

City of Saint Paul's Stormwater Permit Annual Report



Minnesota Pollution Control Agency
National Pollutant Discharge Elimination System
Permit No. MN 0061263
June 2016



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Background

The National Pollutant Discharge Elimination System (NPDES) program was created in 1990 by the United States Environmental Protection Agency to safeguard public waters through the regulation of the discharge of pollutants to surface waters including lakes, streams, wetlands and rivers. The Minnesota Pollution Control Agency (MPCA) is the local authority responsible for administering this program. Under this program, specific permits are issued to regulate different types of municipal, construction and industrial activities.

The MPCA issued the first Municipal Separate Storm Sewer System (MS4) NPDES Permit to the City of Saint Paul on December 1, 2000. The City's MS4 Permit was reissued on January 21, 2011. The reissued permit required submittal of a revised Stormwater Management Program (SWMP), which was approved by the MPCA in October of 2013.

The Saint Paul SWMP was developed and is administered by the City departments that are responsible for permit activities. Included are the Public Works Department, Saint Paul Parks and Recreation Department and the Department of Safety and Inspection. These stakeholders are jointly responsible for the completion of the required permit submittals. The Department of Public Works provides program coordination. The Permit also requires public input on the development of the priorities and programs, and adoption by Council Resolution of the Annual Report. This Report provides documentation of the activities conducted in 2015.

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MCM 1: Public Education & Outreach

BMP 1.1: STORMWATER PUBLIC EDUCATION ACTIVITIES

Description

The City implements public education and outreach programs to increase the awareness of stormwater pollution impacts on waters of the state to encourage changes in public behavior to reduce impacts to receiving waters.

Assessment Process for Annual Reporting

- Narrative of public education and outreach events and activities.
- Narrative of multilingual components of documents, events and activities.
- Listing of public education materials developed.

2015 Activities

Metro WaterShed Partners

Saint Paul has been an active Metro WaterShed Partners since 1997. Metro WaterShed Partners is an innovative, dynamic coalition of over 40 public, private and non-profit organizations in the Saint Paul/St. Paul metropolitan area that, through collaborative educational outreach, teaches residents how to care for area waters. This partnership has leveraged grant dollars and staff time to develop educational literature and a nationally recognized interactive display. The WaterShed exhibit was at schools and events in and around Saint Paul in 2015. The WaterShed exhibit is also at the Minnesota State Fair in the Department of Natural Resources Building each year. In addition, the WaterShed Partners partnered with Hamline University to develop and host the StormDrain Goalie in the Eco Experience building. This exhibit raised awareness about the importance of protecting water in Minnesota and asks people to commit to take action at home to prevent run-off pollution.

Metro Clean Water Campaign

To assist cities with educational efforts, Metro WaterShed Partners is conducting the Metro Clean Water Campaign. This type of collaboration allows for the development of a consistent message, which is distributed cost effectively. A City of Saint Paul staff person was a member of the planning committee in 2015. The campaign was funded in 2015 with money raised from local units of government, including the City of Saint Paul. The 2015 report for the Metro Clean Water Campaign is found in the appendix.

Guard Your Storm Drain Program

In 2015, the City of Saint Paul partnered with the Center for Global Environmental Education at Hamline University and the Capitol Region Watershed District to develop the Guard Your Storm Drain app. This app allows residents to adopt a storm drain in their neighborhood and pledge to

keep it free of pollutants. The app consists of an online map of storm drains in Saint Paul and a simple interface that allows people to sign up to “adopt” a storm drain. Adopted storm drains are flagged with the name of the resident who has adopted it on an online map. The program was piloted in a Como Lake neighborhood in coordination with Saint Paul’s storm drain stenciling program.

The program includes the following components:

- Create and produce outreach materials including: yard signs, recruitment materials, automatic confirmation email for registrants and four seasonal reminder messages to be sent to program participants.
- Conduct focus groups of people within the target neighborhood to evaluate the draft outreach materials and to guide the framing of the program.
- Send materials out in coordination with the City’s storm drain stenciling program. Track participation in the program in response to the door hangers.
- Evaluate program by conducting a follow-up survey within the pilot neighborhood.

Annual Spring Parks Clean-Up and Neighborhood Litter Campaign

The Saint Paul Parks and Recreation Department hosts an Annual Spring Parks Clean-Up every year during the month of April. The City provides clean-up supplies, trash removal, recycling services and a “thank you” celebration. During this event volunteers remove litter from Saint Paul’s Parks and Recreation Centers. Without the help of volunteers during the cleanup, trash accumulates in these natural areas harming wildlife, polluting lakes and rivers and detracting from the beauty of our community. This event is a fun and effective way to improve the environment in our community.

Waterfest

The City of Saint Paul is a sponsor of Waterfest, which is a family festival put on each May at Lake Phalen by the Ramsey-Washington Metro Watershed District. The Watershed District estimates that 1000 people attend this free family festival. The Parks Department and the Public Works Department assist with this event.

Staff Training

- City staff person assisted in planning and attended the Eric Eckl workshop – Water Words that work hosted by the Metro WaterShed Partners.
- City staff from multiple departments attended the Minnesota Water Resources Conference and the Clean Water Summit.

MCM 1: Public Education & Outreach

BMP 1.2: STORM DRAIN STENCILING & WATER QUALITY EDUCATION PROGRAM

Description

The objective of this program is to educate the participants and the public by stenciling storm drains with the message “Storm Drains – Keep ‘em Clean,” and distribute multi-lingual educational door-hangers to residents and businesses in the stenciled neighborhoods in the City of Saint Paul.

Assessment Process for Annual Reporting

- Report on number of volunteers, storm drains stenciled and door hangers distributed.

2015 Activities

Storm Drain Stenciling Education Program

The City of Saint Paul has been conducting a successful storm drain stenciling education program since 1993. The Friends of the Mississippi River (FMR) coordinates this program for the City. FMR is the leading citizens’ organization working to protect the Mississippi River and its watershed in the Twin Cities area. In 2015, FMR coordinated the stenciling of 2,628 storm drains and distribution of 7,036 door hangers in partnership with 1,146 volunteers. The 2015 Stenciling Program Report and a copy of the door hanger are found in the Appendix.

The storm drain stenciling project is designed to meet the following three objectives:

- To involve Saint Paul residents in hands-on learning experiences about urban runoff pollution and ways to prevent it.
- To facilitate school service learning initiatives that include storm drain stenciling, litter cleanups and/or habitat restoration as a key components.
- To stencil storm drains with the message “Keep ‘em Clean-Drains to River and distribute educational door hangers to residents and businesses in the stenciled neighborhoods in the City of Saint Paul.

The 2015 program objectives were implemented through the following activities:

- Coordinated the stenciling of storm drains and distribution of door hangers in partnership with volunteers from school groups, community groups, and residents of the City of Saint Paul.
- Provided a 20 to 45 minute educational orientation to each volunteer group.
- Provided educational presentations and workshops on urban runoff pollution to volunteers, classrooms and other community members.
- Coordinated the purchase, maintenance and storage of all stenciling and workshop supplies.

MCM 2: Public Participation & Involvement

BMP 2.1: Encourage & Solicit Input from the Public

Description

Saint Paul citizens are actively engaged in many aspects of the City's governance, being involved through commissions, district councils, volunteer organizations and electronic communications. Other public involvement techniques include workshops, web page accessibility and outreach by elected officials. The objective of this program is to make the SWMP and related documents available to the public and to provide a process for public input in the development and implementation of the SWMP.

Assessment Process for Annual Reporting

- Summary of public input and the City's response.
- Annual meeting attendance.
- Adopted council resolution.
- Summary of web site updates.

2015 Activities

The Annual Report is a coordinated effort by various City departments. Information in the Annual Report provides documentation of the activities conducted in the previous year.

The City holds a public meeting to provide an opportunity for public input regarding the Annual Report. A notice of the availability of the Report for review and public comment is sent to all Saint Paul neighborhood organizations, to the governmental entities that have jurisdiction over activities relating to stormwater management, and to other interested parties.

Once finalized, the Annual Report is also made available on the web site. All testimony presented at the public meeting, and all written comments received, are recorded and given due consideration. The public comments, response to comments and a copy of the council resolution adopting the Stormwater Permit Annual Report are submitted each year to the Minnesota Pollution Control Agency.

MCM 3: Illicit Discharge Detection & Elimination

BMP 3.1 PROHIBITED DISCHARGE MANAGEMENT PROGRAM

Description

The objective of this program is to effectively prohibit through ordinance or other regulatory mechanism and appropriate enforcement procedures, the introduction of non-stormwater discharges into the MS4.

Assessment Process for Annual Reporting

- Number of reported or discovered prohibited discharges, number investigated and number eliminated.
- Development of procedures to address prohibited discharges.
- Training events and staff trained.

2015 Activities

Spill Response

The Sewer Maintenance section of the Sewer Utility and the Saint Paul Fire Department personnel typically serve as the first responders to a spill event. The immediate goals of this response are safety, containment of the spill, recovery of hazardous materials and collection of data for use in assessment of site impacts. Recovery efforts can take several forms, but typically fall into two broad categories: recovery for disposal and the use of absorbents or other media to collect hazardous waste for disposal.

The life cycle of an event requires City personnel to work as a team, utilizing all available resources to protect residents, the environment and property. Each event is followed by a post-action debriefing to determine the cause of the event, to identify measures to improve the City's response, and to determine the means to limit future occurrences. Outside agencies and private emergency response contractors are incorporated as needed. Spills that fall within the minimum reporting requirements are reported to the Minnesota Pollution Control Agency (MPCA) Public Safety Duty Officer. For these spills, an Oil and Hazardous Materials Spill Data form must be completed within 24 hours, or by the next business day. The completed forms are used to document the type of spill, as well as the response to the spill. The Sewer Utility follows the spill reporting policy, which is signed off on by employees as part of the annual policy review.

Prohibited Discharges

Pollution prevention and control is achieved through educational efforts, inspections and coordinated community outreach. These activities may include enforcement, pursuant to applicable City codes, and coordination with other regulatory agencies at the county, state and federal levels. Enforcement yields identification of the responsible party, documentation of clean-up activities, and efforts to reduce the flow of pollutants from illegal dumping and disposal. Complaints are received from the public, City staff and other government agencies. Department of Safety and Inspections and Public Works staff respond to reports of unauthorized discharges and illicit connections. The City adopted an ordinance (see Appendix for ordinance and fact sheet) in 2013 defining allowable discharges to the storm sewer system.

The City's Right of Way inspectors responded to complaints resulting from utility contractors dewatering or saw cutting and construction site dewatering and tracking. Each year at the Utility Coordination Meeting requirements and BMPs are reviewed with contractors. A handout is provided, which is found in the Appendix. The ROW inspectors enforce these requirements in the field, respond to complaints and coordinate with DSI to address issues originating on private property.

In 2015, DSI sent out 118 leaf letters to properties throughout the City. This letter states that a complaint was received by the City of leaves being raked into the street. It explains these leaves negatively impact downstream water bodies and gives info about compost sites in Ramsey County. The first letter is a warning and subsequent complaints will result in a fine to the property owner.

Discharges addressed in 2015 can be found in the Appendix.

Staff Training

- Utility Coordination Meeting, February 2015. This training involved municipal employees and utility businesses. The purpose was to educate regarding identification of illicit discharges, associated hazards, prevention, and containment.

MCM 3: Illicit Discharge Detection & Elimination

BMP 3.2 STORM SEWER SYSTEM MAP & INVENTORY

Description

The objective of this program is to minimize pollutants in stormwater through the effective use of electronic tools for data storage, retrieval, display and analysis. An electronic inventory and map and electronic inventory is under development to support numerous stormwater management system responsibilities and activities, including operation and maintenance, design, hydrologic and hydraulic modeling, Gopher State One Call locates, capacity, condition and water quality studies, illicit discharge detection and management of spills.

Assessment Process for Annual Reporting

- Report on status of electronic inventory and mapping completion.

2015 Activities

Storm Drain System Infrastructure

Approximately 150 years ago, Saint Paul first constructed portions of a sewer system that today comprises 450 miles of storm sewers and over 26,000 catch basins. The system was designed to satisfy the City's obligation to provide reasonable drainage of stormwater and to prevent street flooding, which satisfied the City's responsibility to protect neighboring properties, allow for normal traffic flows, and prevent damage to streets, sidewalks and boulevards.

The Department of Public Works is developing a computer based asset and infrastructure management system. This system will include both the storm and sanitary sewer networks. When the asset and infrastructure management system is complete, the City will have the data and systems necessary to accurately determine the sub-watershed for each of the outfalls. The Sewer Utility is in the process of converting its hand drawn sewer maps to an electronic format. All of the converted sewer data was checked for accuracy and is now going through a QA/QC process.

Watershed and Storm Sewer Outfall Inventory

An inventory of Saint Paul's storm sewer outfalls is found in the Appendix. This inventory includes the outfall identification number, outfall name, watershed name, size of pipe and drainage area. The following information is provided in the Outfall Inventory found in the Appendix for each of the 23 watersheds in St. Paul: drainage area, land use types and distribution, population, percent impervious surface area, and the runoff coefficient. The following table shows the total number of discharge points to each water body in Saint Paul.

Discharge points to receiving waters

| Receiving Water | Total Discharge Points |
|-----------------------|------------------------|
| Bridal Veil Creek | 1 |
| Mississippi River | 59 |
| Upper Lake | 1 |
| Crosby Lake | 3 |
| Fairview North Pond | 2 |
| Lake Como | 11 |
| Loeb Lake | 1 |
| Lake Phalen | 5 |
| Beaver Lake | 4 |
| Suburban Pond | 2 |
| Little Pig's Eye Lake | 1 |
| Pig's Eye Lake | 5 |
| Battle Creek | 11 |

Stormwater Ponds

A map showing the stormwater ponding areas in the City of Saint Paul is found in the Appendix. The Appendix also contains the tributary area and design capacity for each City ponding area and a list of ponding areas by watershed.

NPDES Permitted Facilities

Facilities in Saint Paul that area issued NPDES permits by the MPCA are found in Appendix.

Industrial Land Use

Industrial land uses may generate higher concentrations of hydrocarbons, trace metals, or toxicants than are found in typical stormwater runoff. Maps showing the areas of industrial land use in Saint Paul and pollutant source locations are included in the Appendix.

MCM 3: Illicit Discharge Detection & Elimination

BMP 3.3 DRY WEATHER FIELD SCREENING PROGRAM

Description

The objective of this program is to develop, and as necessary continue to develop, and implement a dry weather field screening program to detect and eliminate non-stormwater discharges, including illegal dumping, to the system. The City shall inspect each outfall at least once over the five-year term of the current permit for evidence of illicit discharges.

Assessment Process for Annual Reporting

- Number of outfalls inspected.
- Number of reported or discovered prohibited discharges, number investigated and number eliminated.
- Narrative summarizing dry weather flow inspections, activities, results and responses.
- Training events and staff trained

2015 Activities

Detection and Removal Screening Program

The field screening program to detect and investigate contaminated flows in the storm drain system is part of the City's daily operations. Sewer Maintenance crews routinely inspect and clean storm drain structures throughout the City. In addition, inspections of flows that generate unusual odors, stains, and deposits are included in the annual outfall inspection program. City staff inspected portions of the Saint Peter storm tunnel system in 2015. During the walk through, no visual or odor evidence of prohibited discharges was observed. City staff completed the final inspection for the Phase 6 of the St. Anthony storm tunnel project from the Wabash-Cromwell shaft to the outfall. No signs of prohibited discharges were identified during this tunnel inspection.

Any suspect flows are then reported to appropriate City staff for further investigation. These combined efforts result in an annual screening of more than 20% of City drainage areas.

The City works with the Capitol Region Watershed District to conduct a stormwater monitoring program in Saint Paul as well as conducting its own BMP monitoring program. The best avenue for a continued effective screening program in the City of Saint Paul, without duplication of services, is to continue to use current practices, and to explore the development of certain aspects of the program to improve enforcement results.

The City investigates prohibited discharges as part of its regular tunnel, outfall and pond inspection program. The City also investigates complaints and issues identified in the monitoring program. The Department of Safety and Inspections carries out enforcement on property code violations. Under Chapter 45 of City Code, the City is authorized to collect via assessment its cost of abating property-related health and safety problems when an owner has failed to perform the work following notice by the City. The City may assess property owners to recover unpaid city charges.

Continue existing programs as outlined in the program overview, and continue to develop and improve documentation of program activities. GIS mapping will be implemented as a tool to support various activities. Information that is gained through the inspection program will be used to compile data on non-stormwater discharges, storage of hazardous materials, and activities or operations that may be potential water pollution point sources. The City will continue to investigate prohibited discharges as part of its regular tunnel, outfall and pond inspection program.

Standard Operating Procedures and Checklists

- The Parks Department uses a Spill Reporting form and instructions (See Appendix). Form is completed in the event of a spill if petroleum or hydraulic spills greater than five gallons, and other materials spill of any size. The Minnesota Duty Officer is notified, as required, in the event of a reported spill.
- The Parks Department and the Department of Public Works have Clean Water Policies which are distributed, reviewed, and signed by all field staff. (See Appendix)

MCM 3: Illicit Discharge Detection & Elimination

BMP 3.4 INDUSTRIAL ACTIVITIES MANAGEMENT PROGRAM

Description

The objective of this program is to minimize the discharge of pollutants from industrial activities by administering and enforcing ordinances, exercising municipal authority over activities with high potential for stormwater pollution, and providing information to assist the MPCA in carrying out its industrial permitting program.

Assessment Process for Annual Reporting

- Number of water and land pollution complaints.
- Number of discharge incidents reported to MPCA Industrial Permit Program.
- Industrial facilities inventoried.
- Stormwater hotspots inventoried.
- Number of discharges eliminated from industrial facilities.

2015 Activities

A map of the industrial land use areas in the City is included in the Appendix. Complaints in the ROW are handled by the Public Works ROW inspectors. Those that originate on private property are referred to DSI. The City coordinates with the MPCA Industrial Stormwater Program for sites that are permitted by the MPCA. Discharges addressed in 2015 can be found in the Appendix.

MCM 4: Construction Site Erosion & Sediment Control

BMP 4.1: DEVELOPMENT & REDEVELOPMENT CONTROL PROGRAM

Description

The objective of this program is to minimize the discharge of pollutants from construction sites disturbing one acre or more by requiring erosion prevention and sediment control measures. Chapter 52 of the Saint Paul Code of Ordinances requires projects disturbing one acre or more to provide for erosion and sediment control during construction. Sites one or more acres in size are also required to obtain NPDES General Construction Permits from the Minnesota Pollution Control Agency, the Capitol Region Watershed District and the Ramsey-Washington Metro Watershed District.

This program encompasses a variety of individuals responsible for water quality concerns from construction activities. These individuals include designers of erosion control plans; staff responsible for plan review; and, field inspectors with municipal authority over contractors.

Assessment Process for Annual Reporting

- Report on number of site plans reviewed and approved.
- Report on number of site erosion and sediment control inspections recorded.
- Report on development and implementation of written procedures for site plan review and erosion and sediment control inspections.
- Report on number of non-compliance incidents that were identified and addressed by municipal inspectors.
- Report on development of citizen complaint process and number of citizen complaints received and addressed.
- Report on number of staff trained related to construction site erosion and sediment control.

2015 Activities

Program Overview

Saint Paul Code of Ordinances, Part II – Legislative Code, Title VI - Building and Housing, Chapter 52 Stormwater Runoff contains erosion and sediment control requirements, and stormwater management requirements for new developments and other land-disturbing construction activities. Construction activities and new development projects are reviewed through the City's Site Plan Review process. This review provides comments that are integrated into a final plan submittal that is subsequently routed to the City's Departments for approval. The Department of Safety and Inspections reviews projects for compliance with the erosion &

sediment control requirements and water quality requirements. The Sewer Utility reviews projects for rate control, flood protection and capacity issues.

Site Plan Review

DSI and Public Works staff provides a detailed review of site plans and a track process to identify stormwater management opportunities and to review all site plans from a sustainable water quality perspective. During 2015, City Departments reviewed 111 site plans, of which 72 received final approval with the appropriate permits issued. Continued attention to erosion and sediment control plan submittals, along with increased awareness in the industry, provided for better compliance during site inspections.

Requirements

The ordinance addresses development sites, utility excavations, demolition projects and all other land disturbing activities of 1 acre or more. For disturbances less than 1 acre, erosion and sedimentation control practices must be installed and inspected before land disturbing activities begin. Sites disturbing more than 10,000 square feet need to submit an erosion and sediment control plan as part of the City's Site Plan Review process. City Zoning Code Chapter 33 requires a grading permit for the placement, movement and removal of fifty cubic yards of fill and to incorporate stabilization methods on soil stockpiles greater than 10 cubic yards, if left for more than 10 days.

Inspection and Enforcement

Ongoing site inspections are performed by Public Works ROW and DSI inspectors. In 2015, DSI inspectors conducted 238 erosion control inspections at 149 properties. One property was issued a stop work order in 2015 due to erosion control non-compliance. 62 erosion control corrections were required on 38 private developments.

Inspectors may issue a warning notice citation or a "Stop Work Order". Failure of the permittee to comply with the ordinance will constitute a violation and will be considered a nuisance pursuant to the laws of the State of Minnesota. If there is a demonstrated failure to comply, the City reserves the right to terminate a permit at any time. The City then has the option of proceeding with the necessary restoration of the site. This restoration would be done at the expense of the owner/permittee. Increased awareness of the ordinance, improving plan submittals and a continued compliance based inspection program resulted in a continued rise in compliance. Inspections were coordinated with the Capitol Region and Ramsey-Washington Metro Watershed Districts.

New public and private developments and other projects that disturb one acre or more will be inspected for erosion and sediment control. This effort will lead to a continued awareness of the problems associated with construction site sediment. This will also result in a continuing increase in the overall rate of compliance citywide. The City will continue to study options to

increase compliance, and to help limit the amount of erosion and sediment loss associated with construction projects.

Standard Operating Procedures and Checklists

The City of Saint Paul utilizes standard forms for both public and private construction sites. The standard form utilized for documenting field inspections on private projects is found in the Appendix. The forms supplement a database which tracks multiple levels of information including inspections for erosion control. The City has developed the following standard operating procedures (SOPs) and checklists for Erosion and Sediment Control (ESC) on public and private construction sites:

- The City of Saint Paul utilizes a standard form for both public and private construction sites.
- Public Works Right-of-Way Division uses a form when ROW inspectors inspect Utility Installation work. This form was distributed at the annual Utility review meeting. (See Appendix.)
- Continue to improve SOPs and checklists and distribute to appropriate parties.
- City staff will continue to develop performance measures and to improve data collection, tracking and analysis. The City will also pursue means of measuring and understanding water quality impacts.
- Erosion control plans and inspections are tracked in the City's AMANDA system.
- Handouts and worksheets are distributed to all relevant applicants.
- Requested database programming resources from department administration in 2015 in order to develop and implement standardize procedures regarding erosion control for site plan review and field inspection.

Staff Training

- ESC information was distributed at the City's Annual Utility Project Review meeting in 2015. Included new Erosion and Sediment Control policy for Right of Way.
- Erosion Control Inspection Training and Coordination was held in April of 2015. This training session involved 14 city staff and 3 watershed district staff (1 Ramsey-Washington, 2 Capitol Region). The purpose was to discuss proper control measures, administrative steps such as reporting and tracking, and enforcement actions.
- City of Saint Paul inspectors are trained and certified through the University of Minnesota's Erosion and Stormwater Management Certification Program. This includes Department of Public Works Street Construction inspectors, Department of Safety and Inspections Building inspectors and 3 Parks Environmental Services staff. The certification includes a recertification component within a 3-year period, which ensures training stays current with techniques and regulations.

- Three Parks Environmental Services staff remained current with Erosion and Sediment Management training from the University of Minnesota (2 – Inspector/Installer, 1 – Construction Site Management).

MCM 4: Construction Site Erosion & Sediment Control

BMP 4.2 MUNICIPAL CONTROL PROGRAM

Description

The objective of this program is to minimize the discharge of pollutants from construction sites disturbing 1 acre or more carried out by the City by requiring erosion and sediment control measures. Sites one or more acres in size are required to get NPDES General Construction Permits from the Minnesota Pollution Control Agency, the Capitol Region Watershed District and the Ramsey-Washington Metro Watershed District.

This program encompasses a variety of individuals responsible for water quality concerns from construction activities. These individuals include designers of erosion control plans, staff responsible for plan review and field inspectors.

