presentations and exhibits at the City Sampler.

Activity #4
Year 1-5) Submit press releases and news alerts to local media on water quality projects and issues, including watershed clean up events and student action for water quality. Schedule appearances on local cable TV channel to highlight water quality issues, including landscaping for water quality and explanations of watersheds.

Activity #5
Year 1-5) Publish a 30-day notice of MS4 Public Meeting as legal notice in local newspaper.

Activity #6
Year 1-5) Schedule at least one workshop to address landscaping for water quality for property owners.

Activity #7
Year 1-5) Provide watershed and water quality lessons in classroom curricula of public schools, including aquatic invertebrate investigation and watershed experiment. Participate in Earth Day presentations and game to inform grade 3 students of water quality issues and best practices.

Activity #8
Year 1-5) Recruit and train volunteers to inspect and clean debris from storm drains in their neighborhood. Provide educational mailings to all volunteers six times a year.
Year 1-5) Recruit and train volunteers to remove litter from assigned length of City streets. Place signs along the street to highlight the program and the individual.

Activity #9
Year 1-5) Award grants to property owners to incorporate landscape best management practices like rain gardens, shoreline plantings, native plant gardens, pervious pavers, and/or irrigation controllers on their property.

***Performance Measures**

Activity #1

- Track number of meetings and joint projects undertaken by collaborators.
- Track number of TV, radio and newspaper ads produced and aired by Watershed Partners' media campaign.
- Track the number of "hits" on the Watershed Partners' CleanwaterMN web site.
- Track number of participants in salt reduction workshops.

Activity #2

- Publish stormwater articles at least one time each year in the *Environmental Extra* newsletter that is sent to all addresses in the City of Plymouth.
- Maintain and update stormwater information on the City's web site, including regulations on illicit discharge.
- Track number of erosion control brochures distributed.
- Track number of *Housekeeping and BMP Guide for Property Managers* erosion control brochures are distributed.
- Mail salt management brochure to all addresses receiving commercial billing in the City.
- Track number of shoreline brochures distributed.
- Distribute *Plymouth Yard Care Guide* to all new Plymouth residents in new resident packets. Track number of new resident packets distributed. Mail *Recyclopedia* to all addresses in the City every-other year. Track the use of the City's yard waste site for dropping off yard waste for composting and for picking up finished compost.
- Publish pollution prevention articles at least one time each year in the *Environmental Extra* newsletter that is sent to all addresses in the City of Plymouth and in the *Recyclopedia* that is sent every-other year to all addresses in the City.
- Track number of engineering memos establishing low impact components generated.
- Track attendance at workshops and events promoted in the Environmental Extra.
- Track number articles, newsletters and brochures that address the issue of storm drains leading to lakes and streams.

Activity #3

- Track number of students involved in classroom stormwater curricula.
- Track attendance at Environmental Quality Fair.
- Track attendance at the City Sampler.
- Track number of requests from lake associations for materials and support.

Activity #4

- Track number of press releases submitted and number of TV appearances made.

Activity #5

- Track number of people attending MS4 public meeting.

Activity #6

- Track number of workshop attendees.

Activity #7

- Track the number of students participating in water quality lessons and number of third grade students participating in Earth Day presentations.

Activity #8

- Track the number of Adopt-A-Storm Drain volunteers.
- Track the number of Adopt-A-Street volunteers.

Activity #9

- Track the number of grants awarded and conduct periodic reviews of completed grant projects.

Activity #10

- Track number of presentations.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Plymouth Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-2

***BMP Title:** Education Program: Public Participation
Audiences Involved: See BMP 1c-1
***Educational Goals for Each Audience:** See 1c-1
***Activities Used to Reach Educational Goals:** The City will hold a public information meeting (in conjunction to the annual meeting on the SWPPP) to update citizens on the City's progress toward implementing the SWPPP and to provide information on stormwater related issues. Technical assistance, cost-share and BMP programs implemented by the City and watershed organizations within the City will be coordinated with the MS4 SWPPP activities
***Activity Implementation Plan** See BMP 1c-1
***Performance Measures:** Event and activity participation.
***Responsible Party for this BMP:** Name: Ben Scharenbroich, Senior Engineering Technician Department: Plymouth Public Works Department Phone: 763-509-5500 E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-3

***BMP Title:** Education Program: Illicit Discharge Detection and Elimination
Audiences Involved: See BMP 1c-1
***Educational Goals for Each Audience:** See BMP 1c-1
***Activities Used to Reach Educational Goals:** See BMP 1c-1
***Activity Implementation Plan** See BMP 1c-1
Performance Measures: See BMP 1c-1
***Responsible Party for this BMP:** Name: Ben Scharenbroich, Senior Engineering Technician Department: Plymouth Public Works Department Phone: 763-509-5500 E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-4

***BMP Title:** Education Program: Construction Site Run-off Control
Audiences Involved: See 1c-1
***Educational Goals for Each Audience:** See BMP 1c-1
***Activities Used to Reach Educational Goals:** See BMP 1c-1
***Activity Implementation Plan** See BMP 1c-1
Performance Measures: See BMP 1c-1
***Responsible Party for this BMP:** Name: Ben Scharenbroich, Senior Engineering Technician Department: Plymouth Public Works Department Phone: 763-509-5500 E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-5

***BMP Title:** Education Program: Post-Construction Stormwater Management in New Development and Redevelopment
Audiences Involved: See 1c-1
***Educational Goals for Each Audience:** See BMP 1c-1
***Activities Used to Reach Educational Goals:** See BMP 1c-1
***Activity Implementation Plan** See BMP 1c-1
Performance Measures: See BMP 1c-1
***Responsible Party for this BMP:** Name: Ben Scharenbroich, Senior Engineering Technician Department: Plymouth Public Works Department Phone: 763-509-5500 E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-6

***BMP Title:** Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations
Audiences Involved: See 1c-1
***Educational Goals for Each Audience:** See BMP 1c-1
***Activities Used to Reach Educational Goals:** See BMP 1c-1
***Activity Implementation Plan** See BMP 1c-1
Performance Measures: See BMP 1c-1
***Responsible Party for this BMP:** Name: Ben Scharenbroich, Senior Engineering Technician Department: Plymouth Public Works Department Phone: 763-509-5500 E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1d-1

***BMP Title:** Coordinating Educational Programs

***BMP Description:**

The City of Plymouth is a party to three joint powers organizations and participates in the Watershed Partners program. The City is represented on the Bassett Creek Watershed Management Commission (BCWMC) and technical advisory committee (TAC), the Shingle Creek Watershed Management Commission (SCWMC) and TAC, as well as the Elm Creek Watershed Management Commission (ECWMC) and TAC. The City's Environmental Education Coordinator also participates on the BCWMC and SCWMC Education and Public Outreach Committee (EPOC) where Three Rivers Park District is a participant.

The City of Plymouth has also historically coordinated educational mailings with the Association for Medicine Lake Area Citizens, the Schmidt Lake Association, and the Gleason Lake Improvement Association.

***Measurable Goals:**

The number of area residents participating and attending events.
The number of workshops and events attended by City staff.
Educational brochures flyers

***Timeline/Implementation Schedule:**

Years 1-5: Attend BCWMC, SCWMC, and ECWMC meetings and TAC meetings; participate in EPOC through the West Metro Water Alliance (WMWA); coordinate with AMLAC and the Schmidt Lake Association.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 1 – PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1e-1

***BMP Title:** Annual Public Meeting

***BMP Description:**

The City of Plymouth held its annual public meeting on our Storm Water Pollution Prevention Plan on October 10, 2018. The meeting was advertised 30 days in advance in the City's official paper – the Sun Sailor, and on the City's website.

***Measurable Goals:**

The goal of the annual public meeting was to provide residents with an opportunity to review the City's SWPPP and offer comments, both verbal and written. One staff member, six members of the City's Environmental Quality Committee and one resident attended the meeting. This BMP is measured by number of people attending.

***Timeline/Implementation Schedule:**

Annually in June or July of each year.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 2 – PUBLIC PARTICIPATION/INVOLVEMENT

Unique BMP Identification Number: 2a-1

***BMP Title:** Comply with Public Notice Requirements
***BMP Description:** The City of Plymouth holds annual public meetings in June or July of each year. This is an opportunity for City residents to review and comment on the City's Storm Water Pollution Prevention Plan. The annual public meeting needs to be noticed 30 days prior to the meeting date.
***Measurable Goals:** This BMP is measured by the number of residents attending. In 2018, one resident attended the Annual Public Informational Meeting.
***Timeline/Implementation Schedule:** Annual in June or July of each year.
Specific Components and Notes:
***Responsible Party for this BMP:** Name: Ben Scharenbroich, Senior Engineering Technician Department: Public Works Department Phone: 763-509-5500 E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 2 – PUBLIC PARTICIPATION/INVOLVEMENT

Unique BMP Identification Number: 2b-1

***BMP Title:** Solicit Public Input and Opinion on the Adequacy of the SWPPP
***BMP Description:** A copy of the City's SWPPP was available for review and comment, although no residents attended the meeting. The SWPPP is also available during regular business hours at the Public Works Department at Plymouth City Hall.
***Measurable Goals:** Zero comments were received from residents on the SWPPP in 2018.
***Timeline/Implementation Schedule:** On-going. The City of Plymouth is always willing to accept comments on the adequacy of our SWPPP.
Specific Components and Notes:
***Responsible Party for this BMP:** Name: Ben Scharenbroich, Senior Engineering Technician Department: Public Works Department Phone: 763-509-5500 E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 2 – PUBLIC PARTICIPATION/INVOLVEMENT

Unique BMP Identification Number: 2c-1

***BMP Title:** Consider Public Input

***BMP Description:**

The City of Plymouth holds annual public meetings in June or July of each year. This is an opportunity for City residents to review and comment on the City's Storm Water Pollution Prevention Plan. No comments were received at this time, however, the meeting was attended by several staff members.

***Measurable Goals:**

This BMP is measured by the number of residents commenting on the SWPPP. In 2018, zero residents attended the Annual Public Informational Meeting and no comments were received from residents on the plan in 2018. Minor comments were received from EQC.

***Timeline/Implementation Schedule:**

On-going. The City of Plymouth is always willing to consider public input on the adequacy of our SWPPP.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION SYSTEM

Unique BMP Identification Number: 3a-1

***BMP Title:** Storm Sewer System Map

***BMP Description:**

The City has completed detailed mapping of its storm sewer system. The mapping includes all pipes, outfall and outlet structures. Additionally, the map includes NURP ponds and Natural Basins (wetlands).

***Measurable Goals:**

The storm sewer map is continually update with new information from development plans (utility plans), City projects, or regular inspections. The City purchased a GPS unit to improve accuracy of the map.