Assessment Process for Annual Reporting

- Report on number of non-compliance incidents that were identified and addressed on City projects.
- Report on staff attending erosion and sediment control training.
- Report on development of citizen complaint process and number of citizen complaints received and addressed.

2015 Activities

Municipal site projects go through the site plan review process and are inspected by the building inspectors for erosion and sediment control. Please see the description of this program in BMP 4.1. The standard form utilized for documenting field inspections for street reconstruction projects is intended to be handwritten in the field and included in the project file. Staff started using the forms in 2011. During 2015, Public Works Construction inspectors continued to work with internal forces and watershed district staff on erosion and sediment control compliance.

Staff Training

- ESC information was distributed at the City's Annual Utility Project Review meeting in 2015.
- Erosion Control Inspection Training and Coordination was held in April of 2015. This training session involved 12 city staff and 4 watershed district staff (2 Ramsey-Washington, 2 Capitol Region). The purpose was to discuss proper control measures, administrative steps such as reporting and tracking, and enforcement actions.

- City of Saint Paul inspectors are trained and certified through the University of Minnesota's Erosion and Stormwater Management Certification Program. This includes Department of Public Works Street Construction inspectors, Department of Safety and Inspections Building inspectors and 3 Parks Environmental Services staff. The certification includes a recertification component within a 3-year period, which ensures training stays current with techniques and regulations.
- Three Parks Environmental Services staff remained current with Erosion and Sediment Management training from the University of Minnesota (2 – Inspector/Installer, 1 – Construction Site Management).

MCM 5: Post-Construction Stormwater Management

BMP 5.1: DEVELOPMENT & REDEVELOPMENT MITIGATION PROGRAM

Description

The objective of this program is to minimize the post-construction discharge of pollutants and stormwater runoff volume from construction projects disturbing one acre or more. Chapter 52 of the Saint Paul Code of Ordinances requires projects disturbing one acre or more to provide post-construction stormwater management. Sites one or more acres in size are also required to obtain NPDES General Construction Permits from the Minnesota Pollution Control Agency, the Capitol Region Watershed District and the Ramsey-Washington Metro Watershed District.

Projects are reviewed through the City's site plan review process, which is facilitated by the Department of Safety and Inspections. The Site Plan Review Committee is made up of staff from various departments including the PW Sewer Utility, Saint Paul Regional Water Services, PW Traffic Division, Zoning and Fire & Safety. Building permits are not issued until site plan review approval is formally attained.

Assessment Process for Annual Reporting

- Narrative on number of projects reviewed, number of projects approved, number and type of structural BMPs constructed or installed.

2015 Activities

Ongoing Stormwater Management

Redevelopment of existing sites provides an opportunity to lessen the impacts of urbanization on the Mississippi River and other Saint Paul water resources. During 2015, Stormwater Best Management Practices (BMPs) were installed on sites reviewed through the Site Plan Review process. BMP types that were constructed include:

- Rain gardens
- Pervious pavement
- Infiltration areas
- Stormwater ponds
- Underground infiltration/filtration and detention facilities

Plan Review

Stormwater management plans are required for all construction projects, which disturb one acre or more of land. These plans are reviewed through the Site Plan review process and approved by the Department of Safety and Inspections and the Saint Paul Public Works Sewer Utility. Sites disturbing less than one acre are also required to provide runoff rate control, if the

project disturbs greater the 10,000 square feet. In addition, sites under one acre are encouraged to incorporate green infrastructure stormwater BMPs into their design as a means of satisfying other city codes, such as parking requirements. The City updated its Off-Street Parking Code to include stormwater landscaping requirements in June of 2010. In July of 2010, the City began implementation of the green building policy requirements for city building projects and private projects receiving more than \$200,000 in City funding to facilitate design and construction of stormwater quality practices.

Staff Training

- City staff from multiple departments attended the Minnesota Water Resources Conference and the Clean Water Summit.

MCM 5: Post-Construction Stormwater Management

BMP 5.2 COMPLIANCE PROGRAM for PRIVATE SITE CONTROLS

Description

The objective of this program is to implement a program for maintenance, inspection, record keeping and reporting of private stormwater devices constructed in accordance with the City's requirements.

Assessment Process for Annual Reporting

- Narrative on development of procedures.
- Number of new listings entered for privately owned BMPs.
- Once procedures are implemented, identify percent compliance with submittal of compliance reporting documents.

2015 Activities

City ordinance requires the design to minimize the need of maintenance and to provide access for equipment and personnel. The facilities must have a plan of operation and maintenance that ensures effective removal of pollutants. The ordinance also allows the City right of entry and inspection. In 2015, the City began a comprehensive review of its stormwater policies. This project is expected to be completed in January of 2016. The City coordinates with the CRWD and RWMWD in the development of BMP database and procedures to ensure that private BMPs are maintained.

MCM 5: Post-Construction Stormwater Management

BMP 5.3 MUNICIPAL MITIGATION PROGRAM

Description

The stormwater management objective of this practice is to reduce the discharge of pollutants through the proper planning, design, and construction management of projects carried out by the City.

Assessment Process for Annual Reporting

- Inventory of new Stormwater Management Practices installed with City capital improvement projects.

2015 Activities

- **Stormwater Modeling** – Modeling projects were completed in support of the sewer and street projects. A map showing the completed modeling projects in the City is included in the Appendix.
- **Street Reconstruction Projects** – In 2015, there were no volume control BMPs were installed.
- Parks and Recreation received \$70,000 of in-kind labor from Conservation Corps Minnesota for installation and maintenance of stormwater best management practices in Saint Paul. Funding was made possible through the Legacy amendment.
- Parks and Recreation received a \$143,475 Conservation Partners Legacy Grant to enhance approximately 60 acres of bluffland in Indian Mounds Regional Park.
- Parks and Recreation received a \$78,100 Capitol Region Watershed District grant to make improvements to the stream at Swede Hollow Park.
- Parks and Recreation received a \$40,000 Capitol Region Watershed District grant to restore 4.25 acres of lakeshore, oak savanna, and oak woodland habitat adjacent to Lake Como.

Staff Training

- City staff from multiple departments attended the Minnesota Water Resources Conference and the Clean Water Summit.

MCM 5: Post-Construction Stormwater Management

BMP 5.4 STORMWATER RUNOFF VOLUME REDUCTION PLAN

Description

The objective of this program is to conduct a study of how stormwater volume reduction practices will best fit into Saint Paul's overall goals of stormwater management for projects that disturb one acre or more. Volume reduction practices include infiltration, bioinfiltration, stormwater reuse, evapotranspiration, minimizing and disconnecting impervious surfaces.

Assessment Process for Annual Reporting

- Narrative of progress towards plan development and implementation.

2015 Activities

The City submitted its Volume Reduction Plan to the MPCA in January of 2015. This plan provided a summary of the City's volume reduction projects, identified opportunity sites and identified areas in the City where there are limitations on the construction of volume reduction BMPs.

The City completed a comprehensive review of its stormwater policies and began working on an update to its stormwater ordinance. A stakeholder group was formed, which includes staff from multiple City departments, as well as representatives from the watershed organizations and the Saint Paul Riverfront Corporation. Four stakeholder meetings were held throughout 2015. A draft of the ordinance was developed and reviewed by the group.

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.1: STORM SEWER SYSTEM OPERATION & MAINTENANCE

Description

The objective of this program is to minimize the discharge of pollutants through proper and cost effective operation and maintenance of the City's storm sewer system. General operations and maintenance efforts include inspections, cleaning, repairs, rehabilitation and reconstruction.

The City's stormwater system includes 450 miles of storm sewers, 28 ponding areas, 4 lift stations, numerous water quality best management practices and over 26,000 catch basins. The Sewer Maintenance section allocates substantial resources to cleaning, inspecting and maintaining the City's stormwater system. All installed stormwater facilities are maintained and operated in accordance with adopted policies and ordinances. All storm sewer pipes are cleaned and inspected in advance of City street reconstruction projects. Where defects are observed, repairs are made at the time of discovery or during the reconstruction project. The City also regularly inspects, cleans and maintains stormwater ponding areas. Storm sewer tunnels are inspected every two years.

In 1995, the City completed a ten-year sewer separation program by constructing 189 miles of storm sewer and 12 miles of sanitary sewer (some combined sewer was converted to storm sewer). In 1997, the City began a 20-year rehabilitation program for its storm and sanitary sewer system. The Sewer Utility complies with MnDOT's Standard Specifications for Construction, and has its own set of Standard Plates.

Assessment Process for Annual Reporting

- Report on storm sewer and tunnel repair and rehabilitation projects.
- Report on miles of storm sewers and tunnels assessed, miles of storm sewers and tunnels cleaned and amount of material removed.
- Report on development of standard operating procedures.
- Narrative of training activities including number of staff trained and types of training conducted.

2015 Activities

St. Anthony Tunnel System

The 3.6 mile long St. Anthony Park storm tunnel system was originally constructed in the 1960s and 1970s. The tunnel liner was severely damaged with numerous holes and cracks, which were primarily caused by large rain events that pressurize the tunnel. When the tunnel liner is fractured or holes are present, stormwater is allowed to wash away the friable St. Peter Sandstone, resulting in large voids behind the liner.

The six phase tunnel rehabilitation project was started in the fall of 2009 and was completed in 2015. Phase VI of the tunnel rehabilitation project was completed in the spring of 2015, at a cost of approximately \$2.7 million. Tunnel projects typically include the following components: sealing cracks and holes in the tunnel liner, filling large voids behind the tunnel liner, replacing sections of tunnel liner too badly damaged to be repaired and installing stainless steel straps on the inside surface of the tunnel liner to reinforce the cracked liner.

West Kittsondale Tunnel

Repaired a hole in the tunnel invert, with concrete and steel plating, at a cost of approximately \$90,000.

Riverview Tunnel

Removed impact cup from drop shaft in effort to improve hydraulic performance at a cost of approximately \$200,000.

Pump Stations

The City has four stormwater flood control pump stations that are located along the Mississippi River. These pump stations provide interior drainage during flood events on the Mississippi River. The stormwater flood control pump stations are inspected and operated twice per year. All of the stations are connected to the City's Supervisory Control and Data Acquisition system.

- Inspected 18,120 feet of storm sewer
- Cleaned 6,979 feet of storm sewer
- Repaired 25 feet of storm sewer

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.2: CATCH BASIN/MANHOLE OPERATION & MAINTENANCE

Description

The objective of this program is to minimize the discharge of pollutants through the proper operation and maintenance of the MS4 system's catch basins and manholes. Catch basins are structures located along the city's street system that provide entrance of stormwater runoff into the storm sewer system.

Assessment Process for Annual Reporting

- Report on number of catch basins and manholes cleaned and/or repaired and quantity of material removed.
- Report on implementation of the catch basin sump management program.

Catch Basins

A catch basin is an inlet to the storm drain system. A field survey of the City's catch basins using GPS equipment located all city owned catch basins. The total number of catch basins inventoried was 26,200. As part of the City's Residential Street Vitality Program (RSVP), existing catch basins within a street reconstruction project area are replaced with new catch basins. Cleaning catch basins, while ensuring proper runoff conveyance from City streets, also removes accumulated sediments, trash and debris. Catch basins that are reported as plugged or damaged are given a priority for repair and cleaning. Sewer Maintenance has set a goal of cleaning 2,000 catch basins per year. Augmenting this effort is the street sweeping program, carried out by the Street Maintenance Division. The street sweeping program targets the pick-up of street sediment, debris and leaves prior to their reaching catch basins.

2015 Activities

- Catch basins inspected: 351
- Catch basins cleaned: 4892
- Catch basins repaired: 317
- Manholes inspected: 272
- Manholes cleaned: 277
- Manholes repaired: 219

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.3: OUTFALL OPERATION & MAINTENANCE

Description

The objective of this program is to minimize the discharge of pollutants through the proper operation and maintenance of outfalls from the MS4 system to receiving water bodies.

Assessment Process for Annual Reporting

- Report on outfalls inspected, dates, comments on repairs needed and dates of repairs.

2015 Activities

Storm Drain Outfalls

A storm drain outfall is the point where the storm sewer system discharges to receiving waters. Outfalls are inspected on a 5-year schedule. Outfall inspections include an evaluation of the general condition of structure, determination of significant erosion and identification of any non-stormwater discharges. When indications of non-stormwater discharges are observed, they are reported to the appropriate City staff for follow-up investigation and resolution and reported to the Minnesota Duty Officer, as required. Any identified structural repairs or maintenance work is prioritized and scheduled within the constraints of available personnel, funding and coordination with other essential operations. All of the Mississippi River outfalls were inspected in 2013 and in 2015 the following outfalls were inspected:

Mississippi River 27

Crosby Lake 3

Crosby Pond 4

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.4: STORMWATER POND/STRUCTURAL POLLUTION CONTROL DEVICE OPERATION & MAINTENANCE

Description

The objective of this program is to minimize the discharge of pollutants through the proper operation and maintenance of stormwater ponds and water quality devices. Stormwater ponds, filtration/infiltration areas, and structural controls are water quality devices that manage stormwater runoff. General operations and maintenance efforts include assessment and maintenance of the functionality of stormwater ponds and water quality devices.

Assessment Process for Annual Reporting

- Report on number of stormwater ponds and structural pollution control devices inspected, assessed and cleaned, by category. Include date of inspection, date and results of assessment, antecedent weather conditions and nature of repairs.

2015 Activities

Stormwater Ponds

Saint Paul's stormwater ponding areas are constructed to collect and detain flows from storm events and in some cases to also improve water quality. These ponds are designed to reduce peak flow rates in downstream storm sewers. A map showing the stormwater ponding areas in the City of Saint Paul is found in the Appendix. The Appendix also contains the tributary area and design capacity for each of the City's ponding areas and a list of stormwater ponding areas by watershed. The City's stormwater ponding areas are inspected by Sewer Maintenance staff after major rainfall events. Routine maintenance is completed as needed based on the inspection results.

The City implemented a program to evaluate its ponding areas for major sediment removal in 2002. This program involves an initial inspection, prioritization, survey, timber removal, sediment removal and inlet/outlet reconstruction. Major sediment removal took place in a majority of the City's ponds in the winters of 2002/2003 and 2003/2004. The estimated cycle for sediment removal from ponding areas is 20 years. In 2013/2015, six stormwater ponds were cleaned, including Sylvan/Acker, Phalen Golf Course Pond 7, Birmingham/York, Etna/Third, Hazel/Ross and Hazel/Nokomis. Approximately 8,400 Cubic yards of sediment was removed. Project included re-installation of rip rap at inlet and outlet structures and vegetation restoration by seeding and erosion control blankets. Sediment was tested and disposed of in accordance with state guidelines.

Over 1,300 cubic yards of sediment were removed from the largest stormwater pond on the Phalen Golf Course. Ramsey County Public Works dredged two stormwater ponds at the Como Golf Course.

Structural Pollution Control Devices

The city constructs water quality and volume control BMPs as required by the MPCA Construction Permit and Watershed District Rules. Since 2006, the City has constructed BMPs, including infiltration trenches and rain gardens. In 2015, an inventory of constructed BMPs was developed and entered into the City's asset management system. BMPs will be added each year once as-builts are received. The BMPs are programmed to be cleaned annually, beginning in 2015.

As part of the Water Quality and Quantity Monitoring Program, a maintenance inspection is conducted on each of the BMPs that are monitored. This inspection includes documentation of sediment depth in the pre-treatment device, sediment depth in the infiltration gallery, depth of standing water in the infiltration gallery and observation notes.

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.5: HANDLING & DISPOSAL of REMOVED MATERIALS

Description

The objective of this stormwater management program is to minimize the discharge of pollutants through proper handling of stored and stockpiled materials such as those removed from the storm sewer system.

Assessment Process for Annual Reporting

- By categories shown in BMP Sheet 6.1.4, report estimated annual total mass (pounds) removed, characterization and destination(s) of material removed.

Program Overview

Material is collected from catch basin sumps, the storm sewer system, ponding areas and water quality BMPs. Removed substances are screened for visual or olfactory indications of contamination. If contamination of the material is suspected, representative samples are selected for an environmental analysis. Contaminated substances are disposed of in a landfill or another site that is approved by the Minnesota Pollution Control Agency. Uncontaminated sediments are disposed in the same manner as street sweepings, as reported in Section IV: Street Management Program. During cleaning operations, sediment control measures are applied as needed to prevent removed material from re-entering the storm drain system.

2015 Activities

- Material removed from stormwater ponds, BMPs and catch basins: 1867 tons

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.6 STREET SWEEPING PROGRAM

Description

The objective of this program is to minimize the discharge of pollutants to the storm sewer system and receiving waterbodies by removing leaf litter, sediment and debris from streets and gutters before the materials and the pollutants attached to them can be washed into storm drain inlets. The other objectives of the street sweeping program are to protect public health and safety, and to improve cleanliness and livability. The program is divided into several categories, that vary in frequency and work practices, to systematically address the approximately 744 miles of residential streets, 127 miles of arterial streets and the city's approximately 330 miles of alleys. They can be described by two general programs: Spring and Fall Citywide comprehensive sweeping programs, and general sweeping activities outside of those two major activities.

Assessment Process for Annual Reporting

- Number of miles swept in program categories
- Approximate amount of material removed in each program category

2015 Activities

Street Sweeping

The City of Saint Paul conducts a street and alley cleaning program to promote the health and welfare of its citizens and to reduce the amount of pollutants to receiving waters from stormwater discharges. Sweeping is a major operation for the Street Maintenance Division and is done during the spring, summer and fall. Elgin Pelican mechanical sweepers handle the vast majority of the sweeping. An Elgin Crosswind regenerative air sweeper is utilized downtown every weekday.

Residential street spring and fall sweeping were completed on May 7, 2015 and November 10, 2015, respectively. The primary material swept in the spring is debris from winter months. Fall sweeping was done during the last week of October and the first half of November. Typically, the fall sweep is timed so that a majority of the leaves are down and enough time is allowed to sweep all Saint Paul streets before the first snow. Currently, the wide variety of trees with varying leaf drop times makes it impossible to wait for all of the leaves to drop. To compensate for this, touch up sweeping continues most years through November and early December. In the interest of continued improvement to our sweeping program, workers attend training and best management practices are implemented.

Street Sweeping

Streets and alleys are divided into classes, each of which receives a different level of service as defined below:

Class I-A & B Downtown or Loop streets

Downtown or loop streets are within the following boundaries: Kellogg on the south, 12th on the north, Broadway on the east and Main on the west. These streets are swept approximately two times per week during the spring, summer, fall and winter as weather allows. All routine maintenance, including patching and repairing of street surfaces, is performed on an as-needed basis.

Class II - Outlying Commercial and Arterial Streets

These streets, which have business or commercial properties fronting on them, are the City's major arteries. They have heavy volumes of both vehicular and pedestrian traffic. Typical examples are University, Snelling, West 7th, East 7th, Rice, Payne, Arcade, Summit and Grand. Class II streets are typically swept or cleaned six to ten times annually on the following schedule: every two weeks in April, May, October and November for spring and fall cleanup and every 3 to 6 weeks in June through September for litter, tree debris and sediment cleanup. Occasional winter sweeping is done if weather permits. All routine maintenance, including patching and repairing of street surfaces, is done on a scheduled or as-needed basis. In 2015, Class II maintenance priorities were shifted from sweeping to patching and paving operations. The result of this shift in operations was less frequent sweeping between the spring and fall sweeps.

Class III - Residential Streets

In the spring, all residential streets, including oiled, paved and intermediate streets, receive a thorough sweeping. Patching and repairing is done on a scheduled or as-needed basis. All existing paved and oiled streets are on the 8 year cycle chip seal list. Approximately 1,144,405 square yards of paved streets were chip sealed in 2015. Oil and sand sealing of oiled streets is no longer done. The City recycles the reclaimed chip seal rock. In the fall, streets are swept for leaf pickup. All material swept up during the fall cleanup is hauled to a commercial composting facility.

Class IV - Oiled and Paved Alleys

All oiled and paved alleys are swept during the late spring and summer. All routine maintenance, including patching and repairing of the alley surfaces, is performed on a scheduled or as-needed basis. All existing paved and oiled alleys are now on an 8-year cycle chip seal list. Approximately 239,000 square yards of paved alleys were chip sealed in 2015.

Class V and VI - Unimproved Streets and Alleys

Unimproved streets and alleys are right-of-ways that have not been developed. There are approximately 50 miles of unimproved streets and approximately 288 miles of unimproved assessed alleys in the City. Because they are City right-of-ways, the City has the responsibility to perform minimal repairs and maintenance work on them to make them passable and to reduce hazards. The maintenance and repair of these streets and alleys consists of patching, minor blading, and placing of crushed rock or other stabilized material.

Disposal

The materials collected from street sweeping are delivered to the City's Pleasant/View and Como/Western yards. The City's hauling contractor hauls the material away to have it screened and disposed of properly. The contractor composts the organic materials, which are mostly collected in the fall sweep.

Street Maintenance has a Hazardous Waste Disposal Policy in place. Any hazardous materials collected from City streets are disposed of in environmentally acceptable means. In 2001, the sweepings collected from City streets and alleys were tested and found to be within the Environmental Protection Agency's guidelines for recycling purposes, after screening out waste and debris. Approximately 7 to 10% of swept up material is disposed of in a landfill. Street Maintenance also services over 360 trash receptacles and disposes of refuse from neighborhood cleanups each year.

2015 Street Sweeping Quantities (Cubic Yards)

| Class | Spring/Summer | Fall |
|-------------------------------|----------------------|-------------|
| I & II - Downtown & Arterials | 3,974 | 3,167 |
| III – Residential & Alleys | 5,959 | 17,946 |
| Totals | 9,933 | 21,113 |

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.7: ROADWAY DEICING MATERIALS MANAGEMENT

Description

The objective of this program is to minimize the runoff of deicing materials applied to roadways under its jurisdiction, consistent with public safety and to properly store deicing materials.

Assessment Process for Annual Reporting

- Report on quantity of deicing materials, chemicals, and sand applied.
- Report location and description of deicing materials storage facilities.
- Report number of staff attending training on use of salt.

2015 Activities

Snow and Ice Control

Minnesota weather conditions may require ice control from late September through early May. Frost forming on bridge decks is usually the first and last ice control event of the winter season. From early November through mid-April, the need for pavement treatment is determined by temperature and precipitation. Frequency of snow events through the winter season influences amounts of material used. The City's foremost objective is to maintain safe roads for all users. The consequences of icy roads are longer travel times, adverse economic impact, accidents and injuries.

Salt is the primary material used to melt snow and ice. Salt and treated salt is effective to 15°F and 0°F respectively, but factors such as darkness, continuing snow, type and quantity of precipitation, all reduce melting performance. Sand is sometimes used to enhance traction, usually when temperatures are below 0°F and snowfall amount is likely to be greater than 3 inches. Specific application rates are decided upon for each snow event and adjusted to the minimum amount necessary to achieve the desired results.

Saint Paul uses treated salt for pavement temperatures below 15°F and regular salt for temperatures from 15°F and above. Salt brine is used to pre-wet salt from the salt spreaders, making the salt more effective. The benefits of pre-wetted salt are better melting performance, less bounce, residual value and reduction in amount of salt used. All salt trucks are presently fitted with salt pre-wetting equipment. Public Works developed and adopted a formal Salt Management Plan in the fall of 2011.

Additionally, Saint Paul anti-ices major streets and bridges with salt brine prior to winter events. Anti-icing helps decrease the bond of snow and ice to the pavement. Anti-icing can be used as the primary tool to fight frost.

Storage of De-icing Materials

Salt and mixed piles of sand and salt are covered year round to eliminate runoff. Storage facilities are located at the following locations:

- 873 N. Dale Street
- 310 South Victoria Street

Snow and Ice Control

The 2015 winter seasons were below average for both January through May and November and December. One snow emergency was declared late in 2015. Typically 3 or 4 snow emergencies are declared during this period. It is anticipated that ice control materials used for 2016 will be similar to 2015 quantities.

2015 Ice Control Material Quantities

| | Jan to March | Nov to Dec | Total |
|--------------------------------|---------------------|-------------------|--------------|
| Salt (tons) | 4,250 | 3,144 | 7,394 |
| Sand (tons) | 152 | 0 | 152 |
| Treated Salt (tons) | 3,445 | 28 | 3,473 |
| Brine (gallons) | 35,488 | 20,000 | 55,488 |
| Brine with Mg (gallons) | 0 | 0 | 0 |

Employee Training

Saint Paul Public Works is an advocate of networking and regularly attends events such as the American Public Works Association North American Snow Conference and the Fresh Water Society Road Salt Symposium. All operators attended a Snow and Ice Control training session in November 2015. Attendees received certification from the MPCA. The main purpose of this session was to train employees to get the most out of every application, maintaining the safest roads possible in the most economical way, while protecting the environment. The session addressed the following: abrasives, salt, pre-wetting. anti-icing, equipment calibration and material storage. The Minnesota Snow and Ice Control Handbook and Saint Paul Public Works Salt Management Plan are available to all employees and are used as a guide in our best practices.

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.8: CITY PARKING LOT & EQUIPMENT YARD MANAGEMENT

Description

The objective of these activities is to minimize the discharge of pollutants by utilizing proper fleet and building maintenance practices, and proper operation and maintenance of parking lots and equipment and storage yards. Program categories include the following:

- a) Saint Paul Parks and Recreation – parks, recreation centers, maintenance facilities
- b) Planning & Economic Development –city owned parking lots
- c) Public Works
 - Dale Street Facility includes Street Maintenance, Traffic Operations and Municipal Equipment
 - Sewer Maintenance
 - Asphalt Plant

Assessment Process for Annual Reporting

- Narrative of training activities
- Report on development of standard operating procedure

2015 Activities

The Parks Department and the Department of Public Works have Clean Water Policies which are distributed, reviewed, and signed by all field staff. (See Appendix)

Dale Street Facility Sediment Control Structure: Public Works hired WSB and Associates to complete a Facility Improvements Feasibility Report for four Public Works facilities and one Parks and Recreation facility. In 2012, a large pre-fabricated sediment control and collection structure was constructed at the Public Works' Dale Street Facility. This structure is inspected and cleaned as necessary.

Parks and Recreation Wash Stations: Contracted with ESD Waste2Water, Incorporated to complete site visits and provide five proposals for installation of permanent or portable equipment wash stations. Parks will seek funding for future installation.

Employee Training

- Saint Paul Public Works is an advocate of networking and regularly attends events such as the American Public Works Association North American Snow Conference and the Fresh Water Society Road Salt Symposium. All operators attended a Snow and Ice Control training session in November 2015. Attendees received certification from the MPCA. The main purpose of this session was to train employees to get the most out of every application, maintaining the safest roads possible in the most economical way, while protecting the environment. The session addressed the following: abrasives, salt, pre-wetting, anti-icing, equipment calibration and material storage. Public Works and Parks staff annually attends the Road Salt Symposium. The Minnesota Snow and Ice Control Handbook and Saint Paul Public Works Salt Management Plan are available to all employees and are used as a guide in our best practices.
- Utility Coordination Meeting, February 2015. This training involved municipal employees and utility businesses. The purpose was to educate regarding identification of illicit discharges, associated hazards, prevention, and containment.
- Illicit Discharge Training and Program Development, November 2015. This training session involved 8 city staff. The purpose was to educate municipal employees regarding illicit discharges and discuss enforcement including current procedures to receive, track and enforce violations as well as areas where process development is needed.
- A fact sheet was developed and distributed with the adoption of the new ordinance (See Appendix). Several staff meetings were held throughout the development of the ordinance.

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.9: FIELD OPERATIONS MANAGEMENT

Description

The objective of this program is to minimize the discharge of pollutants from the operation and maintenance of City right-of-way and park property.

Assessment Process for Annual Reporting

- Narrative of training activities
- Report on development of standard operating procedures

2015 Activities

The Parks Department and the Department of Public Works have Clean Water Policies which are distributed, reviewed, and signed by all field staff. (See Appendix)

Employee Training

- Saint Paul Public Works is an advocate of networking and regularly attends events such as the American Public Works Association North American Snow Conference and the Fresh Water Society Road Salt Symposium. All operators attended a Snow and Ice Control training session in November 2015. Attendees received certification from the MPCA. The main purpose of this session was to train employees to get the most out of every application, maintaining the safest roads possible in the most economical way, while protecting the environment. The session addressed the following: abrasives, salt, pre-wetting, anti-icing, equipment calibration and material storage. Public Works and Parks staff annually attends the Road Salt Symposium. The Minnesota Snow and Ice Control Handbook and Saint Paul Public Works Salt Management Plan are available to all employees and are used as a guide in our best practices.
- Utility Coordination Meeting, February 2015. This training involved municipal employees and utility businesses. The purpose was to educate regarding identification of illicit discharges, associated hazards, prevention, and containment.
- Illicit Discharge Training and Program Development, November 2015. This training session involved 8 city staff. The purpose was to educate municipal employees regarding illicit discharges and discuss enforcement including current procedures to receive, track and enforce violations as well as areas where process development is needed.
- A fact sheet was developed and distributed with the adoption of the new ordinance (See Appendix). Several staff meetings were held throughout the development of the ordinance.
- Approximately twenty five Parks staff attended Turf Management training for clean water hosted by the University of Minnesota.

MCM 7: Monitoring & Analysis

BMP 7.1: Cooperative Monitoring Program

Description

The objective of this program is to develop and implement a cooperative monitoring, analysis, and reporting effort with partnerships that could include: adjacent municipalities, Capitol Region Watershed District, Mississippi Watershed Management Organization, Ramsey-Washington Metro Watershed District, Metropolitan Council Environmental Services, Ramsey County Environmental Health and Metropolitan Mosquito Control District.

Assessment Process for Annual Reporting

- Number and type of monitoring sites.
- Annual monitoring and analysis results.

History

As part of the two part application for the NPDES permit, the City of Saint Paul conducted stormwater monitoring at 5 sites for one season. From 2001 through 2004, the Cities of Saint Paul and Minneapolis and the Minneapolis Park and Recreation Board participated in a joint stormwater monitoring program, as required by the stormwater permit. Minneapolis Park Board staff conducted the monitoring program. The Stormwater Monitoring Program Manual was completed by Minneapolis Park Board staff and submitted separately to the MPCA in April of 2001. The joint monitoring agreement was submitted to the MPCA in 2002.

Sampling sites were identified in the Stormwater Monitoring Program Manual. The sampling sites were selected from the sites used in the stormwater permit application monitoring program. Five sites were chosen, representative of the following land use types: two residential sites, two industrial/commercial sites and one mixed use site. Two sites were located in Minneapolis and three were in Saint Paul. The permit required two years of mercury monitoring, which was conducted in 2002 and 2003.

Beginning In 2005, the City began a partnership with the Capitol Region Watershed District, to conduct the stormwater permit monitoring program for Saint Paul as part of CRWD's overall monitoring program. CRWD established a monitoring program in 2004 to collect stormwater data from the major subwatersheds and stormwater best management practices (BMPs).

In 2012, the City began its Stormwater Quantity and Quality BMP Monitoring Program. Monitoring is completed at stormwater volume reduction BMPs in the City of Saint Paul. Electronic water monitoring equipment is used to collect water quantity and quality data on a continuous basis from selected BMPs.

2015 Activities

Monitoring Program

CRWD operates multiple stormwater monitoring stations, including a number of full water quality monitoring stations. The Capitol Region Watershed District 2015 Monitoring Report is available on the district website at www.capitolregionwd.org.

In 2015, the City conducted the Stormwater Quantity and Quality Monitoring Program. Monitoring was completed at several stormwater volume reduction BMPs in the City of Saint Paul. Electronic water monitoring equipment was used to collect water quantity and quality data on a continuous basis from stormwater BMPs, which included:

- Water level in 8 BMPs
- Flow volumes at 5 of the BMPs
- Composite water quality sampling at 4 of the BMPs
- Groundwater at 6 locations

Analysis of the collected data generated valuable information related to the performance of each BMP. This information included:

- Average infiltration rates measured in the BMPs exceeded the rates recommended in the Minnesota Stormwater Manual and watershed district rules for specific soil types.
- The BMPs are more effective at reducing stormwater volume and pollutant loads to downstream water bodies than is currently being recognized by the watershed districts.
- The Dynamic Method for sizing volume reduction BMPs was shown to be more accurate than the Simple Method. Allowing the use of the Dynamic Method in demonstrating compliance with watershed district rules would generate significant cost savings to the public.

A map summarizing the CRWD and City monitoring sites in Saint Paul can be found in the Appendix. The City's BMP monitoring program can be found on the City's Stormwater page at <https://www.stpaul.gov/departments/public-works/sewer-utility-divison/stormwater>.

Stormwater Runoff and Water Quality Modeling

In 2010, the City completed the first phase of a program that includes stormwater modeling, a citywide volume reduction inventory and plan to address stormwater on the 2010 Residential Street Reconstruction Program. The modeling includes the development of an XPSWMM and P8 modeling and uses the CRWD monitoring data for calibration. Three major subwatersheds, as well as the 2010 street reconstruction subwatersheds, were modeled. In 2011, the City began modeling as a component of the storm tunnel rehabilitation program. The Saint Anthony Park and Davern subwatersheds have been modeled. In 2012, the City began modeling the Phalen Creek storm sewer interceptor. Modeling projects were completed in support of the

Sewer and street projects. The citywide modeling map is found in the Appendix. These models will be used by the City in the development of future stormwater programs and projects.

Pollutant Loading Calculations

The estimation of pollutant loadings is found in the Appendix. In addition, the average concentrations and annual loading results for the subwatersheds monitored by the CRWD can be found in Capitol Region Watershed District's 2015 Monitoring Report. This includes Como, East Kittsondale, Phalen Creek, St. Anthony Park and Troutbrook subwatersheds.

MCM 8: Discharges to Impaired Waters with a TMDL

BMP 8.1: TMDL Program

Description

Stormwater runoff from Saint Paul is discharged to several surface waterbodies including the Mississippi River. Several of these have been listed on Minnesota's Impaired Waters List for having the presence of concentrations of certain pollutants identified at levels higher than Minnesota standards. A TMDL study has been completed and approved for Lake Como.

Assessment Process for Annual Reporting

- For each impaired waterbody with an EPA-approved TMDL, report on progress toward addressing Waste Load Allocations.

2015 Activities

The City is participating in the Metro Chloride Project and the Upper Mississippi River Bacteria TMDL process. Through the LMRWMO, the City participated in a WRAPs Project that was completed in 2015, which included Pickerel Lake.

Como TMDL

This is a categorical TMDL for which CRWD is the aggregator. The TMDL Annual Report Form can be found in the Appendix. Outfalls that drain to Como Lake can be found in the Outfall Inventory in the Appendix.

Appendix

Minnesota Pollution Control Agency
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
Permit No. MN 0061263
June 2011



| Budget | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Storm Sewer Projects | | | | | | |
| Stormwater Quality Improvements | \$0 | \$500,000 | \$500,000 | \$500,000 | \$500,000 | \$500,000 |
| Storm Sewer Tunnel Rehabilitation | \$2,990,000 | \$3,049,800 | \$3,110,796 | \$3,173,012 | \$3,236,472 | \$3,301,202 |
| | \$2,990,000 | \$3,549,800 | \$3,610,796 | \$3,673,012 | \$3,736,472 | \$3,801,202 |
| | | | | | | |
| Storm Sewer Maintenance | | | | | | |
| Storm Sewer Cleaning, Inspection & Repair | \$27,402 | \$27,950 | \$28,509 | \$29,079 | \$29,661 | \$30,254 |
| Pond Inspection & Maintenance | \$150,141 | \$153,144 | \$156,207 | \$159,331 | \$162,517 | \$165,768 |
| Catch Basin Inspection, Cleaning & Repair | \$823,740 | \$840,215 | \$857,019 | \$874,159 | \$891,643 | \$909,476 |
| Manhole Cleaning, Inspection & Repair | \$199,116 | \$203,098 | \$207,160 | \$211,303 | \$215,530 | \$219,840 |
| BMP Cleaning | \$63,279 | \$64,545 | \$65,835 | \$67,152 | \$68,495 | \$69,865 |
| | \$1,263,678 | \$1,288,952 | \$1,314,731 | \$1,341,025 | \$1,367,846 | \$1,395,203 |
| | | | | | | |
| Stormwater Modeling & Monitoring | | | | | | |
| Stormwater Modeling | \$50,000 | \$143,800 | \$146,676 | \$149,610 | \$152,602 | \$155,654 |
| Stormwater Monitoring | \$190,793 | \$198,194 | \$202,158 | \$206,201 | \$210,325 | \$214,532 |
| | \$240,793 | \$341,994 | \$348,834 | \$355,811 | \$362,927 | \$370,185 |
| | | | | | | |
| Street Maintenance | | | | | | |
| Street Sweeping | \$3,101,880 | \$3,163,918 | \$3,227,196 | \$3,291,740 | \$3,357,575 | \$3,424,726 |
| Neighborhood Cleanups | \$92,374 | \$94,221 | \$96,106 | \$98,028 | \$99,989 | \$101,988 |
| | \$3,194,254 | \$3,258,139 | \$3,323,302 | \$3,389,768 | \$3,457,563 | \$3,526,715 |
| | | | | | | |
| Public Education Program | | | | | | |
| Storm drain stenciling including door hangers | \$48,845 | \$48,925 | \$49,904 | \$50,902 | \$51,920 | \$52,958 |
| Metro Clean Water Campaign | \$6,000 | \$10,500 | \$10,500 | \$10,710 | \$10,924 | \$11,143 |
| Adopt a Storm Drain | \$14,000 | \$15,000 | \$15,300 | \$15,606 | \$15,918 | \$16,236 |
| | \$68,845 | \$74,425 | \$75,704 | \$77,218 | \$78,762 | \$80,337 |
| | | | | | | |
| Total Budget | \$7,757,570 | \$8,513,310 | \$8,673,366 | \$8,836,833 | \$9,003,570 | \$9,173,641 |

2% used for annual inflation



CITY OF SAINT PAUL
Christopher B. Coleman, Mayor

375 Jackson Street, Suite 220
Saint Paul, Minnesota 55101-1806

Telephone: 651-266-9090
Facsimile: 651-266-9124
Web: www.stpaul.gov/dsi

Standard Operating Procedures for Erosion and Sediment Control Complaint

- 1) Someone sees an erosion and sediment control issue (dirt on street, etc).
 - They should call the City Complaints Office: 651-266-8989
- 2) Complaint is passed on from Complaints Office to Senior Building Inspector (651-266-9021)
- 3) Building Inspector follows up on complaint using DSI Erosion and Sediment Control Worksheet
- 4) If Building Inspector determines source is from the Public Right-of-Way (ROW) or from City Construction Projects the complaint will be forwarded to the Public Works Inspectors –
 - For Private Utility Construction in ROW: 651-487-7250 (General Number for ROW Permit Section)
 - For City Construction Projects: 651-266-6081 (Street Engineering Construction Division)Public Works Inspector will inspect and follow up accordingly
- 5) First Inspection
 - DSI Erosion and Sediment Control Worksheet completed
 - If site is non-compliant: Building Inspector issues immediate verbal order, if possible, or issues a written order if no one is on site, to address situation, sets a compliance date based on the nature of the complaint, and notes details of non-compliance in Worksheet
- 6) Second Inspection
 - Building Inspector Conducts 2nd inspection of site after compliance date
 - 2nd DSI Erosion and Sediment Control Worksheet completed
 - If continued non-compliance: Building Inspector issues written orders, sets a new compliance date based on the nature of the complaint, and notes details of non-compliance in Worksheet
- 7) Third Inspection
 - Building Inspector Conducts 3rd inspection of site after compliance date
 - 3rd DSI Erosion and Sediment Control Worksheet completed
 - If continued non-compliance, proceed with stopping construction work at the site, or submitting the violation to the City Attorney for potential prosecution, or pursue abatement if sediment crosses boundary of the site and project is greater than 1 acre.



CITY OF SAINT PAUL
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Erosion and Sediment Control Worksheet

Property Address:

Inspector:

Permit # (if applicable):

Inspection Date:

Re-inspection Date:

Inspection Type:

Size of Site:

Inspection Results

Sewer Inlet Protection:

Comments:

Street Condition:

Comments:

Rock Entrance:

Comments:

Concrete Washout Area:

Comments:

Silt Fence/Sediment Control:

Comments:

Stock Pile Erosion Control:

Comments:

Site Erosion Control:

Comments:

Corrective Action:

Comments:



EROSION AND SEDIMENT CONTROL FOR UTILITY PROJECTS IN THE RIGHT-OF-WAY

It is essential to prevent dirt, debris, oils and other waste from entering storm drains or water resources.

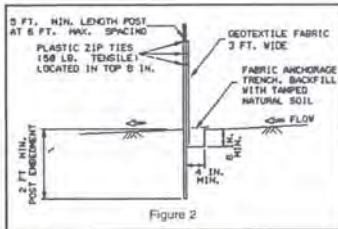


Erosion and sediment control devices are **REQUIRED** for any utility construction or grading project that will result in significant land disturbing activity in the public right-of-way.

- Sediment control practices (inlet protection and perimeter control /silt fence) must be installed **BEFORE** any land disturbance activities begin.
- Temporary land stabilization practices should be installed:
 - Daily over all temporary stockpiles on or near street (including plastic cover and temporary down drains); *and*,
 - Within 7 days after work is completed over all disturbed areas not on or near the street (including temporary seeding of spoil piles though seeding and mulching).

Refer to the Mn/DOT Pocketbook Guide (June 2009) for guidance to preventing pollutants from leaving construction sites. Note: general operations, including dewatering and concrete washout, begin on page 57.

http://www.dot.state.mn.us/environment/pdf_files/erosion-sediment-control-handbook.pdf



SILT FENCE

Silt fence is used as perimeter control to keep sediment on-site and away from areas you want to protect. For work in the right-of-way, silt fence can be installed between the top of the curb and the disturbed boulevard.



TEMPORARY SEEDING AND MULCHING OR PLASTIC COVER

Temporary seeding and mulching is to quickly provide temporary cover that will protect the soil from erosion until establishment of permanent stabilization. Applicable areas include any topsoil stockpiles and any areas disturbed by grading activities.

For areas that must be stabilized each day (located on or near the street) plastic cover should be used instead.



STORM DRAIN INLET PROTECTION

Storm drain inlet protection prevents sediment from entering a storm drain by surrounding or covering the inlet with a filtering material. This allows sediment-laden runoff to pond and settle before entering the storm drain.

The type of filter used will depend on inlet type (curb inlet or drop inlet), slope, and amount of flow. Some commercial inlet filters are placed in front of or on top of an inlet, others are placed inside the inlet and under the grate.



DAILY AND AS-NEEDED STREET SWEEPING

Street sweeping is used to clean the pavement and curb-line area on a regular basis to remove sediment, debris, and other pollutants from road and parking lot surfaces that are a potential source of pollution to waterways.



ROW Erosion and Sediment Control Worksheet

Project:

Project File No.:

Property Address:

Inspection Date:

Re-inspection Date:

Inspection Type:

Size of Site:

Inspection Results

Sewer Inlet Protection:

Comments:

Street Condition:

Comments:

Silt Fence/Sediment Control:

Comments:

Stock Pile On or Near Street:

Comments:

Stock Pile Not On or Near Street:

Comments:

Corrective Action:

Comments:



SPILL REPORTING FORM

City of Saint Paul - Department of Parks and Recreation

INSTRUCTIONS

EMPLOYEE: Form should be filled out as completely as possible, on the same day as the spill occurred, by the individual involved in the spill. Describe all the events in as much detail as possible, especially the cleanup activities. If you have any questions regarding this form, contact your supervisor, or Environmental Services staff (651-632-5111). When completed, return form to your supervisor.

SUPERVISOR: Please return form as soon as possible to Adam Robbins, Como Central Service Facility.

Date of Spill: _____ Name (PRINT): _____

Time of spill: _____ Supervisor: _____

Section: _____ Phone number to reach you: _____

What was spilled?: _____

How much was spilled?: _____

Did the spill flow into a sewer? If yes, what type of sewer (sanitary, storm or unknown)?

What type of surface did the spill occur on (soil, concrete, etc)?

Location of Spill (Be specific- address, intersection, exact location):

Describe what was happening when the spill occurred:

What caused the spill (overflow, broken line, etc)? Be specific:

Describe how the spill was cleaned up:

How were the spill cleanup materials disposed of?:

List the names of other employees involved in the spill or cleanup:

Was the MN Duty Officer called (651-649-5451)?

If yes: Who called? _____ Date _____ Time _____

Duty Officer Report #: _____ PCA Spill # _____

Employee Signature: _____

Spill Kit Instructions

Stop source of spill, if it can be safely done. If not, immediately call the Minnesota Duty Officer.

Contain spill. Wear gloves. Your first priority is to protect the spill from flowing into a storm sewer or drain. Use the 3" x 4' socks to create a barrier between the spill storm sewers/drains. Use the pillows to absorb pools of contained material (up to a half gallon per pillow). Small spills can be cleaned up with the absorbent pads.

Contact your supervisor or Environmental Services staff as soon as it is safe/practical to do so. If neither are available, contact the MN Duty Officer.

Complete a spill report form for all spills, **regardless of size**. The Minnesota Duty Officer must be notified for:

- Petroleum (gasoline, diesel, hydraulic fluid, oil) spills of unknown amounts or over 5 gallons
- Non-petroleum (antifreeze, pesticides, etc) spills of any amount

Phone Numbers

Environmental Services – (651) 632-5111

MN Duty Officer – (651) 649-5451

Disposal of used materials:

Used socks, pads and pillows should be placed in yellow hazardous waste bags found in the spill kit. Materials used to soak up petroleum spills should be disposed of in the 55 gallon barrel marked "Used Oil Sorbents" in the fuel shed at the Como Central Service Facility. For instructions on how to dispose of materials used to clean up non-petroleum substances, contact your supervisor or Environmental Services staff.

Replace used spill kit items promptly. All materials found in your spill kit are available from the Storeroom at the Como Central Service Facility.

| FACILITY SPILL KIT INVENTORY | qty | type |
|-------------------------------|-----|-----------------------|
| | 30 | 17"x19" pads |
| <i>kit absorbs ~8 gallons</i> | 3 | 3"x4' socks |
| | 4 | 2"x10"x10" pillows |
| | 4 | Hazardous Waste Bags |
| | 2 | Pair Nitrile Gloves |
| | 4 | Spill Reporting Forms |

| VEHICLE SPILL KIT INVENTORY | qty | type |
|-------------------------------|-----|-----------------------|
| | 10 | 17"x19" pads |
| <i>kit absorbs ~5 gallons</i> | 2 | 3"x4' socks |
| | 2 | Hazardous Waste Bags |
| | 1 | Pair Nitrile Gloves |
| | 4 | Spill Reporting Forms |

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SAINT PAUL PARKS AND RECREATION
POLICY
DEPARTMENT

NUMBER: DIV. 4.4.2

EFFECTIVE DATE: 03/2010

**PLACEMENT: Physical Resource
Management**

UPDATED: 03/10

SUBJECT: Water Protection Policy

PURPOSE: To protect natural water bodies through the use of best management practices by all employees working near rivers, streams, lakes, ponds, and/or near storm sewers and impervious surfaces that lead to such water.

SCOPE: All Parks and Recreation employees.

POLICY STATEMENT:

As stewards of the environment, employees will take all precautionary measures to protect local water resources. The Department is committed to maintaining compliance with applicable environmental laws and regulations and to continually improve operations to prevent pollution of waterways that can harm local ecosystems and public health. This policy applies to any intentional act or unintentional act resulting from poor or neglectful work practices.

PROCEDURES (AND/OR REQUIREMENTS, EXPECTATIONS):

1. No dirt, silt, vegetation, organic material, debris, or other foreign materials will be deposited into any river, lake, stream, pond, or into any sewer system that leads to such water.
2. Employees will not blow, broom, sweep, whip, or shovel anything including dirt, silt, sand, debris, weeds, or other organic material into such body of water.
3. While performing work near such water, all debris will be picked up and removed from the site to be properly disposed of. In the event that an employee is not sure of proper disposal, the Supervisor should be called immediately.
4. No dirt, grass, organic material, debris or other foreign materials shall be intentionally deposited onto streets or other impervious surfaces without a plan for its immediate removal. This includes anything that may enter the sewer system. Exception: Sand/salt/deicers approved for controlling snow and ice when used appropriately.
5. When sweeping boulevards or edging curbs, a plan is required to immediately remove all dirt and debris deposited into the street. This may mean coordinating the clean up with Public Works or other street sweepers prior to the start of the job. If rain is expected, work should be delayed.