***Timeline/Implementation Schedule:**

This BMP is updated on a weekly basis and its implementation is on-going.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION SYSTEM

Unique BMP Identification Number: 3b-1

***BMP Title:** Regulatory Control Program

***BMP Description:**

Public Works and Engineering staff regularly attend MPCA sponsored seminars on City's jurisdiction and responsibilities. Additionally, City staff works with developers and residents to ensure compliance with water resources regulations at the local, regional, and state levels.

Plymouth City Code Section 725 regulates public and private sewers and drains. Ponds and wetlands are inspected every 5 years as required by the MPCA. Discharges not consistent with storm water are investigated. Illicit discharges are addressed through City Code Section 725.

***Measurable Goals:**

The number of illicit discharges detected and rectified is measurable.

***Timeline/Implementation Schedule:**

This BMP is on-going and is implemented on a daily basis.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION SYSTEM

Unique BMP Identification Number: 3c-1

***BMP Title:** Illicit Discharge Detection and Elimination Plan

***BMP Description:**

At least 20% of all outfalls and ponds in the City are inspected each year through our Pond Maintenance Program adopted in 2005. Additionally, each inspected outfall is also inspected for evidences of any illicit discharge.

Evidence of illegal dumping is investigated and possibilities of hazardous wastes are referred to the Minnesota Duty Officer at 651-649-5451.

The City is in the process of creating a program to remedy illegally dumped materials.

***Measurable Goals:**

Staff will attend workshops or seminars on illicit discharge when available.

At least 20% of all outfalls will be annually inspected and investigated for illicit discharge. This is documented in our Pond Maintenance Files in our Public Works Department. In 2018, approximately 6 square miles of the City's drainage system was inspected.

A program to remove illegally dumped materials from the drainage system.

***Timeline/Implementation Schedule:**

This BMP and potential program is implemented annually during the summer months (May-Sept.).

Specific Components and Notes:

The City hires an intern to work with city staff to perform inspections and document with photos.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION SYSTEM

Unique BMP Identification Number: 3d-1

***BMP Title:** Public and Employee Illicit Discharge Information Program

***BMP Description:**

Records of all documented illicit discharges are available through the City of Plymouth Public Works Department during regular business hours. Illicit discharge detection is a part of the City's pond maintenance inspection program. City Code Section 725 address's discharges to the City's sewers.

City Code Section 725 is available on the City website. Additionally, a city wide brochure our article will educate employees, businesses and the general public the hazards associated with illegal discharges of non-stormwater fluids and illegal dumping.

***Measurable Goals:**

Staff will attend workshops or seminars on illicit discharge when available.

At least 20% of all outfalls will be annually inspected and investigated for illicit discharge. This is documented in our Pond Maintenance Files in our Public Works Department.

City wide brochure or article will reach over 23,000 households and hundreds of businesses.

***Timeline/Implementation Schedule:**

This BMP is implemented annually during the summer months (May-September).

Specific Components and Notes:

The City hires an intern to work with city staff to perform inspections and document with photos.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION SYSTEM

Unique BMP Identification Number: 3e-1

***BMP Title:** Identification of Non-Stormwater Discharge and Flows

***BMP Description:**

The City of Plymouth identifies the following non-stormwater discharges as contributors of pollutants to our small MS4:

1. Lawn watering
2. Individual residential car washing
3. Swimming pool discharges

Over watering lawns may contribute to excess nutrient loading into City ponds, streams, wetlands, and lakes. The City of Plymouth enforces a sprinkling ordinance to reduce the contribution of pollutants coming from excess lawn watering. City residents are encouraged to wash vehicles on grass surfaces and not driveways. Lastly, swimming pool water discharges are enforced through ordinance and require stilling of the water for 7 days prior to discharge into the City's storm drains.

***Measurable Goals:**

City Ordinances
Seasonal fines for violations of the sprinkler ordinance

***Timeline/Implementation Schedule:**

Annually

Specific Components and Notes:

The City hires an intern to work with city staff to perform inspections and document with photos.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number:

4	a	1

***BMP Title:** Ordinance or other Regulatory Mechanism

***BMP Description:**

Plymouth City Code (attached) requires an approved erosion control and grading plan for earth disturbing activities prior to the issuance of grading or building permits (Section 425). Additionally, subdivisions are required to be reviewed by staff and are subject to various erosion control requirements including silt fence, rock construction entrances, inlet protection, seed and mulch, street sweeping , temporary sedimentation basins and other best management practices (Section 526).

***Measurable Goals:**

Documentation of letters, project reviews and administrative fees for non-compliant projects.

Completion of the Erosion Control review and update through the City's Environmental Quality Committee.

***Timeline/Implementation Schedule:**

Ongoing

Specific Components and Notes:

The City also works with local watershed management organizations to review, inspect, reduce and/or eliminate erosion from construction sites.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

Phone: 763-509-5500

E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number:

4	b	1

***BMP Title:** Construction Site Implementation of Erosion and Sediment Control BMP's

***BMP Description:**

City Code requires proposed construction develop and implement an onsite erosion control plan. Additionally, the City requires the qualified developers to provide the City with their SWPPP.

***Measurable Goals:**

Compliance by all developments that have an erosion control (or SWPPP) completed for their project.

***Timeline/Implementation Schedule:**

This is typically an on-going procedure.