SAINT PAUL PARKS AND RECREATION
POLICY
DEPARTMENT

REQUIRED ITEMS AND/OR RELATED INFORMATION:

| SECTION MANAGER'S RESPONSIBILITIES | SUPERVISOR'S RESPONSIBILITIES | EMPLOYEE'S RESPONSIBILITIES |
|---|---|--|
| <p>Ensure all employees under his/her jurisdiction are aware of this policy and procedures.</p> <p>Ensure that supervisors in his/her section enforce this policy and procedures.</p> | <p>Advise all employees of this policy and procedures.</p> <p>Ensure that employees follow this policy and procedures.</p> <p>Issue warnings or initiate disciplinary action as needed to ensure employee compliance.</p> | <p>Adhere to the policy.</p> <p>Follow the procedures.</p> <p>Ask for additional training if needed.</p> |

Owner: Karin Misiewicz, Parks Supervisor

Next Review Date: 02/11

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DEPARTMENT OF PUBLIC WORKS
Policy and Procedures
Water Protection

Number: _____ Effective Date: November 1, 2010, Revision Date:

POLICY STATEMENT:

As stewards of the environment, employees will take all precautionary measures to protect local water resources. The Department of Public Works is committed to maintaining compliance with applicable environmental laws and regulations and to continually improve operations to prevent pollution of waterways that can harm local ecosystems and public health. This policy applies to any intentional act or unintentional act resulting from poor or neglectful work practices.

PROCEDURES (AND/OR REQUIREMENTS, EXPECTATIONS):

1. No dirt, silt, vegetation, organic material, debris, or other foreign materials will be deposited into any river, lake, stream, pond, or into any sewer system that leads to such water.
2. Employees will not blow, broom, sweep, whip, or shovel anything including dirt, silt, sand, debris, weeds, or other organic material into such body of water.
3. While performing work near such water, all debris will be picked up and removed from the site to be properly disposed of. In the event that an employee is not sure of proper disposal, the Supervisor should be called immediately.
4. No dirt, grass, organic material, debris or other foreign materials shall be intentionally deposited onto streets or other impervious surfaces without a plan for its immediate removal. This includes anything that may enter the sewer system. Exception: Sand/salt/deicers approved for controlling snow and ice when used appropriately.
5. When sweeping streets or edging curbs, a plan is required to immediately remove all dirt and debris deposited into the street. This may mean coordinating the clean up with other street sweepers prior to the start of the job. If rain is expected, work should be delayed.

Policy Approval:



Rich Lallier, Public Works Director

Date: November 1, 2010

Owner: Rich Lallier

Next Review Date: November 1, 2010



Fact Sheet

Chapter 51. Allowable Discharges to the Storm Sewer System

What is the focus of the new ordinance?

This ordinance is intended to prevent pollution from entering the City's storm sewer system, which discharges directly to our lakes and the Mississippi River. The ordinance formally defines what is allowed and prohibited.

Prohibitions include, but are not limited to:

- Motor oil, paint, solvents, or other liquids poured into a catch basin;
- Grass, leaves, or landscape material intentionally disposed in the street or waters;
- Sanitary connections to the storm system; or,
- Wash water, concrete wash out to the street or other improper disposal of waste.

Why is the ordinance needed?

The Minnesota Pollution Control Agency regulates Saint Paul's stormwater under the federal Clean Water Act. This serves to protect water quality in lakes and rivers. Under this permit, the City is obligated to enact regulatory controls to prevent pollutants from entering the storm sewer system.



What is the City currently doing to address this and how will this help?

- The City educates citizens on how to prevent pollution going into the storm sewer system by working with volunteer groups to stencil "don't pollute, drains to river" graphics on city storm drains and distribute multi-lingual door hangers.
- The City addresses municipal maintenance operations by implementing policies and procedures to avoid improper behaviors leading to stormwater pollution.
- Improper discharges to the storm sewer system are currently addressed on a complaint basis.

Several existing ordinances indirectly address pollution prohibitions, but lack specificity. The new ordinance clarifies and strengthens pollution prevention controls. It better positions the City to take enforcement steps, if necessary. Public Works and DSI jointly share enforcement responsibilities.

How does this ordinance affect citizens, businesses, or other constituents?

It is difficult to generalize due to the range of potential circumstances and impacts of prohibited discharges – from raking leaves into the street to dumping oil into a storm drain.

This ordinance will primarily be used to respond to public complaints. Awareness and education about the new ordinance, and avoiding water quality impacts, will be stressed. Enforcement in the form of abatement letters may be taken, depending on the circumstance and threat to water quality.

2015 Discharges Addressed

| Date | Discharge | Action |
|-------------|---|--|
| Feb 2015 | Property at Fillmore & State - discharge of waste liquids from silk screen process into storm sewer system. | Correction notices sent for discharge of waste liquids from silk screen process into storm sewer system. |
| Apr 2015 | Complaint regarding grass and concrete slurry near Como Lake. | Addressed by Parks |
| Spring 2015 | Metro Metals - discharge to Minneapolis | Addressed by MPCA Industrial Permit Program. |
| Jun 2015 | Complaint regarding St. Paul Regional Water Services hydrant flushing. | Addressed by SPRWS. |
| Jun 2015 | Complaint regarding grease dumped into catch basin at 7th & Kittson . | Addressed by DSI. |
| Jul 2015 | Complaint regarding cement truck washing out chute into catch basin near East 8th Street and John Street. | ROW Inspector followed up. Sewer Maintenance vacuored out catch basin. |
| Jul 2015 | Sawcutting discharge on 9th St E between Robert and Jackson. | Addressed by DSI. |
| July 2015 | Bridge maintenance near MPCA building. | Crew was notified and debris was cleaned up. |
| Oct 2015 | Complaint about foamy discharge at Riverview outfall. | Sewer Maintenance sent inspector out. Foam forming from water dropping at upstream dropshaft. |

Saint Anthony Discharge

| Date | Discharge | Action |
|--------------------------|--|---|
| 4/29/2015 | Spill report of oil or gas flowing into the River at the outlet of the St. Anthony tunnel. | Sewer Utility staff placed absorbent pads and booms at outfall. |
| 6/26/2015 thru Dec. 2015 | <p>Spill report of petroleum on the River under the Lake St. Bridge.</p> <p>Sewer Utility staff observed orange-brown colored frothy foam being discharged from the mouth of the St. Anthony storm sewer tunnel to the Mississippi River. The foam was orange-brown in color, somewhat granular, and it had an oily sheen.</p> | <p>Sewer Utility staff placed absorbent pads and booms at outfall.</p> <p>Conducted site visits and collected grab samples for testing throughout the storm sewer system.</p> <p>The foam was regularly collected and removed from the tunnel outlet booms.</p> |

The City believes the issue of the orange - brown frothy foam discharge at the St. Anthony outfall has been resolved.

The City has spent over 15 million dollars rehabilitating the St. Anthony Tunnel. Tunnel repair work included sealing cracks and holes in the tunnel liner, filling voids behind the tunnel liner, and replacing sections of the tunnel liner too badly damaged to be repaired. This work was multiphase and occurred continuously from the year 2009 thru 2016.

Based upon the sampling and observations performed in summer and fall of 2015, the following conclusions were made:

- 1) Inspection and testing throughout the system did not uncover any obvious illicit discharges.
- 2) The orange-brown colored foam observed at the outlet and the staining of the tunnel walls is a result of iron bacteria-rich waters.
- 3) The foaming is a result of iron bacteria-rich waters plunging 129 feet at the Stella drop shaft to the lower St. Anthony Tunnel.
- 4) The Diesel Range Organics, oil, and grease concentrations measured in the foam and the sheen observed on the water surface at the outlet are likely the result of the following contributors throughout the system:
 - (a) Iron bacteria growth in the Energy Park Dr. storm sewer.
 - (b) Diesel fuel and fuel oil, vehicle maintenance and operation, roadways, parking lots, and decomposing organic matter.

Future work is in the planning stages to rehabilitate the Energy Park Dr. storm sewer.

Metro Watershed Partners & Clean Water MN

2015 Annual Program Report



MINNESOTA WATER
LET'S KEEP IT CLEAN

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Metro Watershed Partners 2015 Report

Introduction

Metro Watershed Partners is a coalition of more than seventy public, private and non-profit organizations in the Twin Cities metro area. Through collaborative educational outreach, the Metro Watershed Partners promote a public understanding that inspires people to act to protect water in their watershed. Since 1996, Watershed Partners have cooperated through educational projects, networking, and resource-sharing.



The mission of the Metro Watershed Partners is two-fold:

- to provide and promote collaborative watershed education products with consistent messages to the general public, local government staff and elected officials, and
- to provide WSP members a place and means for an information clearinghouse, a source of idea generation, and the coordination, collaboration, and support for watershed education programs.

In 2015 members contributed \$19,793.75 to support monthly meetings, exhibit checkout, administrative functions, and state fair outreach to hundreds of thousands of people. Members also contributed \$53,987.50 to support our Clean Water Minnesota media campaign resulting in 3,500,000 impressions about actions to protect clean water.

Leadership

The work of **Metro Watershed Partners** is guided by a steering committee that includes stormwater education professionals from cities, watershed organizations, non-profits and government agencies. In 2015, our steering committee members were:

Anne Weber, City of St. Paul Public Works

Angie Hong, Washington Conservation District

Cole Landgraf, Minnesota Pollution Control Agency

Erica Sniegowski, Nine Mile Creek Watershed District

Jessica Bromelkamp, Rice Creek Watershed District

Lyndon Torstenson, National Park Service, Mississippi National River & Recreation Area

Peggy Knapp, Freshwater Society

Telly Mamayek, Minnehaha Creek Watershed District

Tracy Fredin, Center for Global Environmental Education, Hamline University

2015 Accomplishments

Networking and Sharing Resources

The Watershed Partners hold monthly meetings that provide members a way to gather, share information, generate ideas, and form partnerships that support watershed education in the state of Minnesota. These meetings keep our members up to date on new developments in the field of water resources and water education by featuring presentations by experts in fields such as watershed management, education, marketing, legislation and outreach.

In 2015, Watershed Partners held ten meetings. A total of 289 people attended these meetings, with an average of 29 per meeting. This average includes the Eric Eckl workshop, *Water Words That Work*, held in July at Hamline University, which had 60 attendees. We are pleased to see our partners continuing to demonstrate energy for collaboration and information sharing; we plan to continue offering workshops and events our partners will find useful in 2016 and beyond.

2015 PARTNER MEETINGS — TOPICS AND PRESENTERS

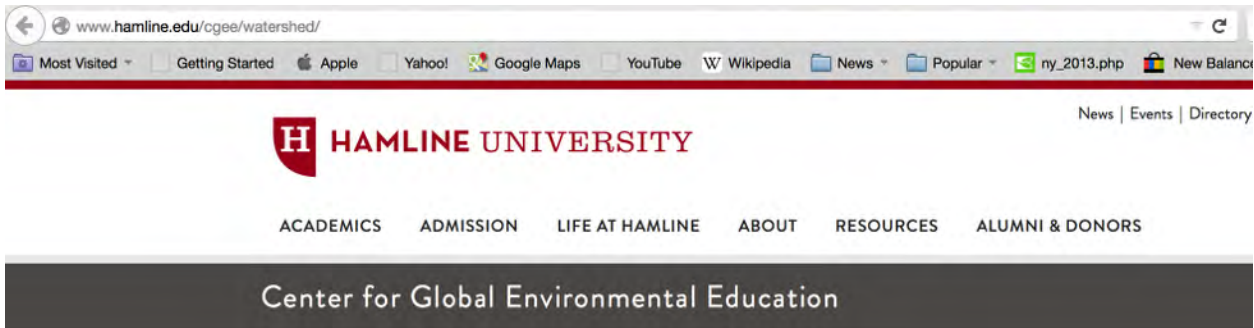
| | | |
|-----------|--|---|
| January | Nancy Lange, Public Utilities Commission | The Energy-Water Nexus |
| February | Alicia Uzarek, Friends of the Mississippi River | The Blue Star Award Program for Cities |
| March | Leslie Yetka, U of M Arboretum | The Arboretum Red Barn Site |
| April | April Rust, Minnesota Department of Natural Resources | Aquatic Invasive Species, Policy, Planning and Education in Minnesota |
| May | Jonee Kulman Brigham, Institute on the Environment, University of Minnesota | Art, Story, and Environmental Education: Exploring Water Systems with Earth Systems Journey |
| June | No meeting—Doug McKenzie-Mohr training at Hamline | Community-Based Social Marketing |
| July | Eric Eckl, Water Words that Work | Water Words That Work training and community brainstorming session |
| August | SUMMER BREAK | |
| September | Clean Water MN draft plan workshopping | |
| October | Madeline Seveland, Carver County, and Mollie Thompson, Children and Nature Network | Children's Water Festival and Children and Nature Network |
| November | Jana Larson, Hamline University and Peggy Knapp, Freshwater Society | Clean Water MN plan roll-out and discussion session |
| December | End of the year potluck | |

Watershed Partners website

The Watershed Partners website is hosted by Hamline University at: www.hamline.edu/cgee/watershed. The site contains:

- information about our monthly meetings
- an archive of minutes, agendas and presentations from past meetings
- our most recent annual report
- information on becoming a member and contributing membership funds to support our partnership and outreach activities
- a directory of partners
- information on borrowing our circulating exhibits
- general information and a brief history of the partnership

Please contact Jana Larson if you have questions or need help finding the information you are looking for: jarson25@hamline.edu.



Metro WaterShed Partners

The WaterShed Partners is an innovative, dynamic coalition of over 60 public, private, and non-profit organizations in the Minneapolis/Saint Paul, Minnesota metropolitan area. Through collaborative education and outreach, we promote a public understanding that inspires people to act to protect water quality in their watershed.

Watershed Partners listserv

The Metro Watershed Partners' listserv is a forum for information sharing for watershed educators, legislators and industry professionals throughout the state.

In 2015, the Metro Watershed Partners listserv continued to provide more than one hundred user-members with an effective tool for promoting educational programs, sharing information about professional programs, and exchanging information with other watershed educators, legislators and businesses. The email address for the listserv is: watershedpartners@listserv.hamline.edu. If you would like to send and receive listserv emails, send a request to Jana Larson: jl Larson25@hamline.edu.

Education and Outreach at the Minnesota State Fair and Community Events

1,779,738 people visited the Minnesota State Fair in 2015. The Watershed Partners had two exhibits, at the DNR building and at the Eco-experience, where roughly 800,000 people were exposed to our messages about keeping Minnesota water clean.

Eco Experience: The Metro Watershed Partners partnered with Hamline University to develop and host the Eco-action exhibit at the Minnesota State Fair's Eco Experience. Overall, the exhibit raises awareness about the importance of protecting water in Minnesota and asks people to commit to take action at home to prevent run-off pollution. The *StormDrain Goalie* outreach tools featured in the booth include: a photo booth, an iPad game, multimedia kiosks, StormDrain Goalie air hockey, and three portable, museum-quality Exhibits-in-a-Box focused on the science of Eutrophication, taking action to reduce run-off, and the urban water cycle.

This year, we purchased our own photo booth from the Photo Booth Supply Co. We took and printed 2,989 photos during the fair, and StormDrain Goalie Facebook posts reached nearly 42,000 people during the fair. Additionally, 253,934 people visited the Eco Experience this year and saw our exhibit.

Be a STORMDRAIN GOALIE

StormDrain GOALIE™

Keep Lakes and Rivers Clean:

- 1 Sweep leaves and grass clippings off streets and sidewalks.
- 2 Pick up trash.
- 3 Use less salt and de-icer in the winter.

Stay in the loop!
Like us on Facebook at:
www.facebook.com/StormDrain Goalie

PROTECT LAKES & RIVERS

PROTECT LAKES & RIVERS

Dog poop

Dog poop

Minnesota Department of Natural Resources (DNR) building:

Approximately 500,000 (one in four) fair-goers visit the DNR building each year. Our *StormDrain Goalie* foosball table (see below) was a big hit again this year, always in play! The exhibit also featured *Exhibit-in-a-Box* table-top displays focused on stormwater pollution prevention and Eutrophication.



Exhibit-in-a-Box, on Eutrophication.

Community events:

Throughout the year, the Metro Watershed Partners make our tabletop exhibits available free of charge to organizations doing education and outreach on non-point source pollution and preservation of clean water. If you are interested in checking out one of our kiosks or table-top exhibits for an event in your community, you can find more information and a check-out form at: <http://www.hamline.edu/education/environmental/cgee/watershed/exhibit/index.html>



Clean Water Minnesota 2015 Media Campaign Report

Introduction

Clean Water Minnesota is a collaborative outreach project of the Metro Watershed Partners. Working together, we develop and deliver innovative storm water education messages to the Twin Cities metro area and beyond.

Media Campaign Leadership

The Watershed Partners steering committee oversees the work of Clean Water Minnesota; Jana Larson from Hamline University serves as project manager for campaign fundraising and activities. We regularly ask stakeholders to tell us how to best serve the needs of MS4s.

Strategic Planning in 2015

In 2015, Clean Water Minnesota worked with communications expert Eric Eckl, founder of Water Words that Work, LLC, to evaluate and improve our communication and outreach strategies. We came up with a three-year plan to create new resources and strategies for our partners to use in their outreach to metro area homeowners about pollution prevention. We need to raise \$300,000 over the next three years to develop these tools and implement new strategies. If we succeed, you can expect new photography, templates and messages to use in your communications; new and improved PSAs, delivered via new media outlets; a more sophisticated social media strategy; and a new CleanWaterMN.org website targeting homeowners in the Twin Cities metro area. If you would like more information, or want to find out how you can support this process, contact Jana Larson: jl Larson25@hamline.edu. A request for support and invoice are available on the Watershed Partners website: www.hamline.edu/education/cgee/wsp-membershipinfo/

2015 Accomplishments

Clean Water Minnesota put storm water pollution prevention messages on radio broadcasts of Minnesota Twins' games, and on bathroom stall ads in the Twins Stadium. We continued to promote Clean Water MN at the Minnesota State Fair, and through our *StormDrain Goalie* Facebook page.

Clean Water Minnesota made approximately 3,500,000 media impressions with messages about clean water in 2015.

Purchased Media

Twins Radio Network

Dates: June 2015

Placements: 25 in-game ads, plus 10 bonus spots during game delays.

Ballpark bathroom stall ads: 30 signs

Total Investment: \$9,985.00

Total Impressions: 2,678,554

Audience: Twin City Metro Area

Twins games were broadcast on FM station 96.3 KTNW Twin Cities during the 2015 season. According to the 2015 Scarborough Research release, 25% of the Twin Cities adult population listened to at least one Twins game during the season. That means there were 850,000 unique metro area residents listening to the games.

The following ad played during Minnesota Twins baseball games:

"Mowing your lawn? Grass clippings that blow onto streets and sidewalks flow into lakes and rivers, feeding algae, which turns water green. Keep clippings on your lawn. The fish thank you. Clean streets, clean water. More at clean-water-m-n-dot-org."

Clean Water MN placed 30 poster ads in bathroom stalls at the Twins Stadium (see below).

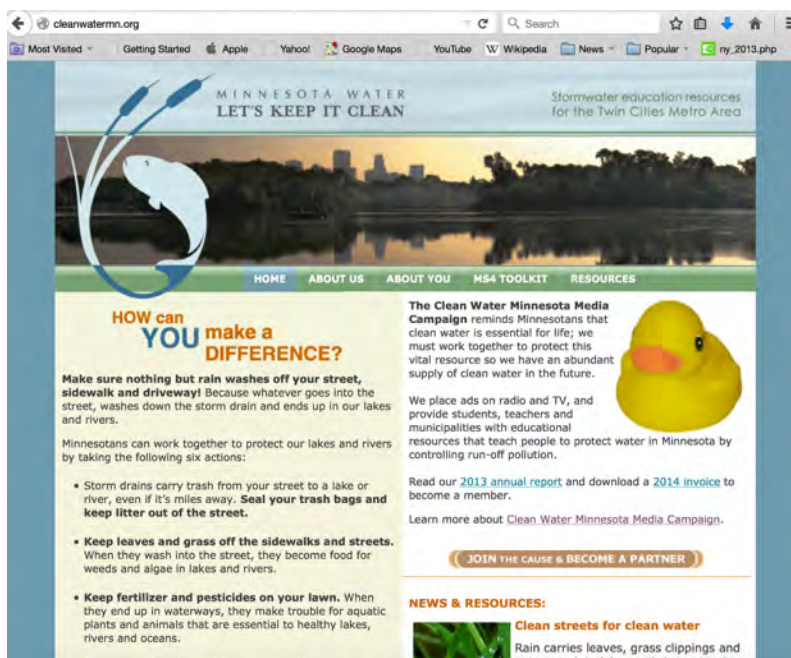


Distribution of "Fowl Water" and "Plop" DVDs



Copies of the "Plop" and "Fowl Water" DVDs were distributed to 2 municipalities in 2015. The DVDs are played on community cable television stations, on television monitors in public buildings, and at educational events.

Online Stormwater Pollution Prevention Education at www.cleanwatermn.org



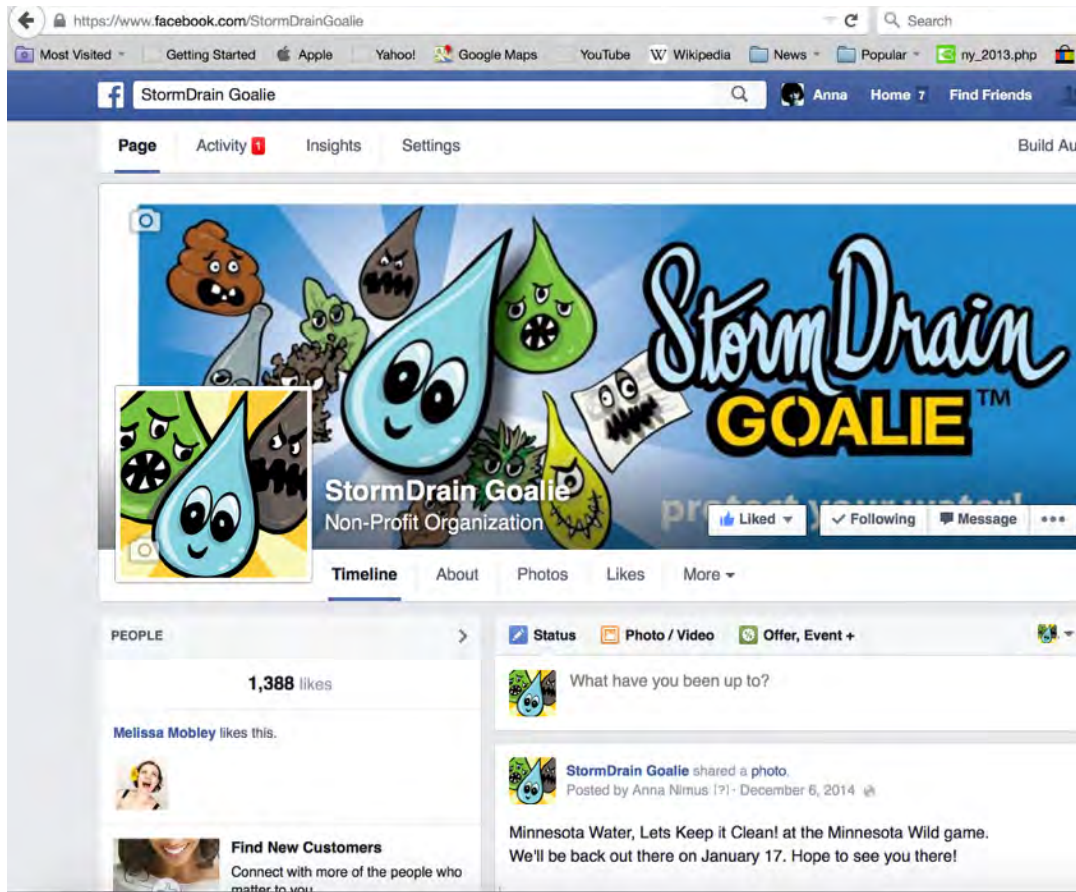
The Clean Water MN website launched in 2005. Though we plan to update this site in the coming year or so, it is still a functioning resource for clean water educators.