Specific Components and Notes:

City staff inspects approximately 53 active development sites and numerous individual building sites on a weekly basis. 982 erosion control site inspections were completed in 2018

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number:

4	c	1

***BMP Title:** Waste Controls for Construction Site Operations

***BMP Description:**

The City's prohibits onsite disposal of any construction waste or washing of equipment. Concrete washout areas are required, and must be properly maintained.

During the commercial site plan review process, drawings are noted to require specific wash out areas on-site.

***Measurable Goals:**

City staff prepares an annual report of all erosion control inspections and violations. This is an ongoing procedure. The city is in the process of preparing a standard detail for concrete washout stations.

***Timeline/Implementation Schedule:**

Typically, this is an ongoing procedure however most activity takes place during the summer months.

Specific Components and Notes:

Weekly inspections by staff.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

Phone: 763-509-5500

E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number:

4	d	1

***BMP Title:** Procedure for Site Plan Review

***BMP Description:**

The City of Plymouth has established a detailed process for all site plan reviews. All development plans are submitted to the Community Development Department. They are routed to the Public Works Department for review of erosion and sedimentation control measures. Reviews include: erosion control, drainage concerns and implementation of Best Management Practices such as rain gardens, infiltration basin and green roofs. Approved plans are subject to a pre-construction meeting at which time staff reviews erosion and sediment control on the approved plan and City policies. Prior to issuance of a grading permit, erosion and sediment controls such as silt fence and rock construction entrances are inspected by staff to confirm they are in place. Once project activity has begun, sites are subject to weekly inspections by City staff.

***Measurable Goals:**

All development plans are reviewed (100%). Non-development construction is also reviewed when staff has concerns.

***Timeline/Implementation Schedule:**

This is typically an ongoing procedure, however, our Engineering Guidelines are updated annually, most recently in January 2019.

Specific Components and Notes:

The City also has a new policy to inspect lake front home sites where existing homes are torn down, and new homes are built.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

Phone: 763-509-5500

E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number:

4	e	1

***BMP Title:** Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance

***BMP Description:**

Possible violations of City erosion and sediment control policies are submitted to the City's erosion control inspector by other City staff, watershed management organizations, or citizens. All complaints of possible violations are inspected by staff. If sites are found to be in violation, phone calls and/or letters are used to contact the project manager (contractor or developer). Continued non-compliance is subject to a $500.00 administrative penalty and/or stop work order.

***Measurable Goals:**

City regularly receives calls from citizens concerned with a specific project. The City does keep track of the number of calls received, letters sent, administrative penalties applied, and stop work orders issued.

***Timeline/Implementation Schedule:**

This is typically an ongoing procedure.

Specific Components and Notes:

982 site inspections were conducted which resulted in 58 enforcement actions for noncompliance.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number:

4	f	1

***BMP Title:** Establishment of Procedures for Site Inspections and Enforcement

***BMP Description:**

The City has established a strong inspection program. Annually, in addition to trained and certified staff, the City has hired summer engineering interns to inspect construction sites weekly. Typically, an inspection will occur on Monday morning. Violations will be re-inspected on Thursday or Friday after contact is made with the contractor or developer (i.e. responsible party). Continued violations are subject to a $500.00 administrative penalty and/or a stop work order.

***Measurable Goals:**

Number of all developments inspected and number of inspections during their active period. Violations is not used as a measurable goal, since the goal is to minimize all violations.

***Timeline/Implementation Schedule:**

This is typically an ongoing procedure.

Specific Components and Notes:

Additionally, staff can "flag" sites through the Community Development Department to ensure follow-up inspections of construction sites.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

Additional BMP Summary Sheet Copy as Necessary

MS4 Name: City of Plymouth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number: 4-g-1

***BMP Title:** Erosion and Sediment Control Training

***BMP Description:**

Continued education in erosion and sediment control methods and requirements. Staff is trained, at a minimum, as an Erosion and Sediment Control Specialist - Inspector/Installer through the University of Minnesota Sediment and Erosion Control certification program.

***Measurable Goals:**

Passing of state test and certification as Erosion and Sediment Control Specialist - Inspector/Installer.

***Timeline/Implementation Schedule:**

Bi-annual certification.

Specific Components and Notes:

Staff also attends annual erosion and sediment control conferences and workshops

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

Phone: 763-509-5500

E-mail: bscharenbroich@plymouthmn.gov

Additional BMP Summary Sheet Copy as Necessary

MS4 Name: City of Plymouth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number: 4-h-1

***BMP Title:** Engineering Guidelines for Developers

***BMP Description:**

The City offers developers Engineering Guidelines and literature to assist with compliance of City policies and to include with submittal of construction plans for review. Guidelines are available through the Public Works Department or on the City website. Guidelines include:

ST-12 TYPICAL TREATMENT POND DETAIL
ST-16 TYPICAL RAIN GARDEN DETAIL
ST-18 SILT FENCE DETAIL
ST-19 ROCK CONSTRUCTION ENTRANCE DETAIL

***Measurable Goals:**

Inclusion of all applicable Engineering Guidelines for sediment and erosion control onto construction plans

***Timeline/Implementation Schedule:**

2006 and ongoing.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 5-POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELEOPMENT

Unique BMP Identification Number:

5	a	1

***BMP Title:** Development and Implementation of Structural and/or Non Structural BMP's

***BMP Description:**

The City of Plymouth has developed a list of potential BMP's that can be utilized in the city for development. Additionally, the City of Plymouth has incorporated several BMP's into various watersheds.

***Measurable Goals:**

The number and type of BMP is used for documentation. The running total is as follows: Ponds (3), Rain Gardens (24), Water Quality Monitoring Stations (10), Canada Geese Removal (1000+), Shoreline Restorations (36), Large Drainage/Erosion projects (6).

***Timeline/Implementation Schedule:**

This BMP is part of annual work conducted by the City.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 5-POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELEOPMENT

Unique BMP Identification Number:

5	b	1

***BMP Title:** Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment

***BMP Description:**

The City of Plymouth has developed a list of potential BMP's that can be utilized in the city for development. All developments greater than 0.5 acres and all redevelopment greater than 2.5 acres are subject to the rate control, TSS, and phosphorous requirements including NURP ponds and one additional BMP from our approved list.

Additionally, the City of Plymouth is in the process of updating our local surface water management plan which will likely result in more restrictive requirements on development and redevelopment within the City. The City currently allows MIDS for demonstration of water quality requirements.

***Measurable Goals:**

Reduction in TSS, phosphorous, and discharge rates leaving the City. Will be monitored as part of the City's non-degradation plan and load assessment.

***Timeline/Implementation Schedule:**

This BMP is implemented with every plan review, approximately once a week throughout the year.

Specific Components and Notes:

The City of Plymouth contracts for water quality monitoring at over a dozen locations throughout the city.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

Phone: 763-509-5500

E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 5-POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELEOPMENT

Unique BMP Identification Number:

5	c	1

***BMP Title:** Long-term Operation and maintenance of BMPs

***BMP Description:**

The City has an established Pond Maintenance program and local surface water management plan. Ponds, outfalls, and outlets are inspected every 5 years. The City budgets funds for maintenance of previously constructed BMPs such as rain gardens, shoreline restorations, and water quality ponds. Additionally, the City budgets for both routine water resources projects and long term capital projects to ensure proper functionality.

The City also requires maintenance agreements for BMPs, both development and others, for long term maintenance of such structures. Maintenance agreements may be required for rain gardens, sump manholes, storm water vaults, street and/or parking lot sweeping, or others.

***Measurable Goals:**

The City conducts dozens of maintenance projects annually to assess best management practices associated with our drainage system. Maintenance includes restoring rain gardens and water quality ponds to their designed condition, repairing stream bank erosion, and removing accumulated sediments from sump manholes and hydrodynamic separators.

***Timeline/Implementation Schedule:**

Maintenance to ensure the long-term operation of BMPs is done on an annual basis. Erosion repair, pond dredging, removal of sediments from sump manholes, and maintenance of rain gardens and shoreline restorations on an annual basis ensures the long term viability of these implemented BMPs.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

Phone: 763-509-5500

E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 5-POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELEOPMENT

Unique BMP Identification Number:

5	d	1

***BMP Title:** Ordinances

***BMP Description:**

The City is in the process of reviewing all related ordinances such as erosion control and lawn fertilizer application, and preparing to implement new non-degradation policies for all new and redevelopment.

***Measurable Goals:**

This BMP will be measured by a reduction in TSS, phosphorous, and water volume.

***Timeline/Implementation Schedule:**

This BMP is part of annual development/redevelopment plan review work conducted by the City.

Specific Components and Notes:

The City of Plymouth submitted a Non-degradation plan to the MPCA on October 1, 2007.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

Phone: 763-509-5500

E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 5-POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELEOPMENT

Unique BMP Identification Number:

5	e	1

***BMP Title:** NEMO

***BMP Description:**

Non point source Education for Municipal Officials. NEMO is an educational program for local land use officials and addresses the relationship of land use to natural resource protection. The goal is to present this national program to as many of the City's decision makers as possible. This presentation has been made to various City leaders and staff.

***Measurable Goals:**

This BMP is measured by changes in City policy that reflect the importance of natural resources. One example is the City's proposed non-degradation policy. Additionally, this BMP can be measured by:

1. Number of NEMO presentations given
2. Number of NEMO presentations requested

***Timeline/Implementation Schedule:**

This BMP is part of annual work conducted by the City.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number:

6	a	1

***BMP Title:** Municipal Operations and Maintenance Program

***BMP Description:**

The City will conduct or attend annual training based on US EPA educational materials on reducing pollutant runoff from parks, open space, fleet, city-owned buildings, and city development.

In addition, to meet the goals of the Shingle Creek Chloride TMDL, the City will:

1. Annually calibrate spreaders
2. Use the Road Weather Information Service (RWIS) and other sensors such as truck mounted or hand held sensors to improve application decisions such as the amount and timing of application where feasible and cost effective.
3. Evaluate new technologies such as pre-wetting and anti-icing as equipment needs to be replaced. These technologies will be adopted where feasible and practical.
4. Investigate and adopt new products (such as Clear Lane, a commercially available pretreated salt) where feasible and cost effective.
5. Annually investigate salt application technologies.

***Measurable Goals:**

Training provided to staff and number of new BMP's adopted by the City.

***Timeline/Implementation Schedule:**

On-going, at least one event per year.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

Phone: 763-509-5500

E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number:	6	a	2

***BMP Title:** Street Sweeping

***BMP Description:**

The City of Plymouth has developed a strong Street Sweeping Program. Starting in 2006, all city streets are swept three to five times (using regenerative air or vacuum assisted street sweepers) during the spring/summer months. Detailed records are kept of the areas and the amount of materials collected for each area.