Resources most frequently accessed on cleanwatermn.org:

- **Minnesota MS4 Toolkit**: Developed in 2009 by the Washington Conservation District, with support from the Minnesota Pollution Control Agency, the toolkit contains materials for use in municipal stormwater pollution prevention education. <http://cleanwatermn.org/MS4-Toolkit.aspx>
- **Image Gallery**: A repository of high quality, seasonally appropriate photographs for use in water education materials. This is a stellar source of free downloadable images for use in print or on the web. If you own the copyright to an image you would like to share, please contact us and/or use the document upload tool to add the photograph to our image gallery. You can find a link to the image gallery on the MS4 toolkit homepage; use link above.
- **Document Upload Tool**: The document upload tool allows MS4 educators to upload documents, brochures, posters, images and other resources to the MS4 Toolkit for others to use. <http://cleanwatermn.org/getdoc/c3507554-5c63-4127-b6c3-d42923afd7d2/Doc-Upload.aspx>

Social media

The *StormDrain Goalie* Facebook page has more than 1,400 followers. In 2015, our posts about clean water reached approximately 50,000 people.



2015 Financial Report

In response to our fundraising requests, members contributed \$19,793.75 to the Watershed Partners in support of meetings, state fair outreach, administration, exhibit maintenance, development and checkout. Supporting members of the Clean Water Minnesota Media Campaign contributed \$53,987.50 to support media outreach in the metro area.

Supporting Members of the Metro Watershed Partners and the Clean Water Minnesota Media Campaign in 2015

City of Andover
Bassett Creek Watershed Management Commission
City of Bloomington
Capitol Region Watershed District
Carver County
City of Columbia Heights
Dakota County
City of Eden Prairie
City of Edina
Elm Creek Watershed Management Commission
City of Excelsior
City of Faribault
City of Farmington
City of Hilltop
City of Lauderdale
Lower Mississippi River Watershed Management Organization
Minnehaha Creek Watershed District
City of Minnetonka
Mississippi National River and Recreation Area, National Park Service
City of New Brighton
City of Plymouth
City of Prior Lake
Ramsey Washington Metro Watershed District
Rice Creek Watershed District
City of Richfield
City of Rochester
City of Roseville
City of Saint Paul
Shingle Creek Watershed Management Commission
City of Shoreview
South Washington Watershed District
Vadnais Lake Area Watershed Management Organization
West Mississippi Watershed Management Commission
City of Woodbury

| REVENUE | INKIND | CASH | TOTAL |
|--|--------------------|--------------------|---------------------|
| Purchased media funds rollover | | \$266.00 | \$266.00 |
| Watershed Partners Coordination | \$49,300.00 | \$19,973.75 | \$69,273.75 |
| Watershed Partners Exhibit | \$22,000.00 | | \$22,000.00 |
| Media Campaign | \$13,500.00 | \$53,987.50 | \$67,487.50 |
| Total Revenue | \$84,800.00 | \$74,227.25 | \$159,027.25 |
| EXPENSE | | | |
| 1. Watershed Partners Coordination | | | |
| Principle Investigator | \$2,500.00 | \$2,500.00 | \$5,000.00 |
| Program Coordinator | \$12,000.00 | \$13,480.00 | \$25,480.00 |
| Steering Committee | \$32,400.00 | | \$32,400.00 |
| Meeting room rental fees | | \$249.90 | \$249.90 |
| Technology maintenance | \$2,400.00 | \$271.05 | \$2,671.05 |
| Meeting expenses | | \$1,700.50 | \$1,700.50 |
| Postage | | \$19.48 | \$19.48 |
| Accounting/indirect fees | | \$1,520.00 | \$1,520.00 |
| Subtotal | \$49,300.00 | \$19,740.93 | \$69,040.93 |
| 2. Watershed Exhibit Implementation | | | |
| Exhibit coordination | \$4,500.00 | \$5,000.00 | \$9,500.00 |
| State fair expenses | \$15,000.00 | \$5,619.00 | \$20,619.00 |
| Storage and check-out | \$2,500.00 | \$2,000.00 | \$4,500.00 |
| Subtotal | \$22,000.00 | \$10,619.00 | \$32,619.00 |
| 3. Clean Water MN | | | |
| Campaign coordination | \$7,500.00 | \$14,000.00 | \$21,500.00 |
| Purchased media | \$6,000.00 | \$7,750.00 | \$13,750.00 |
| Printing and postage | | \$289.53 | \$289.53 |
| Water Words That Work consulting | | \$12,744.94 | \$12,744.94 |
| Web hosting fee | | \$815.17 | \$815.17 |
| Accounting/indirect fees | | \$4,320.00 | \$4,320.00 |
| Subtotal | \$13,500.00 | \$39,919.64 | \$53,419.64 |
| TOTAL 2015 EXPENDITURES | \$84,800.00 | \$70,279.57 | \$155,079.57 |
| ROLLOVER TO 2016 | | \$3,947.68 | |



Working to protect the Mississippi River
and its watershed in the Twin Cities area.

360 North Robert Street p: 651-222-2193
Suite 400 f: 651-222-6005
St. Paul, MN 55101 w: www.fmr.org

St. Paul Water Quality Education Project 2015 Final Report

Submitted by Friends of the Mississippi River
January 7, 2016

This report summarizes Friends of the Mississippi River's activities in fulfillment of our 2015 Water Quality Education Program contract with the City of St. Paul. The Program Objectives were:

1. To involve St. Paul residents and community members in hands-on learning experiences about urban runoff pollution and ways to prevent it.
2. To facilitate school service learning initiatives including storm drain stenciling, litter cleanups and/or habitat restoration as key components.
3. To stencil storm drains with the message "Keep 'em Clean—Drains to River," and distribute educational door-hangers to residents and businesses in the stenciled neighborhoods.

These objectives were met through three key program areas, which are described in greater detail in this report:

1. Storm drain stenciling and cleanups
2. Extra education (classroom visits, outings and/or service activities)
3. Community educational workshops, events and tours

What follows are descriptions of activities, outreach and promotion efforts, and specific accomplishments for each program area.

STORM DRAIN STENCILING

Description:

Storm drain stenciling is a service-learning program in which community volunteers receive a 15 to 30-minute lesson about urban runoff pollution and ways to prevent it, then spray paint the message "Keep 'em Clean – Drains to River" next to storm drains on St. Paul city streets. Volunteers also distribute educational door hangers and pick up trash along their way. In addition to stenciling outings, FMR also coordinates 3-4 litter-cleanups/invasive species pulls within the City each year.

Outreach:

In 2015, storm-drain stenciling and cleanups were promoted using the following means:

- Emailing previous years' stenciling participants
- Contacting past participants and potential new contacts (St. Paul schools, after-school programs and service-learning programs)
- Posting on FMR's website, social media (Facebook and Twitter pages), as well as announcements in FMR's email newsletter, *Mississippi Messages*
- Postings on other websites including VolunteerMatch, TwinCities.com/Pioneer Press, Do It Green, TC Daily Planet, Next Step, Green Hands USA, Minnesota Parent and 1Mississippi/River Network and the Children and Nature Network
- Announcement/introduction at Big River Journey teacher trainings in January 2015

Accomplishments:

Stenciling:

Kate Clayton (Assistant Stewardship Coordinator), at Friends of the Mississippi River and Adam Flett (Stewardship Events Coordinator) facilitated storm drain stenciling outings with 51 different school and college groups, community groups, corporations and residents of the City of St. Paul. **In total, FMR engaged 1,146 volunteers to stencil 2,628 storm drains and distribute 7,036 educational door hangers within the City, for a total of 1,684 hours of volunteer work.** A list of the 51 groups that participated, with event dates, activities conducted, and a summary of the results and goals achieved, is attached at the end of this report.

FMR surpassed the goals set out in the contract for volunteer numbers (goal: 1,050), volunteer-hours (goal: 1,575), door hangers distributed (goal: 6,300) and number of storm drains stenciled (goal: 2,100).

This year, 6 scheduled stenciling outings were canceled due to weather or canceled by group leaders for various reasons. For 5 of these events we were not able to successfully reschedule. Because a similar number of hours are spent on planning an outing whether or not that outing is canceled, these cancellations lead to a higher ratio of program-hours/volunteers. However, because of high demand for this program, they did not substantially affect the total number of volunteers FMR was able to engage.

All of the feedback from the participants survey was positive. The program is well received, educational and productive.

Cleanups/Invasive Species Pulls:

FMR facilitated 1 invasive species pulls this year, engaging a total of 52 volunteers contributing 78 hours. This outing was a garlic mustard pull with Community of Peace Academy at Lake Phalen wetlands. There was a high level of interest in cleanups this year and **FMR facilitated 11 groups with a total of 234 people, contributing 391 hours** in cleanups around St. Paul. A list of the 12 groups that participated, with event dates, activities conducted, and a summary of the results and goals achieved, is attached at the end of this report. For these outings, FMR presented a brief educational orientation about reducing stormwater pollution. We also provided gloves and bags, as well as coordinating trash collection with the City of St. Paul Parks and Recreation Department.

This year 2 additional cleanups were scheduled but subsequently canceled; both events were canceled by the group leaders for various reasons. Neither of the events could be rescheduled.

Equipment:

FMR staff coordinated the purchase, storage and maintenance of storm drain stenciling supplies, including door hangers, for the 2015 season. Below is an inventory of supplies remaining at the end of the 2015 season. See previous reports for a comparison with prior years.

Equipment:

Gloves: Plenty
Clipboards: 25
Goggles: 44
Full paint cans: 70
Brushes: 32
Vests: 67
Cones: 20
Buckets: 23
Trash Bags: Best Guess 120
Flyers/Door Hangers: 3.75 boxes, approx. guess 6000

Stencils:

Drains to River – 24
Drains to Creek – old, w/ fish: 19
Drains to Lake – 44
Hmong language: 7
Somali language: 12

EXTRA EDUCATION

Description:

Additional water-quality education programming, separate from the lessons included in storm drain stenciling outings, is provided to schools and community groups in multiple formats including classroom presentations, interpretive field trips, participation in special events (i.e. the Children’s Water Festival) or through tabling at local fairs or expos. Each educational program includes information about urban runoff pollution and methods for its prevention, but additional topics may include the water cycle, watersheds, erosion, wetlands, river ecosystems, landscape change, habitat restoration and environmental justice. These presentations are designed to increase knowledge of urban non-point source pollution and related environmental issues, and may include demonstrations, PowerPoint

presentations, science experiments, games and/or group discussions. Primarily Kate Clayton provided extra education, with assistance from Adam Flett.

Outreach:

In 2015, extra educational programs were promoted using the following means:

- Emailing previous-years' stenciling participants
 - Contacting past participants and potential new contacts (St. Paul schools, after-school programs and service-learning programs)
 - Announcement at Big River Journey teacher trainings in January 2015
 - Posting on FMR's website, social media (Facebook and Twitter pages), as well as announcements in FMR's email newsletter, *Mississippi Messages*
- Postings on other websites including VolunteerMatch, TwinCities.com/Pioneer Press, Do It Green, TC Daily Planet, Next Step, Green Hands USA, Minnesota Parent and 1Mississippi/River Network and the Children and Nature Network

Accomplishments:

This year, FMR coordinated **10 classroom presentations, 2 special event presentations, and tabling at St. Paul Public Works Open House providing extra education to a total of 514 participants** in the City of St. Paul. Classroom lessons averaged 1 hour while interactions with the public at tabling events were 5-30min. FMR also tabled and provided water-quality education at Children's Waterfest and a DAR meeting in St. Paul. A list of the extra education groups and/or venues, with contact information, event dates and lesson topics, is attached at the end of this report.

COMMUNITY EDUCATIONAL WORKSHOPS, EVENTS AND TOURS

Description:

FMR's community educational workshops, events and tours in 2015 included our River Friendly Homes and Gardens: Make and Take Rain Barrel Workshop, a mini-workshop on urban runoff and stenciling outing at Tin Whiskers, and a tour of Indian Mounds Park.

Stewardship Events Coordinator Adam Flett coordinated all of the educational workshops, events and tours, with assistance from other FMR staff. Planning for the workshops included updating our River Friendly Homes and Gardens Workshops (updating information on the impact of stormwater pollutants on water quality, best practices for raingarden design and installation, benefits and techniques for composting in residential yards and gardens, rain barrel assembly, installation and use, watershed-friendly lawn care strategies, and local resources related to these topics). Staff also updated a host of printed materials on these topics that were distributed at the workshops.

Specific descriptions of each event follow.

Brewing Clean Water: Runoff Issues and Stenciling St. Paul:

FMR continued to work with Tin Whiskers Brewing Company in 2015 by hosting an event for participants to learn about run off issues in the urban environment. Participants also spent a portion of time stenciling storm drains around downtown St. Paul. These events were also part of another FMR program, “Brewing Clean Water,” a recently initiated program that enables FMR and the managers of local breweries and tap rooms to unite around clean water interests, and provides a new venue for delivering our message to new and old FMR participants.

- Tin Whiskers Brewing Company, July 28, 2015 (25 participants)

Make and Take Rain Barrel Workshop: This workshop is similar to the previous one, but has a specific focus on rain barrels and provides an opportunity for participants to assemble and take home their own 55-gallon rain barrel. The barrels were donated by Coca-Cola, and conversion kits were purchased at a reduced price by workshop participants. The “Make and Take Rain Barrel Workshop” began with a condensed version of the “Gardening for a Rainy Day” workshop, with additional information on the benefits, construction, use, installation and maintenance of rain barrels. Participants were then guided through assembling their own rain barrel, which they took with them to install and use at home. The workshop was presented at the following venue:

- Wellstone Center/Neighborhood House May 5, 2015 (43 participants, 32 barrels)

Science Museum Event:

A large-format educational presentation was held on March 26, 2015, in partnership with the Science Museum of Minnesota. Speakers Ali Elhassan, Manager of Water Supply Planning at the Metropolitan Council and Dr. James Almendinger, Senior Scientist at the St. Croix Watershed Research Station of the Science Museum of Minnesota addressed the issue of declining groundwater supplies in the metro area and presented various land-use, stormwater management and conservation approaches to help us achieve a more sustainable water future. Approximately 287 people attended the event, and responses were very positive.

Tour of Indian Mounds Park

Tour-goers were fortunate enough to be led by Hokan Miller, FMR Board Member and River Enthusiast, and environmental scientist Mike Nevala, along with FMR’s Stewardship Events Coordinator Adam Flett. Topics discussed during the tour included geological history of the bluffs, importance of the site to native-american culture, tales of early explorers and river-related labors, and a history of site restoration and its importance in today’s community. There was also a focus on the difference between storm water and waste water, and discussion of the waste water process and its impact on the river. 29 people attended.

Outreach:

Participants for the workshops, tour and Science Museum event were recruited using the following means:

- Email or posts to various daily and community newspapers both print and online
- Posting on FMR’s website and announcements in FMR’s Mississippi Messages and through social media, including Facebook and Twitter
- Posting on various online event calendars: Mississippi National River and Recreation Area/National Park Service, Minnesota Environmental Forum, Minnesota Environmental Partnership, MNOEA’s Next Step, TwinCities.com/PioneerPress, BlueThumb, Do It Green, TC Daily Planet, Northern Gardener, Minnesota Master Naturalist, GreenHandsUSA, Riverfront Development Corporation, 1Mississippi (Mississippi River Network) and Good Age and MN Parent
- Emailing to all St. Paul FMR contacts, including numerous partner and civic organizations such as community organizations and neighborhood groups and local institutions such as the Science Museum of Minnesota, the Department of Natural Resources, Metropolitan Council, Friends of the Parks and Trails of St. Paul, and additional various foundation, student and civic groups
- Emailing to special interest groups, such as garden clubs, home school group outing organizers, biology club members and others

Accomplishments:

The following table summarizes the participation of 384 people in public events in 2015:

| Name | Date | Location | # Participants |
|--|-----------|------------------------------|----------------|
| The High Price of Cheap Groundwater | 3/26/15 | Science Museum of MN | 287 |
| Make and Take Rain Barrel Workshop | 5/5/15 | Wellstone Center | 43 |
| Tin Whiskers Runoff and Stenciling Event | 7/28/15 | Tin Whiskers Brewing Company | 25 |
| Tour of Indian Mounds Park | 8/29/2015 | Indian Mounds Park | 29 |

Photos:

Photographs of the youth and group events are available upon request. Photos of public events listed in this report can be viewed on FMR’s Flickr site at the following links:

- Science Museum Event
<https://www.flickr.com/photos/friendsmissriv/sets/72157651283744710>
- Tour of Indian Mounds Park:
<https://www.flickr.com/photos/friendsmissriv/albums/72157655716762924>
- “Brewing Clean Water”:
<https://www.flickr.com/photos/friendsmissriv/albums/72157654188993074>



Drains to River

Storm
Drains

Keep em'
Clean

KEEP THESE OUT OF STORM DRAINS



PET WASTE

Desechos de mascotas
Quav tsiaj yug



LEAVES, GRASS & TRASH

Hojas, hierba y basura
Nplooj ntoos, Nyom & Khib Nyiab



HAZARDOUS WASTES

Residuos peligrosos
Khood Pehm Siv Tas Lawm

MANTENGA FUERA DE LOS DRENAJES PARA TORMENTAS
MUAB COV NTAWM NO TSEM TAWM NTAWM LUB QHOV
DEJ NQIS

Keep storm drains clean. These drains are part of the storm sewer system, which carries rainfall and snowmelt directly from your neighborhood to our lakes and rivers.

What You Can Do

1

Keep leaves and grass clippings out of street.
Mantenga las hojas y las hierbas o el césped podados fuera de la calle.
Muab cov nplooj ntoos thiab nyom tshem tawm ntawm txoj kev.

2

Keep fertilizer off paved surfaces and sweep up excess.
Mantenga el fertilizante fuera de las superficies pavimentadas y limpie los excesos.
Txhob muab cov tshuaj ywg nyom tso rau ntawm cov kev luam yas thiab muab cov tshuaj seem cheb mus.

3

Don't litter and pick up pet waste. **No arroje basura en la vía pública. Recoja los desechos de sus mascotas.**
Tsis txhob pov khib nyiab. Khaws tej quav tsiaj yug.

4

Wash your car on the lawn or at a carwash - not in the driveway or street.
Lave su vehículo en el jardín o en un lavadero – no lo haga en el entrada de su casa o en la calle.
Ntxuav koj lub tshab rau ntawm cov nyom ntawm koj tog tsev los yog tom lub chaw ntxuav tshab - tsis txhob ntxuav rau ntawm lub chaw nres tshab los yog tom kev.

5

Keep your vehicle tuned up and clean up any oil leaks or spills from paved surfaces.
Mantenga su vehículo en buenas condiciones y limpie cualquier pérdida de aceite o salpicaduras en las superficies pavimentadas.
Saib xyuas thiab tu koj lub tshab thiab tu tej roj uas tau txej los yog nchuav rau tej kev luam yas.

6

Properly dispose of paint and other household hazardous wastes.
Deshágase adecuadamente de restos de pinturas y de otros residuos domésticos peligrosos.
Muab cov xim tha thiab lwm cov khood pehm hauv vaj tsev pov tseg kom zoo.

7

Shovel snow first and only apply salt when it is above 15° F.
Retire la nieve con una pala primero y aplique sal cuando esté sobre los 15°F.
Thob daus ua ntej thiab tsuas siv ntsev.



Recycling & Disposal Guide
ramseyatoz.co.ramsey.mn.us
www.stpaul.gov/publicworks
www.fmr.org

Watershed Organizations in Saint Paul

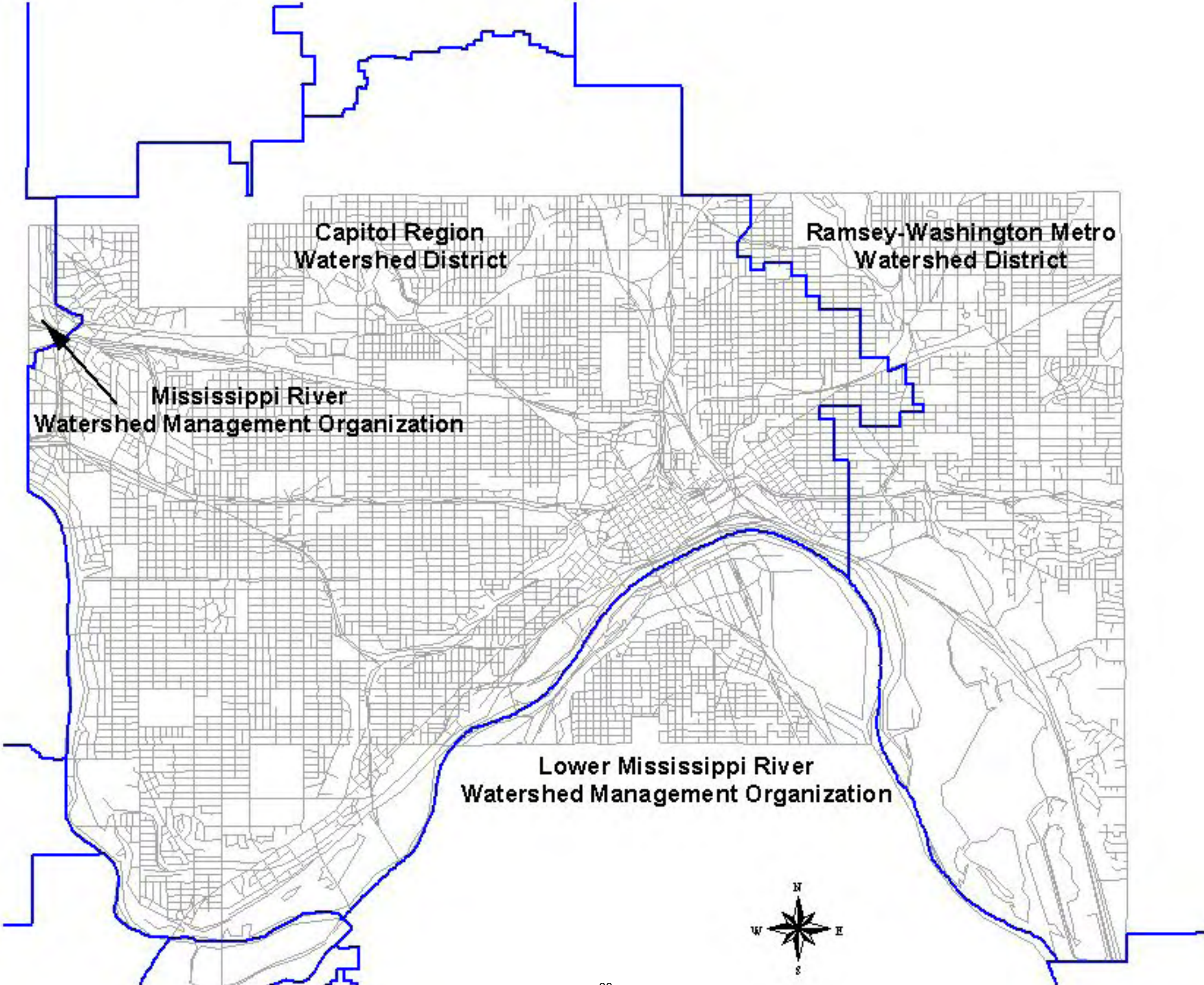
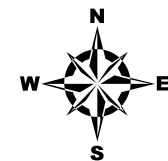




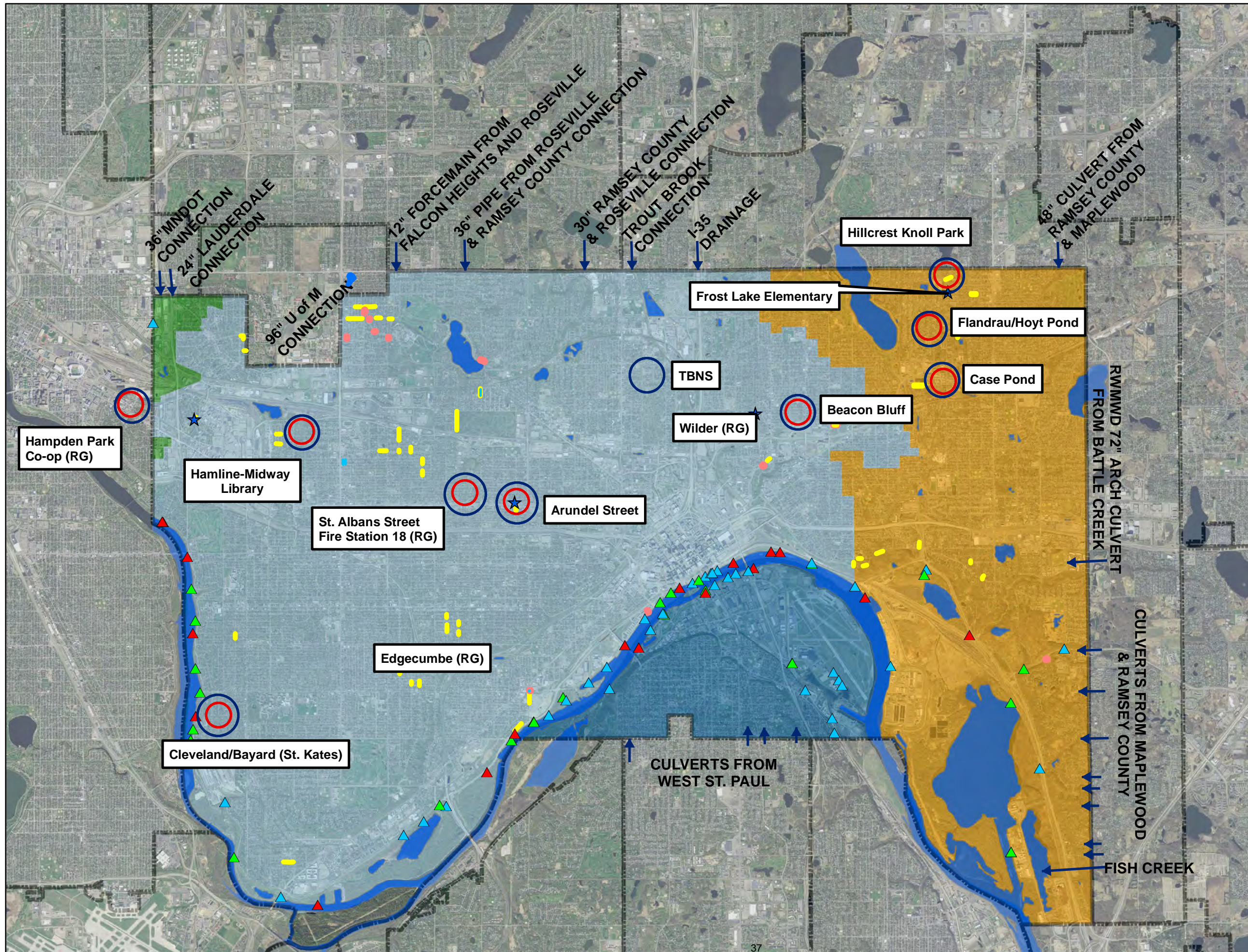
Figure 1-1
Monitoring Site
Location Map

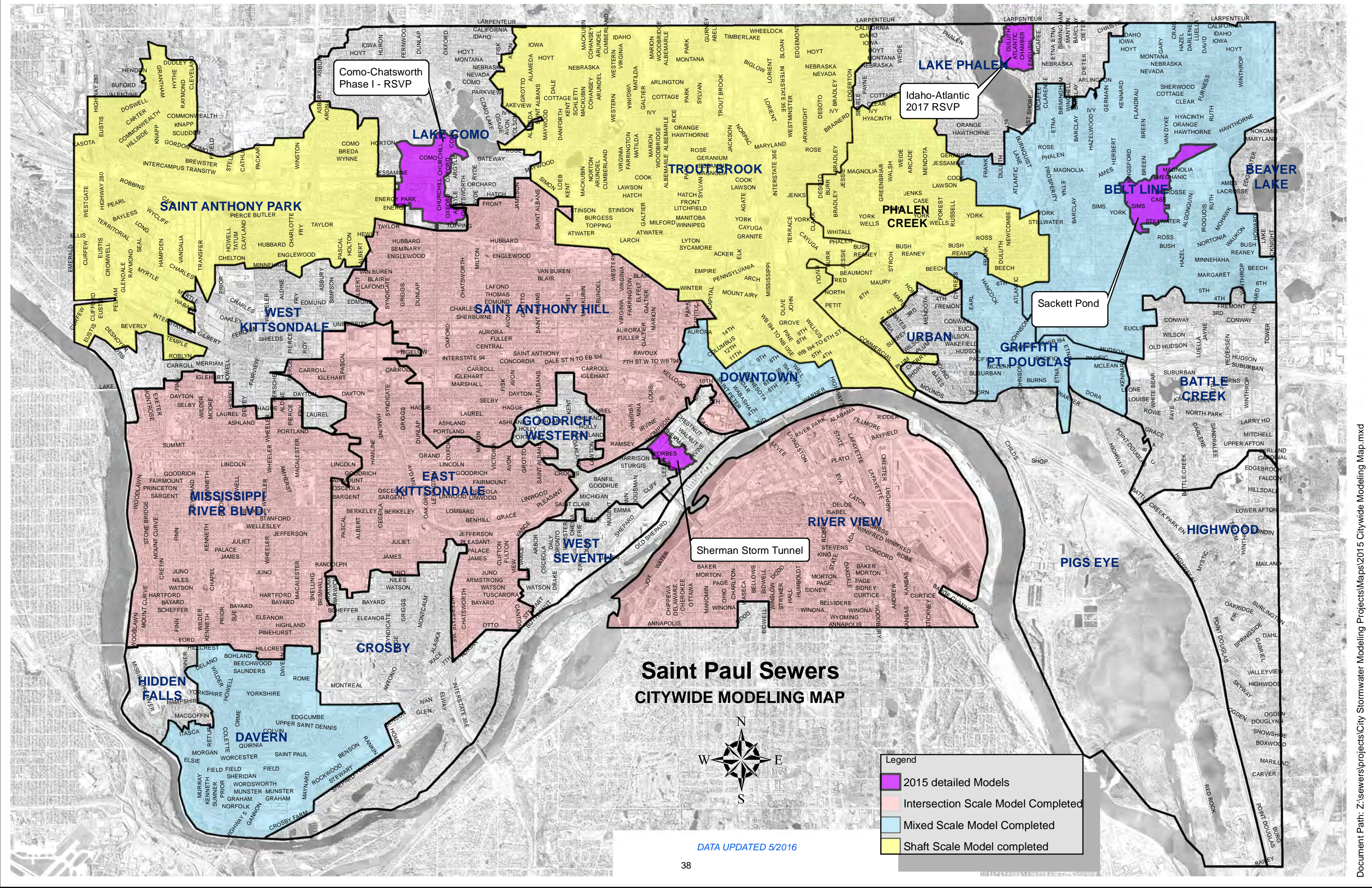


0 2,500 5,000 10,000
Feet

Legend

- Raingarden/Infiltration Basin
 - Infiltration Trench
 - Pervious Pavement
 - Capitol Region Watershed District
 - Lower Mississippi River WMO
 - Mississippi WMO
 - Ramsey/Washington/Metro WD
 - 2014 Monitoring Locations
 - 2015 Monitored Locations
 - ★ Rain Gauge Locations
 - Inflows
- Outfalls**
- ▲ 30" - 48"
 - ▲ 50" - 72"
 - ▲ > 72"





Como-Chatsworth
Phase I - RSVP

Idaho-Atlantic
2017 RSVP

Sackett Pond

Sherman Storm Tunnel

Saint Paul Sewers CITYWIDE MODELING MAP



DATA UPDATED 5/2016

- Legend
- 2015 detailed Models
 - Intersection Scale Model Completed
 - Mixed Scale Model Completed
 - Shaft Scale Model completed



Memorandum

To: Anne Weber, City of Saint Paul
Pat Murphy, City of Saint Paul

From: Jesse Carlson, WSB & Associates
Linnea Henkels, WSB & Associates

Date: 6/10/2016

Re: Estimates of 2014 Annual and Seasonal Pollutant Loads
WSB Project No. 01610-130

The City of St. Paul is a Phase I MS4 permittee and is required to evaluate their annual and seasonal pollutant loads.

2014 Pollutant Loading Calculations

Event mean concentrations for snowmelt, grab, and storm composites were gathered from the Capitol Region Watershed District’s (CRWD) 2014 Annual Monitoring Report. 2015 monitoring data was not used because the previous year’s loading assessment was based on 2013 monitoring data. Base flow grabs were excluded because this information could not be extrapolated for all watersheds. For four of the watersheds, monitoring data existed and the respective loadings were summarized using this data. For the remaining sites, annual and seasonal means were calculated for each of the pollutants based on CRWD’s data (see **Table 1**). The watersheds are represented in **Figure 1**. The following formula was used to calculate the annual/seasonal flow weighted mean concentration for each pollutant:

$$C = \frac{\sum(F_i \times C_i)}{\sum(F_i)} \tag{1}$$

- C = annual/seasonal flow weighted mean concentration [mg/L]
- F_i = the flow for an individual event [cf]
- C_i = the mean concentration for an individual event [mg/L]

Based on these calculated flow weighted means, the Simple Method was used to calculate each watershed’s pollutant loading:

$$L = 2.72 \left(\frac{PP_j R_v}{12} \right) (CA) \tag{2}$$

L = pollutant loading for the year/season [lb]

P = rainfall depth for the year/season [in]

P_j = correction factor for storms that produce no runoff [.]

R_v = runoff coefficient [.]

A = area of the watershed [acre]

Values used in loading calculations:

C = Table 1

P = Table 2

P_j = 0.85

R_v and A = Table 3

Table 1. Average Event Mean Concentrations for Year/Season

| Parameter | Cl | TKN | Total P | NO2+NO3 | TSS | VSS |
|-----------|--------|--------|---------|---------|--------|--------|
| Units | [mg/L] | [mg/L] | [mg/L] | [mg/L] | [mg/L] | [mg/L] |
| Annual | 73.4 | 1.82 | 0.33 | 0.32 | 200.7 | 54.6 |
| Winter | 496.9 | 5.15 | 0.76 | 0.55 | 474.4 | 135.2 |
| Spring | 29.6 | 1.69 | 0.31 | 0.33 | 183.2 | 50.6 |
| Summer | 26.3 | 1.19 | 0.25 | 0.27 | 155.7 | 40.9 |
| Fall | 24.2 | 1.35 | 0.30 | 0.25 | 178.8 | 36.2 |

The annual/seasonal precipitation values from 2014 for 8 different St. Paul sites are provided in the **Table 2**. Each watershed was assigned precipitation data from the nearest precipitation site (see **Table 3**). December was not included in the calculations because its precipitation fell in the form of snowfall and did not result in runoff. **Tables 4-8** contain the annual and seasonal pollutant loadings for each of the City’s watersheds.

Table 2. Precipitation Sites’ Data [in]

| Season/Date | Conway | Edgecumbe | Engine House 18 | Hayden Heights | Orchard | US Job Corps | Wilder | HD |
|------------------|--------|-----------|-----------------|----------------|---------|--------------|--------|------|
| Annual | 36.8 | 37.8 | 37.6 | 38.0 | 38.4 | 37.5 | 37.8 | 34.9 |
| Winter (Jan-Mar) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Spring (Apr-May) | 10.8 | 12.4 | 12.4 | 12.4 | 12.4 | 12.3 | 12.4 | 10.8 |
| Summer (Jun-Aug) | 17.2 | 17.5 | 16.7 | 17.3 | 17.0 | 17.0 | 17.0 | 16.5 |
| Fall (Sep-Nov) | 4.8 | 3.9 | 4.5 | 4.3 | 5.0 | 4.1 | 4.4 | 3.6 |

Table 3. Watershed Inventory

| Watershed | Area [acre] | Runoff Coefficient [.] | Precipitation Site [.] |
|-------------------------|--------------------|-------------------------------|-------------------------------|
| Battle Creek | 1,089 | 0.54 | Conway |
| Beaver Lake | 278 | 0.33 | Conway |
| Belt Line | 2,882 | 0.55 | Hayden |
| Crosby | 1,446 | 0.45 | Edgecumbe |
| Davern | 1,277 | 0.55 | Edgecumbe |
| Downtown | 669 | 0.75 | Engine House 18 |
| East Kittsondale | 1,870 | 0.62 | Edgecumbe |
| Fish Creek | 46 | 0.70 | US Job Corp |
| Goodrich/Western | 424 | 0.63 | Engine House 18 |
| Griffith/Pt. Douglas | 458 | 0.61 | Conway |
| Hidden Falls | 237 | 0.55 | Edgecumbe |
| Highwood | 1,139 | 0.50 | Conway |
| Lake Como | 1,240 | 0.47 | Orchard |
| Lake Phalen | 995 | 0.42 | Wilder |
| Mississippi River Blvd. | 2,373 | 0.58 | Edgecumbe |
| MRWMO | 135 | 0.52 | Conway |
| Phalen Creek | 1,406 | 0.62 | Wilder |
| Pigs Eye | 2,995 | 0.40 | Conway |
| Riverview | 2,658 | 0.57 | Conway |
| St. Anthony Hill | 2,542 | 0.64 | Engine House 18 |
| St. Anthony Park | 2,467 | 0.68 | US Job Corp |
| Trout Brook | 3,959 | 0.62 | Orchard |
| Urban | 339 | 0.57 | Wilder |
| West Kittsondale | 847 | 0.67 | Orchard |
| West Seventh | 450 | 0.60 | Edgecumbe |

Table 4. Annual Pollutant Loadings (lbs)

| | Cl | TKN | Total P | NO2+NO3 | TSS | VSS |
|--------------------------------|-----------|------------|----------------|----------------|------------|------------|
| Battle Creek | 306080 | 7590 | 1381 | 1354 | 836452 | 227462 |
| Beaver Lake | 47750 | 1184 | 216 | 211 | 130490 | 35485 |
| Belt Line | 852389 | 21138 | 3847 | 3772 | 2329400 | 633451 |
| Crosby | 348073 | 8632 | 1571 | 1540 | 951211 | 258670 |
| Davern | 375702 | 9317 | 1696 | 1663 | 1026715 | 279202 |
| Downtown | 266622 | 6612 | 1203 | 1180 | 728622 | 198140 |
| East Kittsondale | 620188 | 15380 | 2799 | 2744 | 1694843 | 460891 |
| Fish Creek | 17070 | 423 | 77 | 76 | 46648 | 12685 |
| Goodrich/Western | 141943 | 3520 | 641 | 628 | 387902 | 105485 |
| Griffith/Pt. Douglas | 145415 | 3606 | 656 | 643 | 397388 | 108065 |
| Hidden Falls | 69727 | 1729 | 315 | 309 | 190549 | 51817 |
| Highwood | 296420 | 7351 | 1338 | 1312 | 810052 | 220283 |
| Lake Como | 316617 | 7852 | 1429 | 1401 | 865247 | 235293 |
| Lake Phalen | 223307 | 5538 | 1008 | 988 | 610252 | 165950 |
| Mississippi River Blvd. | 736234 | 18258 | 3323 | 3258 | 2011972 | 547130 |
| MRWMO | 36538 | 906 | 165 | 162 | 99852 | 27153 |
| Phalen Creek | 465809 | 11551 | 2102 | 2061 | 1272956 | 346164 |
| Pigs Eye | 623548 | 15463 | 2814 | 2759 | 1704026 | 463388 |
| Riverview | 788575 | 19556 | 3559 | 3490 | 2155009 | 586027 |
| St. Anthony Hill | 864499 | 21439 | 3902 | 3826 | 2362494 | 642450 |
| St. Anthony Park | 889294 | 22053 | 4014 | 3935 | 2430252 | 660876 |
| Trout Brook | 1333496 | 33069 | 6018 | 5901 | 3644164 | 990984 |
| Urban | 103254 | 2561 | 466 | 457 | 282170 | 76733 |
| West Kittsondale | 308300 | 7645 | 1391 | 1364 | 842518 | 229112 |
| West Seventh | 144429 | 3582 | 652 | 639 | 394694 | 107332 |

*Values based solely on individual site's CRWD data

**Table 5. Seasonal Pollutant Loadings (lbs)
Winter/Snowmelt (Jan – Mar)**

| | CI | TKN | Total P | NO2+NO3 | TSS | VSS |
|--------------------------------|-----------|------------|----------------|----------------|------------|------------|
| Battle Creek | 225756 | 2339 | 347 | 248 | 215535 | 61443 |
| Beaver Lake | 35219 | 365 | 54 | 39 | 33624 | 9585 |
| Belt Line | 608518 | 6305 | 936 | 668 | 580968 | 165618 |
| Crosby | 249803 | 2588 | 384 | 274 | 238493 | 67988 |
| Davern | 269632 | 2794 | 415 | 296 | 257424 | 73384 |
| Downtown | 192621 | 1996 | 296 | 211 | 183900 | 52425 |
| East Kittsondale | 445093 | 4612 | 685 | 488 | 424941 | 121139 |
| Fish Creek | 12362 | 128 | 19 | 14 | 11802 | 3364 |
| Goodrich/Western | 102547 | 1063 | 158 | 113 | 97904 | 27910 |
| Griffith/Pt. Douglas | 107254 | 1111 | 165 | 118 | 102398 | 29191 |
| Hidden Falls | 50041 | 518 | 77 | 55 | 47776 | 13620 |
| Highwood | 218631 | 2265 | 336 | 240 | 208732 | 59504 |
| Lake Como | 223736 | 2318 | 344 | 246 | 213607 | 60893 |
| Lake Phalen | 160431 | 1662 | 247 | 176 | 153168 | 43664 |
| Mississippi River Blvd. | 528376 | 5475 | 813 | 580 | 504454 | 143806 |
| MRWMO | 26950 | 279 | 41 | 30 | 25730 | 7335 |
| Phalen Creek | 334653 | 3467 | 515 | 367 | 319501 | 91081 |
| Pigs Eye | 459911 | 4765 | 707 | 505 | 439089 | 125172 |
| Riverview | 581630 | 6027 | 895 | 638 | 555297 | 158300 |
| St. Anthony Hill | 624558 | 6471 | 961 | 685 | 596281 | 169983 |
| St. Anthony Park | 644014 | 6673 | 991 | 707 | 614856 | 175278 |
| Trout Brook | 942311 | 9764 | 1450 | 1034 | 899648 | 256465 |
| Urban | 74181 | 769 | 114 | 81 | 70822 | 20189 |
| West Kittsondale | 217859 | 2257 | 335 | 239 | 207995 | 59294 |
| West Seventh | 103653 | 1074 | 159 | 114 | 98960 | 28211 |

*Values based solely on individual site's CRWD data

**Table 6. Seasonal Pollutant Loadings (lbs)
Spring (Apr – May)**

| | CI | TKN | Total P | NO2+NO3 | TSS | VSS |
|--------------------------------|-----------|------------|----------------|----------------|------------|------------|
| Battle Creek | 36173 | 2069 | 379 | 401 | 224147 | 61959 |
| Beaver Lake | 5643 | 323 | 59 | 63 | 34968 | 9666 |
| Belt Line | 112037 | 6409 | 1175 | 1243 | 694249 | 191906 |
| Crosby | 45993 | 2631 | 482 | 510 | 284997 | 78779 |
| Davern | 49643 | 2840 | 521 | 551 | 307618 | 85032 |
| Downtown | 35465 | 2029 | 372 | 393 | 219759 | 60746 |
| East Kittsondale | 81948 | 4688 | 859 | 909 | 507799 | 140367 |
| Fish Creek | 2263 | 129 | 24 | 25 | 14024 | 3876 |
| Goodrich/Western | 18880 | 1080 | 198 | 209 | 116994 | 32340 |
| Griffith/Pt. Douglas | 17185 | 983 | 180 | 191 | 106489 | 29436 |
| Hidden Falls | 9213 | 527 | 97 | 102 | 57091 | 15781 |
| Highwood | 35031 | 2004 | 367 | 389 | 217072 | 60004 |
| Lake Como | 41193 | 2357 | 432 | 457 | 255257 | 70559 |
| Lake Phalen | 29443 | 1684 | 309 | 327 | 182444 | 50431 |
| Mississippi River Blvd. | 97282 | 5565 | 1020 | 1079 | 602816 | 166631 |
| MRWMO | 4318 | 247 | 45 | 48 | 26758 | 7396 |
| Phalen Creek | 61416 | 3513 | 644 | 681 | 380569 | 105198 |
| Pigs Eye | 73691 | 4216 | 773 | 817 | 456633 | 126223 |
| Riverview | 93194 | 5331 | 977 | 1034 | 577485 | 159629 |
| St. Anthony Hill | 114991 | 6578 | 1206 | 1276 | 712548 | 196964 |
| St. Anthony Park | 117904 | 6745 | 1236 | 1308 | 730601 | 201954 |
| Trout Brook | 173494 | 9925 | 1819 | 1925 | 1075068 | 297172 |
| Urban | 13614 | 779 | 143 | 151 | 84359 | 23319 |
| West Kittsondale | 40111 | 2295 | 421 | 445 | 248552 | 68705 |
| West Seventh | 19084 | 1092 | 200 | 212 | 118256 | 32688 |

*Values based solely on individual site's CRWD data

**Table 7. Seasonal Pollutant Loadings (lbs)
Summer (Jun – Aug)**

| | CI | TKN | Total P | NO2+NO3 | TSS | VSS |
|--------------------------------|-----------|------------|----------------|----------------|------------|------------|
| Battle Creek | 51294 | 2323 | 493 | 531 | 304037 | 79808 |
| Beaver Lake | 8002 | 362 | 77 | 83 | 47431 | 12450 |
| Belt Line | 138422 | 6270 | 1330 | 1434 | 820475 | 215369 |
| Crosby | 57614 | 2610 | 553 | 597 | 341500 | 89641 |
| Davern | 62188 | 2817 | 597 | 644 | 368607 | 96757 |
| Downtown | 42318 | 1917 | 406 | 438 | 250832 | 65842 |
| East Kittsondale | 102656 | 4650 | 986 | 1063 | 608475 | 159720 |
| Fish Creek | 2774 | 126 | 27 | 29 | 16445 | 4317 |
| Goodrich/Western | 22529 | 1020 | 216 | 233 | 133537 | 35052 |
| Griffith/Pt. Douglas | 24369 | 1104 | 234 | 252 | 144444 | 37916 |
| Hidden Falls | 11541 | 523 | 111 | 120 | 68410 | 17957 |
| Highwood | 49675 | 2250 | 477 | 515 | 294441 | 77289 |
| Lake Como | 50157 | 2272 | 482 | 520 | 297295 | 78038 |
| Lake Phalen | 36050 | 1633 | 346 | 373 | 213679 | 56089 |
| Mississippi River Blvd. | 121864 | 5520 | 1171 | 1262 | 722329 | 189606 |
| MRWMO | 6123 | 277 | 59 | 63 | 36295 | 9527 |
| Phalen Creek | 75198 | 3406 | 722 | 779 | 445724 | 116999 |
| Pigs Eye | 104497 | 4733 | 1004 | 1082 | 619387 | 162585 |
| Riverview | 132153 | 5986 | 1269 | 1369 | 783312 | 205614 |
| St. Anthony Hill | 137212 | 6215 | 1318 | 1421 | 813299 | 213485 |
| St. Anthony Park | 144543 | 6547 | 1388 | 1497 | 856756 | 224893 |
| Trout Brook | 211245 | 9568 | 2029 | 2188 | 1252120 | 328673 |
| Urban | 16669 | 755 | 160 | 173 | 98802 | 25935 |
| West Kittsondale | 48839 | 2212 | 469 | 506 | 289486 | 75988 |
| West Seventh | 23906 | 1083 | 230 | 248 | 141701 | 37196 |