The City expects street sweeping to help meet the goals of the following TMDLs:

1. Shingle Creek Chloride
2. Schmidt, Pomerleau, and Bass Lakes Excess Nutrient TMDL
3. Cedar Island, Pike, and Eagle Lakes Excess Nutrient TMDL
4. Medicine Lake Excess Nutrient TMDL

***Measurable Goals:**

The quantity of all street sweeping material collected is recorded and tested. Goals are to reduce these amounts and their phosphorous concentrations.

***Timeline/Implementation Schedule:**

During after-spring thaw to mid September.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works

Phone: 763-509-5992

E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number:

6	b	2

***BMP Title:** Annual Inspection of All Structural Pollution Control Devices

***BMP Description:**

The City has identified, inventoried, and mapped all of its structural pollution control devices. These devices are inspected on a regular basis and maintained annually.

***Measurable Goals:**

To maintain these devices on a regular basis.

***Timeline/Implementation Schedule:**

On-going

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department:	Public Works
Phone:	763-509-5999
E-mail:	bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number:

6	b	3

***BMP Title:** Inspection of a Minimum of 20% of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis

***BMP Description:**

Since 2003, the City has adopted the Plymouth Pond Maintenance Policy which requires the inspection of all outfall structures. At a minimum, 20% of outfall structures are inspected on an annual basis.

The City inspected approximately 6 square miles of the drainage system in 2018.

***Measurable Goals:**

To inspect at least 20% of all outfall structures.

***Timeline/Implementation Schedule:**

On-going

Specific Components and Notes:

Water Resources Manager will hire seasonal interns or a permanent Water Resources Technician / Senior Engineering Technician to inspect storm sewer pipe and structures as well as NURP ponds and wetlands per the City of Plymouth Pond Maintenance Policy.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department:	Public Works
Phone:	763-509-5999
Email:	bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number:

6	b	4

***BMP Title:** Quarterly Inspection of all Exposed Stockpile, Storage, and Material Handling Areas.

***BMP Description:**

The City inspects all of its sites on a regular basis including the City's salt stockpiles as required by the Shingle Creek Chloride TMDL implementation plan and the 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 (MNR040000).

The number of stockpiles or disposal sites is limited to one or two. The City's salt stockpile is located 14,900 23rd Avenue North. The remaining stockpiles, storage, and material handling areas are located at the City Material Disposal Site (13825 Schmidt Lake Road) and the City Maintenance Yard (14900 23rd Ave N).

The stockpiles, storage, and material handling areas are identified in the MS4Front inventory system under the Municipal Facilities category.

***Measurable Goals:**

Regular, at least quarterly, inspection of all stockpiles, storage, and material handling areas.

***Timeline/Implementation Schedule:**

On-going

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works
Phone: 763-509-5999
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number:

6	b	5

***BMP Title:** Inspection Follow-Up, Including the Determination of whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures

***BMP Description:**

In 2003, the City adopted a Pond Maintenance Policy. The Policy requires the City to inspect all of the basins and structures, and to develop a maintenance schedule for all necessary repairs.

***Measurable Goals:**

To comply with the City's Pond Maintenance Policy.

***Timeline/Implementation Schedule:**

On-going

Specific Components and Notes:

Water Resources Manager & designees work in conjunction with maintenance division to determine maintenance schedule.

***Responsible Party for this BMP:**

Name:	Ben Scharenbroich, Senior Engineering Technician
Department:	Public Works Department
Phone:	763-509-5500
E-mail:	bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number:

6	b	6

***BMP Title:** Record Reporting and Retention of all Inspections and Responses to the Inspection

***BMP Description:**

In 2003, the City adopted a Pond Maintenance Policy. The Policy requires that the City provide regular reports of all inspections and their findings. All records are computerized and linked with the City's GIS for ease of reference. The City will follow the MPCA Inspection and Record Keeping Guidelines.

***Measurable Goals:**

A continuously updated data base and map of all inspected water resources facilities, ponds, basins, and structures. In 2007, our data base was updated to include wetland mitigation areas.

***Timeline/Implementation Schedule:**

On-going

Specific Components and Notes:

***Responsible Party for this BMP:**

Name:	Ben Scharenbroich, Senior Engineering Technician
Department:	Public Works Department
Phone:	763-509-5500
E-mail:	bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number:

6	b	7

***BMP Title:** Evaluation of Inspection Frequency

***BMP Description:**

The inspection and evaluation of all of the city water quality ponds, natural basins, pipes, and structures has been completed. It is expected than an inspection frequency of every five years will be sufficient to maintain the City's storm water conveyance system.

***Measurable Goals:**

To continue an efficient and routine inspection program.

***Timeline/Implementation Schedule:**

On-going

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number:

6	c	1

***BMP Title:** Monitoring

***BMP Description:**

The City of Plymouth monitors surface water quality at up to 13 sites in the Bassett Creek, Elm Creek, and Shingle Creek Watersheds. Monitoring assists the City implementation of projects to address impaired waters.

Water Quality parameters include TSS, P, N, and others. Additionally, the City of Plymouth supports implementation of the Shingle Creek Chloride TMDL implementation plan through the Shingle Creek Watershed. The SCWMC monitors water quality at two stations in the watershed (Zane Ave. and Humboldt Ave. near the outlet). Upon the initiation of the Shingle Creek Chloride TMDL study, the SCWMC has increased monitoring at these two stations to include grab samples of chloride and collection of conductivity at 15-minute intervals. The BCWMC and MCWD also monitor selected water bodies in the City of Plymouth.