*Values based solely on individual site's CRWD data

**Table 8. Seasonal Pollutant Loadings (lbs)
Fall (Sep – Nov)**

| | CI | TKN | Total P | NO2+NO3 | TSS | VSS |
|--------------------------------|-----------|------------|----------------|----------------|------------|------------|
| Battle Creek | 12997 | 726 | 161 | 137 | 96227 | 19462 |
| Beaver Lake | 2028 | 113 | 25 | 21 | 15012 | 3036 |
| Belt Line | 127227 | 7106 | 1572 | 1343 | 941947 | 190505 |
| Crosby | 11808 | 660 | 146 | 125 | 87423 | 17681 |
| Davern | 12745 | 712 | 157 | 135 | 94362 | 19084 |
| Downtown | 10459 | 584 | 129 | 110 | 77437 | 15661 |
| East Kittsondale | 21039 | 1175 | 260 | 222 | 155768 | 31504 |
| Fish Creek | 614 | 34 | 8 | 6 | 4548 | 920 |
| Goodrich/Western | 5568 | 311 | 69 | 59 | 41225 | 8338 |
| Griffith/Pt. Douglas | 6175 | 345 | 76 | 65 | 45716 | 9246 |
| Hidden Falls | 2365 | 132 | 29 | 25 | 17513 | 3542 |
| Highwood | 12587 | 703 | 156 | 133 | 93190 | 18847 |
| Lake Como | 13505 | 754 | 167 | 143 | 99984 | 20221 |
| Lake Phalen | 8459 | 472 | 105 | 89 | 62624 | 12666 |
| Mississippi River Blvd. | 24976 | 1395 | 309 | 264 | 184915 | 37398 |
| MRWMO | 1552 | 87 | 19 | 16 | 11487 | 2323 |
| Phalen Creek | 17644 | 985 | 218 | 186 | 130631 | 26420 |
| Pigs Eye | 26478 | 1479 | 327 | 280 | 196034 | 39647 |
| Riverview | 33486 | 1870 | 414 | 354 | 247916 | 50140 |
| St. Anthony Hill | 33913 | 1894 | 419 | 358 | 251081 | 50780 |
| St. Anthony Park | 32003 | 1787 | 395 | 338 | 236942 | 47921 |
| Trout Brook | 56878 | 3177 | 703 | 601 | 421102 | 85166 |
| Urban | 3911 | 218 | 48 | 41 | 28956 | 5856 |
| West Kittsondale | 13150 | 734 | 162 | 139 | 97357 | 19690 |
| West Seventh | 4900 | 274 | 61 | 52 | 36275 | 7337 |

*Values based solely on individual site's CRWD data

City of St. Paul Loading Assessment




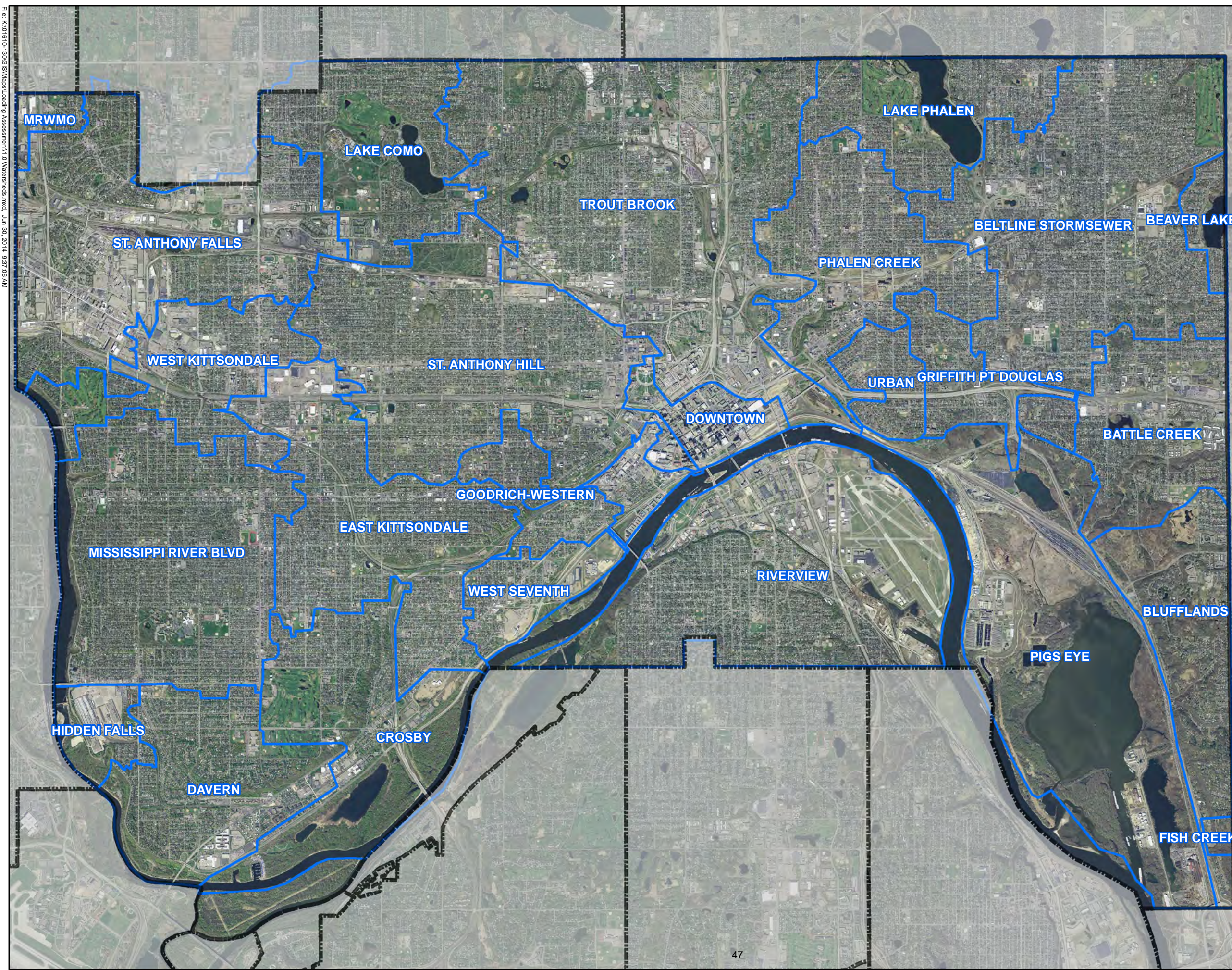
Figure 1. Watersheds



0 2,000 4,000 8,000
Feet

Legend

 Major Subwatersheds



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Outfall Inventory

| Outfall | Location | Watershed | Pipe Size | Acres |
|---------|--------------------------|-------------------|---------------|-------|
| | Bridal Veil Creek | | | |
| 005 | South of Buford | Bridal Veil | 42" | |
| | Mississippi River | | | |
| 010 | Eustis | St. Anthony Park | tunnel | 2467 |
| 020 | Lotus | Miss. River Blvd. | tunnel | 31 |
| 030 | Marshall | Miss. River Blvd. | tunnel | 121 |
| 040 | West Kittsondale | West Kittsondale | tunnel | 977 |
| 050 | Otis | Miss. River Blvd. | tunnel | 14 |
| 060 | Portland Ave | Miss. River Blvd. | tunnel | 508 |
| 070 | Summit | Miss. River Blvd. | 16" cast iron | 30 |
| 080 | Goodrich | Miss. River Blvd. | tunnel | 456 |
| 090 | Princeton | Miss. River Blvd. | tunnel | 150 |
| 095 | Berkeley | Miss. River Blvd. | 24" | |
| 100 | Jefferson | Miss. River Blvd. | tunnel | 139 |
| 110 | Randolph | Miss. River Blvd. | tunnel | 39 |
| 115 | Hartford | Miss. River Blvd. | tunnel | 580 |
| 120 | Scheffer | Miss. River Blvd. | tunnel | 8 |
| 130 | Highland Parkway | Miss. River Blvd. | tunnel | 165 |
| 135 | Hidden Falls | Hidden Falls | 48" | 269 |
| 140 | Sheridan | Davern | tunnel | 145 |
| 145 | West 7th | Davern | 30" | 30 |
| 150 | Davern | Davern | tunnel | 963 |
| 151 | Watergate Marina | Crosby | 21" | |

Outfall Inventory

| Outfall | Location | Watershed | Pipe Size | Acres |
|----------------|-------------------------------|---------------------|----------------|---------------|
| 156 | Elway | Crosby | 60" | |
| 158 | Elway | Crosby | 90" | 820 |
| 160 | Otto | E. Kittsondale | tunnel | 177 |
| 170 | Bay | E. Kittsondale | tunnel | 1699 |
| 180 | Sumac | West 7th | tunnel | 8 |
| 190 | Drake | West 7th | tunnel | 158 |
| 195 | Fountain Cave | West 7th | 42" | 39 |
| 200 | Richmond | West 7th | 20" | 142 |
| 201 | Richmond | West 7th | 42" | |
| 206 | Western | West 7th | 30" | 98 |
| 210 | Smith -1992 | Good/West | tunnel | 424 |
| 220 | Sherman | Downtown | 48" | 41 |
| 230 | Chestnut | Downtown | 27" | 82 |
| 240 | Eagle | Downtown | 3'x5' brick | 77 |
| 250 | Ontario- abandoned | Downtown | 24" | |
| 260 | Market | Downtown | 24" | |
| 270 | St. Peter | St. Anthony Hill | tunnel | 2653 |
| 280 | Cedar | Downtown | tunnel | |
| 290 | Minnesota | Downtown | tunnel | 115 |
| 295 | Robert | Downtown | tunnel | 5 |
| 300 | Jackson | Downtown | 36" | 27 |
| 310 | Sibley | Downtown | 48" | 10 |
| 315 | Wacouta | Downtown | 42" | 40 |

Outfall Inventory

| Outfall | Location | Watershed | Pipe Size | Acres |
|----------------|-----------------------------|----------------------|----------------|-------|
| 320 | Broadway | Downtown | 7'x8' concrete | 115 |
| 325 | Troutbrook | Troutbrook | dual 10' | 4025 |
| 330 | Plum | Phalen Creek | tunnel | 1406 |
| 340 | Urban | Urban | 48" brick | 328 |
| 343 | Warner and Childs | Pig's Eye | 24" | |
| 346 | Warner and Childs | Pig's Eye | 18" | |
| 350 | Beltline (RWMWD's) | Beltline | 9' | 3524 |
| 352 | off Child's Road | Pig's Eye | 12" | |
| 354 | off Child's Road | Pig's Eye | 12" | |
| 356 | off Child's Road | Pig's Eye | 12" | |
| 360 | Battle Creek | Pig's Eye | 36" | |
| 365 | Wyoming | Riverview | 30" culvert | 8 |
| 380 | Page and Barge Ch Rd | Riverview | 42" | 69 |
| 385 | Robie and Witham | Riverview | 54" | |
| 390 | Robie and Kansas | Riverview | 42" | 264 |
| 400 | Airport | Riverview | 12" | |
| 405 | Chester St | Riverview | tunnel | 326 |
| 407 | Eva St | Riverview | 36" | |
| 410 | Custer St | Riverview | tunnel | 188 |
| 420 | Moses St | Riverview | 5'6" | 95 |
| 430 | Belle | Riverview | 2-36"x40" | 37 |
| 440 | Riverview | Riverview | 2-77"x121" | 801 |
| 460 | Chippewa and Baker | Riverview | 16" | 71 |

Outfall Inventory

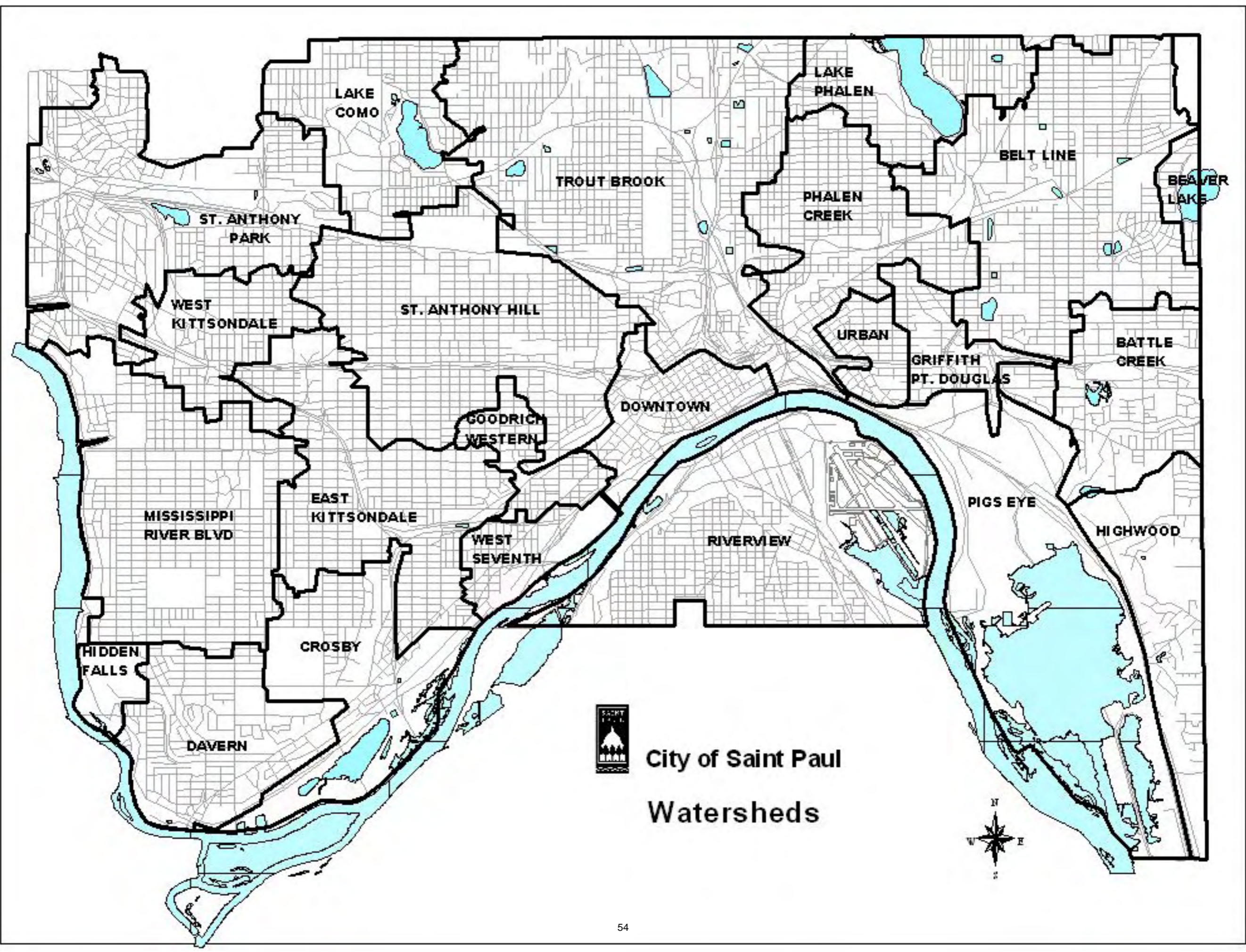
| Outfall | Location | Watershed | Pipe Size | Acres |
|---------|----------------------------|------------------|-----------|-------|
| | Upper Lake | | | |
| 152 | Springfield | Crosby | 15" | |
| | Crosby Lake | | | |
| 153 | Rankin | Crosby | 27" | |
| 154 | Homer | Crosby | 30" | |
| 155 | Leland | Crosby | 30" | |
| | Fairview North Pond | | | |
| 500 | Tatum & Pierce Butler | St. Anthony Park | 6' | |
| 510 | Pierce Butler & Aldine | St. Anthony Park | 54" | |
| | Lake Como | | | |
| 520 | Arlington & Chelsea | Como | 60" | 310 |
| 530 | Chatsworth North | Como | 36" | 201 |
| 540 | Milton North | Como | 36" | 79 |
| 550 | Parkview East | Como | 18" | 17 |
| 560 | Ivy East | Como | 18" | 24 |
| 570 | Wheelock Pkwy East | Como | 24" | 23 |
| 580 | Rose East | Como | 36" | 30 |
| 590 | Victoria South | Como | 30" | 49 |
| 600 | Chatsworth South | Como | 24" | 75 |
| 610 | Horton West | Como | 15" | 311 |
| 620 | Park West | Como | 36" | 50 |

Outfall Inventory

| Outfall | Location | Watershed | Pipe Size | Acres |
|------------|-------------------------------|----------------------|------------|-------|
| | Loeb Lake | | | |
| 630 | Jessamine | Troutbrook | 36" | |
| | Lake Phalen | | | |
| 680 | Arlington West | Phalen | 72" | 380 |
| 690 | Blomquist South | Phalen | 36" | 71 |
| 700 | Arlington East | Phalen | 42" | 209 |
| 710 | between Hoyt & Neb. | Phalen | 42" | 69 |
| 720 | Larpenteur East | Phalen | 84" | 17 |
| | Beaver Lake | | | |
| <u>726</u> | <u>Lacrosse</u> | <u>Beaver</u> | <u>15"</u> | |
| <u>728</u> | <u>Ames</u> | <u>Beaver</u> | <u>15"</u> | |
| 730 | Rose North | Beaver | 42" | 67 |
| 740 | McKnight North | Beaver | 21" | 22 |
| | Suburban Pond | | | |
| --- | Suburban & VanDyke (RWMWD's) | Battle Creek | 102" | |
| 750 | Suburban & WB Ave | Battle Creek | 27" | |
| 760 | Suburban & Hazel | Battle Creek | 54" | |
| | Little Pig's Eye Lake | | | |
| 770 | near fish hatchery | Griffith/Pt. Douglas | 72" | |
| | Pig's Eye Lake | | | |
| 780 | Burlington | Highwood | 66" | |
| <u>784</u> | <u>Winthrop @ Lower Afton</u> | <u>Highwood</u> | <u>30"</u> | |

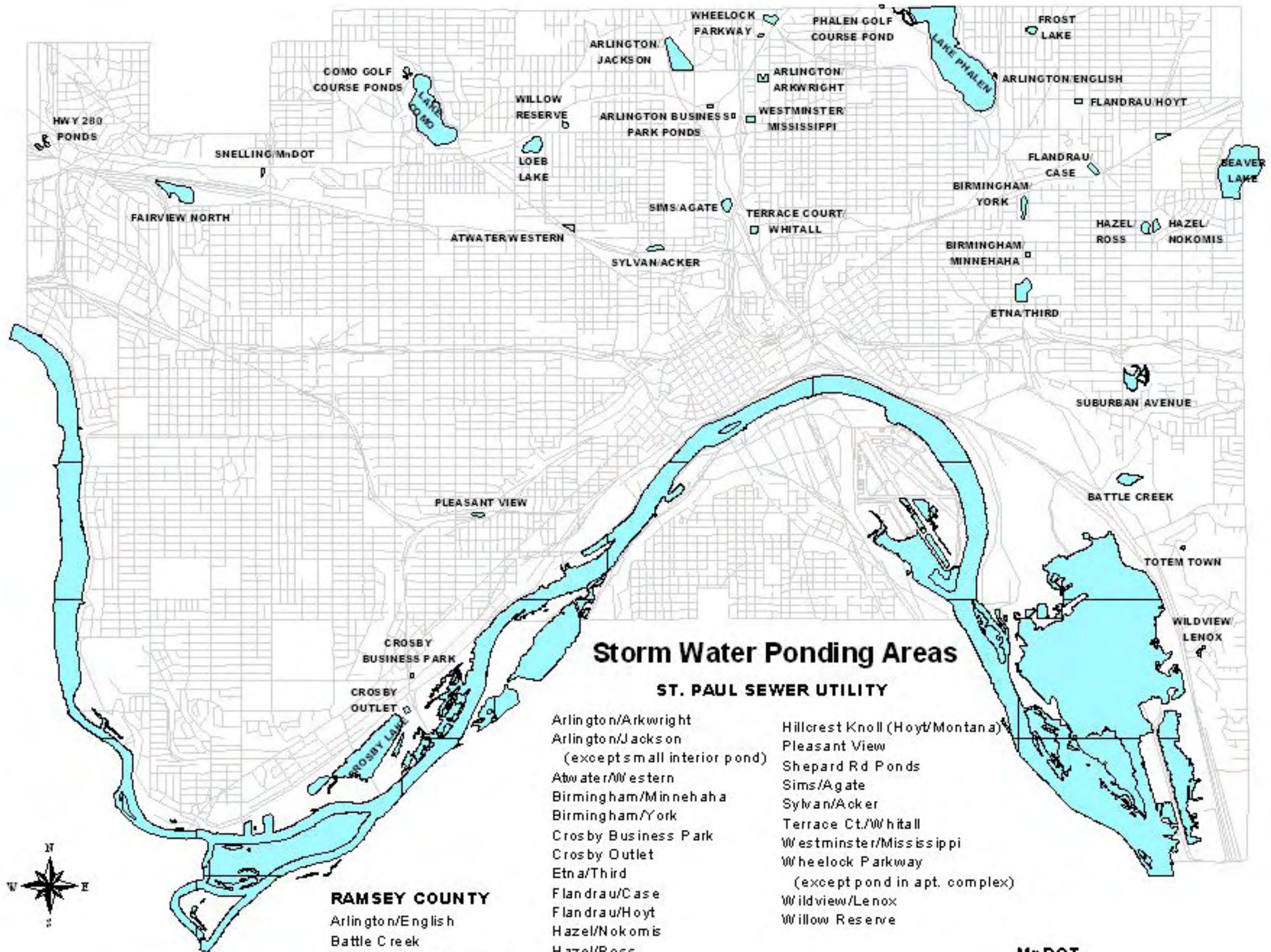
Outfall Inventory

| Outfall | Location | Watershed | Pipe Size | Acres |
|------------|----------------------------------|---------------------|------------------|-------|
| <u>786</u> | <u>Morningside @ Lower Afton</u> | <u>Highwood</u> | <u>18"</u> | |
| 790 | Springside Drive | Highwood | 33" | |
| <u>791</u> | <u>Highwood</u> | <u>Highwood</u> | <u>48"</u> | |
| | Battle Creek | | | |
| 800 | N. Park Drive & Faye | Battle Creek | 33" | |
| <u>808</u> | <u>Sandrilee</u> | <u>Battle Creek</u> | <u>24"</u> | |
| 810 | Ruth | Battle Creek | 42"&73-1/2" arch | |
| <u>812</u> | <u>Warren</u> | <u>Battle Creek</u> | <u>18"</u> | |
| <u>814</u> | <u>Cutler</u> | <u>Battle Creek</u> | <u>24"</u> | |
| <u>816</u> | <u>Nelson</u> | <u>Battle Creek</u> | <u>24"</u> | |
| <u>818</u> | <u>Winthrop & Larry Ho</u> | <u>Battle Creek</u> | <u>30"</u> | |
| 820 | Winthrop & N. Park Dr | Battle Creek | 36" | |
| <u>825</u> | <u>Michael N</u> | <u>Battle Creek</u> | <u>33"</u> | |
| <u>826</u> | <u>Michael S</u> | <u>Battle Creek</u> | <u>30"</u> | |
| 830 | McKnight & N. Park Dr | Battle Creek | 36" | |
| 836 | <u>A Street</u> | <u>Battle Creek</u> | <u>18"</u> | |



Watershed Inventory

| Watershed | WS# | Area (acres) | Population (2000 Census) | Percent Impervious | Runoff Coefficient |
|-------------------------|-----|-----------------|-----------------------------|-----------------------|-----------------------|
| Beaver Lake | 1 | 278 | 2,070 | 31 | 0.33 |
| Belt Line | 2 | 2,882 | 30,994 | 56 | 0.55 |
| Lake Phalen | 3 | 995 | 7,626 | 41 | 0.42 |
| Trout Brook | 4 | 3,959 | 37,665 | 63 | 0.62 |
| Lake Como | 5 | 1,240 | 9,753 | 47 | 0.47 |
| St. Anthony Park | 6 | 2,467 | 13,140 | 70 | 0.68 |
| Phalen Creek | 7 | 1,406 | 18,418 | 64 | 0.62 |
| St. Anthony Hill | 8 | 2,542 | 36,410 | 66 | 0.64 |
| Griffith/Pt. Douglas | 9 | 458 | 5,264 | 63 | 0.61 |
| W. Kittsondale | 10 | 847 | 7,732 | 69 | 0.67 |
| Urban | 11 | 339 | 4,491 | 58 | 0.57 |
| Battle Creek | 12 | 1,089 | 8,201 | 54 | 0.54 |
| Downtown | 13 | 669 | 6,097 | 78 | 0.75 |
| E. Kittsondale | 14 | 1,870 | 18,353 | 64 | 0.62 |
| Mississippi River Blvd. | 15 | 2,373 | 27,251 | 59 | 0.58 |
| Goodrich/Western | 16 | 424 | 5,010 | 64 | 0.63 |
| Pigs Eye | 17 | 2,995 | 913 | 39 | 0.40 |
| Riverview | 18 | 2,658 | 14,860 | 58 | 0.57 |
| Highwood | 19 | 1,139 | 5,216 | 50 | 0.50 |
| W. Seventh | 20 | 450 | 2,543 | 61 | 0.60 |
| Crosby | 21 | 1,446 | 8,804 | 45 | 0.45 |
| Davern | 22 | 1,277 | 6,628 | 56 | 0.55 |
| Hidden Falls | 23 | 237 | 1,263 | 56 | 0.55 |
| Total | | 34,040 | 278,706 | | |



Storm Water Ponding Areas

ST. PAUL SEWER UTILITY

- Arlington/Arkwright
- Arlington/Jackson
(except small interior pond)
- Atwater/Western
- Birmingham/Minnehaha
- Birmingham/York
- Crosby Business Park
- Crosby Outlet
- Etna/Third
- Flandrau/Case
- Flandrau/Hoyt
- Hazel/Nokomis
- Hazel/Ross
- Hillcrest Knoll (Hoyt/Montana)
- Pleasant View
- Shepard Rd Ponds
- Sims/Agate
- Sylvan/Acker
- Terrace Ct./Whitall
- Westminster/Mississippi
- Wheelock Parkway
(except pond in apt. complex)
- Wildview/Lenox
- Willow Reserve

RAMSEY COUNTY

- Arlington/English
- Battle Creek
- Como Golf Course Ponds
- Suburban Avenue
- Totem Town

ST. PAUL PARKS

- Phalen Golf Course Pond

RAILROAD

- Fairview/North

MnDOT

- Hwy. 280
- Snelling/MnDOT



City of Saint Paul
Storm Water Ponding Area Inventory

| Ponding Area | Drainage Area (acres) | Population 2000 Census | Pond Area (acres) | Storage Capacity (Acre-feet) |
|--------------------------|------------------------------|-------------------------------|--------------------------|-------------------------------------|
| Arlington/Arkwright | 302.3 | 4001 | 5 | 20.4 |
| Arlington/Jackson | 699.4 | 6562 | 14.5 | 75.6 |
| Atwater/Western | 127.3 | 1230 | 2.7 | 13.3 |
| Birmingham/Minnehaha | 41.0 | 457 | 0.9 | 2.5 |
| Birmingham/York | 146.5 | 2050 | 2.2 | 9.5 |
| Crosby Business Park | 39.6 | 198 | 1 | 5.52 |
| Crosby Outlet | 866.0 | 6295 | 5.5 | 40.6 |
| Etna/Third | 244.0 | 2457 | 4.7 | 25.1 |
| Flandrau/Case | 95.2 | 1331 | 0.7 | 3 |
| Flandrau/Hoyt | 479.5 | 4582 | 1.9 | 20.8 |
| Hazel/Nokomis | 73.0 | 511 | 2.3 | 6.3 |
| Hazel/Ross | 67.8 | 949 | 4 | 3.8 |
| Pleasant View | 164.5 | 2053 | 2.3 | 14.5 |
| Sims/Agate | 174.6 | 1357 | 5.3 | 12.8 |
| Sylvan/Acker | 376.9 | 3617 | 2.1 | 11.7 |
| Terrace Ct./Whitall | 4.7 | 28 | 0.5 | 0.5 |
| Westminister/Mississippi | 123.4 | 1912 | 2.2 | 10.1 |
| Wheelock Parkway | 19.0 | 265 | 1.3 | 1.7 |
| Wildview/Lenox | 19.3 | 111 | 0.73 | 2.2 |
| Willow Reserve | 372.1 | 3669 | 20.3 | 42.6 |
| Total | 4436.2 | 43633.6 | | |

Drainage area only includes area in St. Paul.