***Measurable Goals:**

To continue an efficient and routine monitoring program. To implement the Shingle Creek Chloride TMDL

***Timeline/Implementation Schedule:**

On-going

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

BMP Summary Sheet

MS4 Name: City of Plymouth
Permit Condition: IV.D Section 303 (d) listings
Unique BMP Identification Number: IV.D - 1

***BMP Title:** Impaired Waters Review Process

***BMP Description:**

The City of Plymouth will review all discharges from our MS4 system to impaired waters, as defined by the current USEPA approved 303 (d) list. For this review the City of Plymouth will utilize our updated Surface Water Management Plan to:

1. Identify the impaired waters that are likely to be impacted by stormwater discharge
2. Use a combination of storm sewer maps and field surveys to identify all potential stormwater discharges to impaired waters.
3. Delineate the watershed area that contributes to the discharges
4. Evaluate the hydrology, land use and other characteristics of the watershed areas that may impact the impaired water as a result of a stormwater discharge.

Based on the review above, the City of Plymouth will determine if any changes to the existing stormwater system or BMPs are needed to minimize the impact of discharges from our MS4 to the impaired waters. If modifications are necessary, the City of Plymouth will modify our SWPPP and submit those modifications to the MPCA with the current year's annual report. In our review, we will consider timing and long and short term costs. All assumptions, reasoning, and justification used to reach a conclusion on whether or not SWPPP revisions are necessary will be documented in the decision making process. A narrative summary of this review will then be prepared, and identify any associated SWPPP revisions that were made.

Location(s) in SWPPP of detailed information relating to this BMP:

***Measurable Goals:**

1. Completion of updated Surface Water Management Plan
2. Prepare a written inventory of impaired waters within the jurisdictional boundaries of the City of Plymouth
3. Map all impaired waters reasonably affected by discharges from the City of Plymouth.
4. Determine necessary revisions to SWPPP.
5. Prepare a schedule and timeline to incorporate changes to SWPPP

***Timeline/Implementation Schedule:**

2008: Complete Surface Water Management Plan
2008: Identify impaired waters
2009: Delineate watersheds contributing to impaired waters
2009: Develop a map of discharges
2010: Complete and evaluation of hydrology, land use, and other characteristics of watershed areas that may impact the impaired water as a result of storm water discharge.
2010: Include in annual report to MPCA the overview of the impaired waters review and any changes to the SWPPP which are necessary.

Specific Components and Notes:

***Responsible Party for this BMP:**

Name:	Ben Scharenbroich, Senior Engineering Technician
Department:	Public Works Department
Phone:	763-509-5500
E-mail:	bscharenbroich@plymouthmn.gov

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Plymouth

Permit Condition: IV.D Section 303 (d) listings and TMDL

Unique BMP Identification Number: IV.D - 2

***BMP Title:** Schmidt, Pomerleau, and Bass Lakes Excess Nutrient TMDL

***BMP Description:**

The City of Plymouth will review the adequacy of the SWPPP to determine if changes are required to meet the goals of the Schmidt, Pomerleau, and Bass Lakes Excess Nutrient TMDL.

Location(s) in SWPPP of detailed information relating to this BMP:

***Measurable Goals:**

1. Annual Education (see sheet 1.c.1)
2. Street Sweeping
3. Eight (8) Rain Gardens (3 Schmidt, 5 Bass)
4. Fourteen (14) Shoreline Management and Restoration Projects (4 Schmidt, 10 Bass)
5. Additional Development and Redevelopment Regulations
6. Fifty (50) Storm Drain Filters for Schmidt Lake Watershed
7. Feasibility Study for water quality ponding in the Bass Lake Watershed
8. Schmidt Lake Wetland Restoration
9. Schmidt Lake Neighborhood Rain garden Project
10. Bass & Pomerleau Lakes Alum Treatment Project

***Timeline/Implementation Schedule:**

2010: Annual Education (see sheet 1.c.1)
2010: Eight (8) Rain Gardens (3 Schmidt, 5 Bass)
2010-2011: Schmidt Lake Wetland Restoration
2010-2011: Schmidt Lake Neighborhood Rain Garden Project
2010-2014: Additional Development and Redevelopment Regulations
2011: Fifty (50) Storm Drain Filters for Schmidt Lake Watershed
2011-2013: Street Sweeping – five (5) vacuum assisted sweeps (see sheet 6.a.2)
2012-2013: Fourteen (14) Shoreline Management and Restoration Projects (4 Schmidt, 10 Bass)
2013: Feasibility Study for water quality ponding in the Bass Lake Watershed
2019: Bass & Pomerleau Lakes Alum Treatment Project

Specific Components and Notes:

Annual cost over 10 years to implement this BMP is estimated to be $75,000.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Plymouth

Permit Condition: IV.D Section 303 (d) listings and TMDL

Unique BMP Identification Number: IV.D - 3

***BMP Title:** Cedar Island, Pike, and Eagle Lakes Excess Nutrient TMDL

***BMP Description:**

The City of Plymouth will review the adequacy of the SWPPP to determine if changes are required to meet the goals of the Cedar Island, Pike, and Eagle Lakes Excess Nutrient TMDL.

Location(s) in SWPPP of detailed information relating to this BMP:

See below.

***Measurable Goals:**

1. Annual Education (see sheet 1.c.1)
2. Street Sweeping (see sheet 6.a.2)
3. Development and Redevelopment Regulations
4. Rough Fish Management
5. Coordinate efforts with MnDOT, TRPD, and Maple Grove
6. Illicit discharge detection including City Record Review
7. Post official "15 mph" signage

***Timeline/Implementation Schedule:**

2011: Annual Education (see sheet 1.c.1)
2011: Street Sweeping (see sheet 6.a.2)
2011: Development and Redevelopment Regulations
2012: Rough Fish Management
2011: Coordinate efforts with MnDOT, TRPD, and Maple Grove
2012: Illicit discharge detection including City Record Review
2012: Post official "15 mph" signage

Specific Components and Notes:

Annual cost over 10 years to implement this BMP is estimated to be $75,000.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Plymouth

Permit Condition: IV.D Section 303 (d) listings and TMDL

Unique BMP Identification Number: IV.D - 4

***BMP Title:** Medicine Lake Excess Nutrient TMDL

***BMP Description:**

The City of Plymouth has reviewed the adequacy of the SWPPP to determine if changes are required to meet the goals of the Medicine Lake Excess Nutrient TMDL. Several projects have been completed and are included in the SWPPP to meet the goals of the Medicine Lake TMDL including education, street sweeping, regulations, erosion repair projects, stream restoration projects and water quality ponding projects.

Location(s) in SWPPP of detailed information relating to this BMP:

See below.

***Measurable Goals:**

1. Annual Education (see sheet 1.c.1)
2. Street Sweeping (see sheet 6.a.2)
3. Development and Redevelopment Regulations
4. Completion of County Road 9/61 Erosion Repair Project
5. Completion of Timber Creek Erosion Repair Project
6. Completion of Wood Creek Erosion Repair and Stream Restoration
7. Completion of Plymouth Creek Water Quality Ponds
8. Completion of Plymouth Creek Stream Restoration

***Timeline/Implementation Schedule:**

2011: Annual Education (see sheet 1.c.1)
2011: Street Sweeping (see sheet 6.a.2)
2011: Development and Redevelopment Regulations
2007: Completion of County Road 9/61 Erosion Repair Project
2009: Completion of Wood Creek Erosion Repair and Stream Restoration
2010: Completion of Timber Creek Erosion Repair Project
2011: Completion of Plymouth Creek Water Quality Ponds
2012: Completion of Plymouth Creek Stream Restoration
2016: Completion of Plymouth Creek Stream Restoration

Specific Components and Notes:

Annual cost over 10 years to implement this BMP is estimated to be $4,000,000.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

Phone: 763-509-5500

E-mail: bscharenbroich@plymouthmn.gov

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Plymouth

Permit Condition: IV.D Section 303 (d) listings and TMDL

Unique BMP Identification Number: IV.D - 5

***BMP Title:** Shingle Creek & Bass Creek Biota and Dissolved Oxygen TMDL

***BMP Description:**

The City of Plymouth has reviewed the adequacy of the SWPPP to determine if changes are required to meet the goals of the Shingle Creek & Bass Creek Biota TMDL. Most of the improvements are expected to come through the City's regulatory program as properties develop and redevelop.

Location(s) in SWPPP of detailed information relating to this BMP:

See below.

***Measurable Goals:**

1. Annual Education (see sheet 1.c.1)
2. Street Sweeping (see sheet 6.a.2)
3. Development and Redevelopment Regulations
4. Monitoring

***Timeline/Implementation Schedule:**

2011: Annual Education (see sheet 1.c.1)
2011: Street Sweeping (see sheet 6.a.2)
2011: Development and Redevelopment Regulations
2012: Monitoring (see sheet 6.c.1)

Specific Components and Notes:

Annual cost over 10 years to implement this BMP is estimated to be $500,000.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician
Department: Public Works Department
Phone: 763-509-5500
E-mail: bscharenbroich@plymouthmn.gov

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: City of Plymouth

Permit Condition: IV.D Section 303 (d) listings and TMDL

Unique BMP Identification Number: IV.D - 6

***BMP Title:** Upper Minnehaha Creek Watershed Nutrient and Bacteria TMDL

***BMP Description:**

The City of Plymouth has reviewed the adequacy of the SWPPP to determine if changes are required to meet the goals of the Upper Minnehaha Creek Watershed Nutrient and Bacteria TMDL. Most of the improvements are expected to come through the City's regulatory program as properties develop and redevelop.

Location(s) in SWPPP of detailed information relating to this BMP:

See below.

***Measurable Goals:**

1. Annual Education (see sheet 1.c.1)
2. Street Sweeping (see sheet 6.a.2)
3. Development and Redevelopment Regulations
4. Monitoring

***Timeline/Implementation Schedule:**

Annual Education	Annually
Street Sweeping	Annually
City View Acres Rain Gardens (Gleason)	Complete 2008
Hawthorne Ponds Rain Garden (Hadley)	Complete 2008
City View Acres Storm Water Pond (Gleason)	Complete 2008
19th and Dunkirk Storm Water Pond Enhancement (Gleason)	Proposed 2020
Maple Creek Stream Restoration (Gleason)	Proposed 2021
Pond Maintenance (Mooney Lake)	Complete 2014

Specific Components and Notes:

Cost to implement this BMP is estimated to be $5,000,000.

***Responsible Party for this BMP:**

Name: Ben Scharenbroich, Senior Engineering Technician

Department: Public Works Department

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**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*