Storage capacity is for a 100 year storm in acre-feet.

Storm Water Ponding Areas by Watershed Area

| | |
|----------------------------------|---|
| Beaver Lake | None |
| Belt Line | Birmingham/Minnehaha Birmingham/York Etna/Third Flandrau/Hoyt Flandrau/Case Hazel/Nokomis Hazel/Ross Hillcrest Knoll (Hoyt/Montana) |
| Lake Phalen | Arlington/English Phalen Golf Course Pond |
| Trout Brook | Arlington/Jackson Arlington/Arkwright Atwater/Western Sims/Agate Sylvan/Acker Terrace Ct./Whitall Westminster/Mississippi Wheelock Parkway Willow Reserve |
| Lake Como | Como Golf Course Ponds |
| St. Anthony Park | Fairview/North Highway 280 Snelling/MnDOT |
| Phalen Creek | None |
| St. Anthony Hill | None |
| Griffith/ Pt. Douglas | None |
| W. Kittsondale | None |
| Urban | None |
| Battle Creek | Battle Creek Suburban Avenue |
| Downtown | None |

| | |
|--------------------------------|---------------------------------------|
| E. Kittsondale | Pleasant View |
| Mississippi River Blvd. | None |
| Goodrich/Western | None |
| Pigs Eye | None |
| Riverview | None |
| Highwood | Totem Town Wildview/Lenox |
| W. Seventh | None |
| Crosby | Crosby Business Park Crosby Outlet |
| Davern | None |
| Hidden Falls | None |

NPDES/SDS PERMITTED FACILITIES IN ST PAUL (Non-storm water discharges)

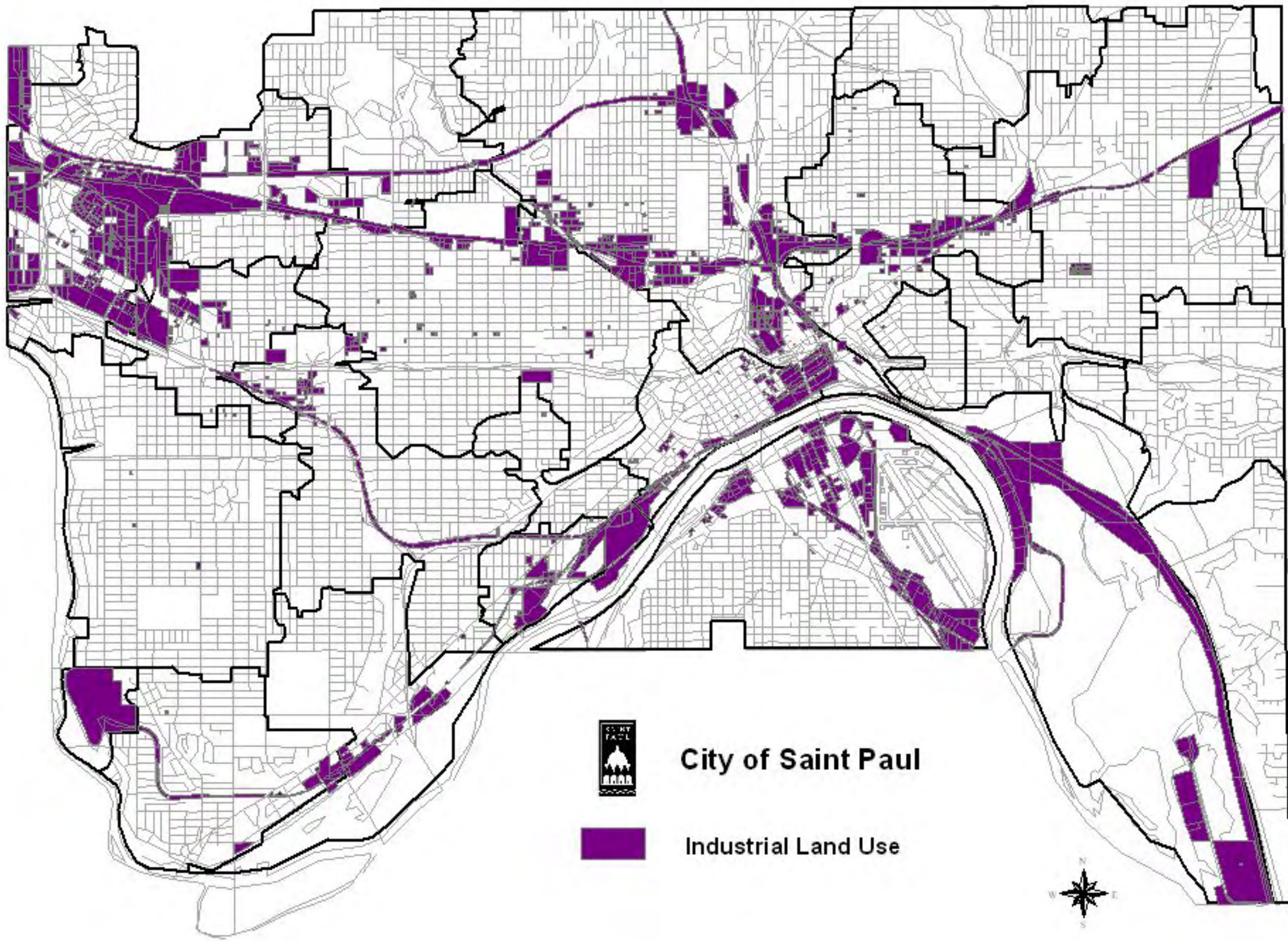
| Permit # | Permittee | Facility Address | Waterbody | Use | Type of Discharge |
|-----------------|--|--|------------------|-------------------------------------|--------------------------|
| MN0062669 | Archdiocese of St. Paul/Minneapolis | 226 Summit Ave. St. Paul, MN 55102 | Miss R | Religious Organization | Industrial |
| MN0053988 | Ashland Chemical Inc. | 395 James Ave. St. Paul, MN 55102 | Miss R | Mixed, Manufac. Liq. Gas Prod. | Industrial |
| MN0058246 | Buckbee Mears | 245 E. 6th St. St. Paul, MN 55101 | Miss R | Plating and Polishing | Industrial |
| MN0059765 | Captain Ken's Foods Inc. | 344 S. Robert St. St. Paul, MN 55107 | Miss R | Canned specialties | Industrial |
| MNG790065 | Conoco Philips Petroleum Co | 1817 Randolph Ave. St. Paul, MN 55105 | Miss. R. | Gasoline Service Stations | Groundwater pumpout |
| MN0000612 | Diamond Products Co. | 310 E. 5th St. St. Paul, MN 55101 | Miss R | Perfumes, cosmetics, toilet prep | Industrial |
| MN0064696 | Flint Hill Resources | P.O. Box 64596 St. Paul, MN 55164 | Miss. R | | Industrial |
| MN0002178 | Ford Motor Co. | 966 S. Miss. River Blvd. St. Paul, MN 55116 | Miss. R | Motor vehicles & car bodies | Industrial |
| MNG255013 | Gross-Given Mfg. Co. | 75 W. Plato Blvd. St. Paul, MN 55107 | Miss R | Automatic merchandising machine | Noncontact cooling water |
| MNG250041 | Mann Theatres Grandview | 1830 Grand Ave. St. Paul, MN 55105 | Miss R | Motion picture theater | Noncontact cooling water |
| MNG250040 | Mann Theatres Highland | 760 S. Cleveland St. Paul, MN 55116 | Miss R | Motion picture theater | Noncontact cooling water |

NPDES/SDS PERMITTED FACILITIES IN ST PAUL (Non-storm water discharges)

| Permit # | Permittee | Facility Address | Waterbody | Use | Type of Discharge |
|-----------------|--|--|------------------|-------------------------------------|--------------------------|
| MN0025470 | Metro Council | 230 E. 5th St. St. Paul, MN 55102 | Miss R | H2O, sew, pipe & com. & powr | Domestic |
| MNG790115 | Metro Council Metro Transit | 400 Snelling Ave. N. St. Paul, MN 55114 | Miss R | | Groundwater pumpout |
| MN0054640 | Minnesota Brewing Co./ Gopher State | 882 W. 7th St. St. Paul, MN 55102 | Miss. R | Malt beverages | Industrial |
| MN0053571 | NSP High Bridge | 501 Shepard Rd. St. Paul, MN 55102 | Miss. R | Heavy construction, nec. | Dredging |
| MN000084 | NSP High Bridge Plant | 501 Shepard Rd St. Paul, MN 55102 | Miss. R | Electrical services | Industrial |
| MNG255066 | Pearson Candy Co. | 2140 W. 7th St. St. Paul, MN 55116 | Miss R | Salted & roasted nuts & seeds | Noncontact cooling water |
| MNG990031 | Peavey Red Rock Term. | 1061 Red Rock Rd. St. Paul, MN 55119 | Miss. R. | | Dredging |
| MNG250100 | St. Paul Pioneer Press | 345 Cedar St. St. Paul, MN 55101 | Miss R | Newspaper: publishing & print | Noncontact cooling water |
| MN0054577 | St. Paul Pioneer Press | #1 Ridder Circle St. Paul, MN 55107 | Miss R | Newspaper: publishing & print | Industrial |
| MN0054739 | St. Paul Port Authority | 1500 Energy Pk. Dr. St. Paul, MN 55108 | Miss R | Steam & air conditioning sup | Industrial |
| MNG250072 | St. Paul River Centre | 143 W. 4th St. St. Paul, MN 55102 | Miss R | Prof. Sports clubs and promoters | Noncontact cooling water |

NPDES/SDS PERMITTED FACILITIES IN ST PAUL (Non-storm water discharges)

| Permit # | Permittee | Facility Address | Waterbody | Use | Type of Discharge |
|-----------------|---|--|------------------|--|--------------------------|
| MN0045829 | St. Paul Water Utility | 1900 N. Rice St. Roseville, MN 55113 | Troutbrook | Water supply | Water Treatment |
| MN0002968 | United Hospitals Inc. | 333 N. Smith Ave. St. Paul, MN 55102 | Miss R | Gen. medical/ surgical hospital | Industrial |
| MN0050580 | USCOE River dredging Construction & Ops. | 190 5th St. E. St. Paul, MN 55101 | Miss. R | Heavy construction, nec. | River dredging |
| MN0066303 | US Bank National Assoc. | 60 Livingston St. S. St. Paul, MN 55107 | Miss R | | Industrial |
| MN0059277 | Versa Companies | 867 Forest St. St. Paul, MN 55106 | Miss R | Gray iron foundries | Industrial |
| MN0048984 | Waldorf Corp. | 2250 Wabash Ave. St. Paul, MN 55114 | Miss R | Corrugated/solid fiber boxes | Industrial |
| MN0062031 | St. Paul Commercial- Galtier | 175 E. 5th St. St. Paul, MN 55101 | Miss R | Operators of apartment buildings | Industrial |
| MN0057606 | Zeller-World Trade | 30 E. 7th St. St. Paul, MN 55101 | Miss R | Operators of nonresidential buildings | Industrial |
| MN0049816 | 3M St. Paul | Building 21-2W-05 | Miss R | Surgical & medical instruments | Industrial |
| MNG255045 | 528 Partnership LLP | 345 E. Plato Blvd. St. Paul, MN 55107 | Miss. R | Commercial print, Lithographic | Noncontact cooling water |

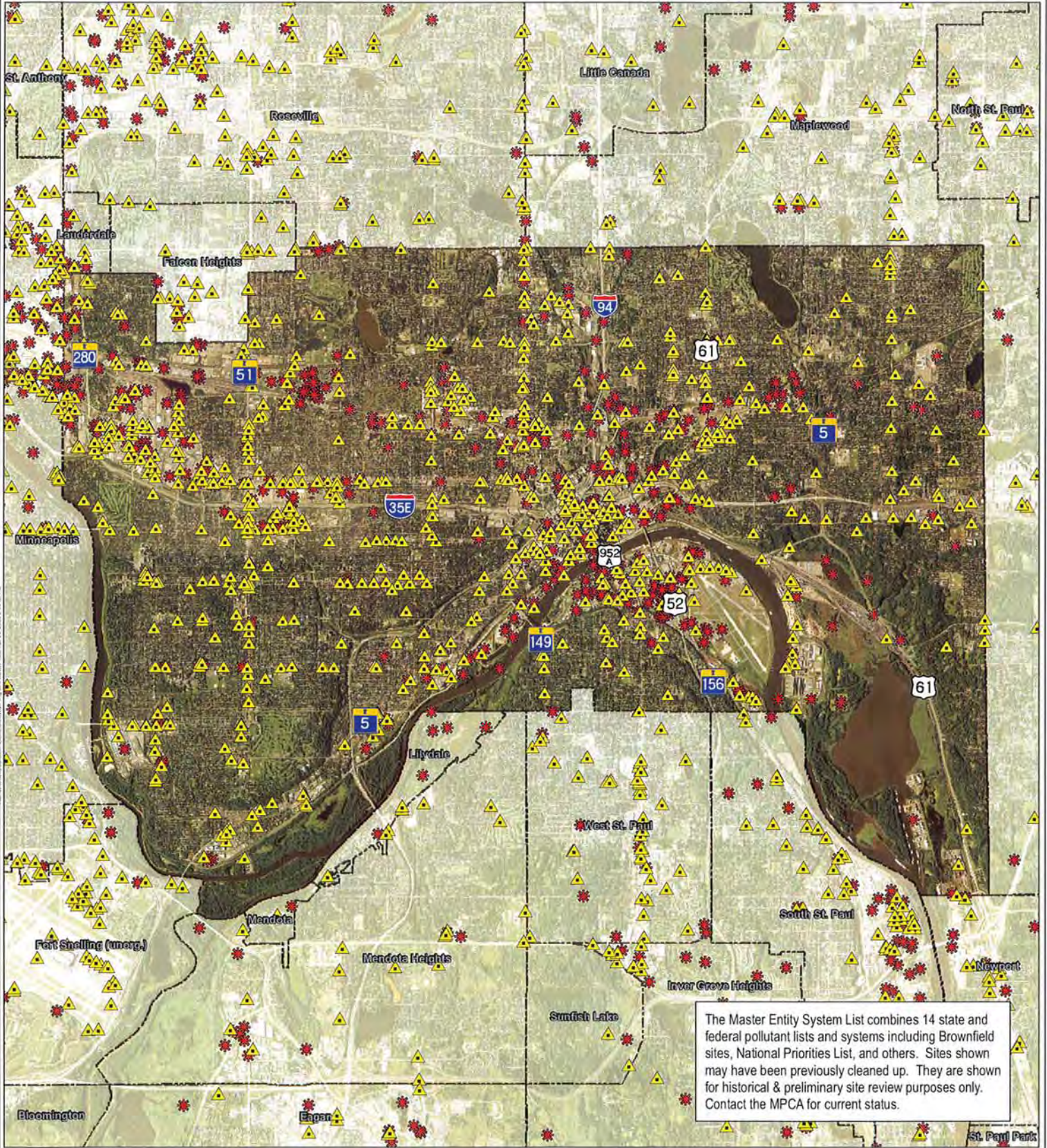
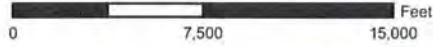
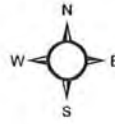




Pollutant Source Locations
 Stormwater Modeling
 Volume Reduction Inventory
 2010 RSVP Stormwater Study
 City of St. Paul, MN

Legend

- Leaking Underground Storage Tank
- Pollution Source Locations



The Master Entity System List combines 14 state and federal pollutant lists and systems including Brownfield sites, National Priorities List, and others. Sites shown may have been previously cleaned up. They are shown for historical & preliminary site review purposes only. Contact the MPCA for current status.



Form Information

This form is to be completed annually by MS4s in order to track the completed BMP activities and to calculate the cumulative loading reduction for specific pollutants of concern associated with each applicable WLA. Navigate through this form using the tabs at the bottom of the page. All information is collected in accordance with Part III.E of the [MS4 Permit](#).

- Green** Tabs (REQUIRED): user-input worksheet
- Blue** Tabs (hidden*): optional user-input worksheet
- Yellow** Tabs (hidden*): reference worksheet

*Reveal hidden spreadsheet tabs by navigating to Home->Cells->Format->Hide & Unhide->Unhide Sheet

Please refer to the [Guidance for Completing the TMDL Reporting Form](#) in the Minnesota Stormwater Manual for additional assistance and instructions. Sections of the guidance are hyperlinked throughout this spreadsheet.

User Information

Date Updated: 6/8/2016

Permittee: Capitol Region Watershed District

Permit ID: MS400206

Contact Name: Anna Eleria

Contact Phone: 651-644-8888

Contact email: anna@capitolregionwd.org

Mailing address: 1410 Energy Park Dr., Suite 4, Saint Paul, MN 55108

| Reporting Year | Data Entry Date | Entered by | Notes |
|----------------|-----------------|-------------|-------|
| 2014 | 6/8/2015 | Anna Eleria | |
| 2015 | 6/8/2016 | Anna Eleria | |
| | | | |
| | | | |
| | | | |
| | | | |

| BMP - Activities Completed Spreadsheet | | | | | | | | | | | | | | Required: Place an "X" in a cell if the BMP applies to the TMDL shown in the column | |
|--|-----------------------------------|----------|----------------|-------------------|---|-------------------------------------|----------|-----------------------------|-------------------------------|--|-----------------------------|--|-------------------------------|---|------------------------|
| For MPCA use only | | | Required | | Optional | Required | | | | | | Optional | | Como Lake: Excess Nutrients TMDL | |
| Entry ID | Permittee | MS4 ID | Reporting year | BMP/Activity | BMP Description | Location and ID Information Needed? | BMP ID | y-coord (lat, e.g. 44.9866) | x-coord (long, e.g. -93.2581) | Coordinate system (e.g. lat-long, UTM) | Who owns this BMP/activity? | If applicable, name other owner(s) | Year when BMP was implemented | Note(s) | Como Lake - Phosphorus |
| MS400206-1 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 04-001CF | 44.98149843 | -93.16557527 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Pascal Project - Asbury RG South | X |
| MS400206-2 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 04-001CF | 44.98165653 | -93.16559136 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Pascal Project - Asbury RG North | X |
| MS400206-3 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 04-001CF | 44.98260893 | -93.15949202 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Pascal Project - Frankson McKinley RG | X |
| MS400206-4 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 04-001CF | 44.98445802 | -93.16066146 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Pascal Project - Arlington McKinley RG | X |
| MS400206-5 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 04-001CF | 44.98545969 | -93.1616807 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Pascal Project - Pascal RG South | X |
| MS400206-6 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 04-001CF | 44.98564181 | -93.16172361 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Pascal Project - Pascal RG Middle | X |
| MS400206-7 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 04-001CF | 44.98581128 | -93.16169143 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Pascal Project - Pascal RG North | X |
| MS400206-8 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 04-001CF | 44.98154397 | -93.15628409 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Pascal Project - Hamline Midway RG | X |
| MS400206-9 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Underground infiltration | Complete columns H through K | 04-001CF | 44.98437455 | -93.15614462 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Pascal Project - Como Golf Course Pond | X |
| MS400206-10 | Capitol Region Watershed District | MS400206 | 2014 | Constructed_basin | Wet pond/wet detention pond | Complete columns H through K | 04-001CF | 44.98740987 | -93.15284014 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2008 | Como Regional Pond | X |
| MS400206-11 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 04-001CF | 44.98637029 | -93.16341877 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Arlington-Hamline Facility | X |
| MS400206-12 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 04-001CF | 44.98637788 | -93.16273212 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Infiltration Trench 1 | X |
| MS400206-13 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 04-001CF | 44.98638546 | -93.16115499 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Infiltration Trench 2 | X |
| MS400206-14 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 04-001CF | 44.98638799 | -93.1598568 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Infiltration Trench 3 | X |
| MS400206-15 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 04-001CF | 44.98452632 | -93.1650281 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Infiltration Trench 4 | X |
| MS400206-16 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 04-001CF | 44.98455667 | -93.16372991 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Infiltration Trench 5 | X |
| MS400206-17 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 04-001CF | 44.9845592 | -93.16273749 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Infiltration Trench 6 | X |
| MS400206-18 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 04-001CF | 44.98459461 | -93.15859079 | Lat-long | Permittee (you) | CRWD, Roseville, Falcon Heights, Saint Paul, Ramsey County | 2007 | Infiltration Trench 7 | X |
| MS400206-19 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration basin | Complete columns H through K | 08-008 | 44.99262619 | -93.15017939 | Lat-long | Other | Rainbow Foods, Roseville | 2008 | Roseville Rainbow Foods - CRWD Permit Project | X |

| Entry ID | Permittee | MS4 ID | Reporting year | BMP/Activity | BMP Description | Location and ID Information Needed? | BMP ID | y-coord (lat, e.g. 44.9866) | x-coord (long, e.g. -93.2581) | Coordinate system (e.g. lat-long, UTM) | Who owns this BMP/activity? | If applicable, name other owner(s) | Year when BMP was implemented | Note(s) | Como Lake - Phosphorus |
|-------------|-----------------------------------|----------|----------------|--|---|-------------------------------------|--------|-----------------------------|-------------------------------|--|-----------------------------|--|-------------------------------|--|------------------------|
| MS400206-20 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration basin | Complete columns H through K | 07-020 | 44.98323563 | -93.15341681 | Lat-long | Other MS4 permittee | Saint Paul | 2007 | Como Zoo Polar Bear Exhibit - CRWD Permit Project | X |
| MS400206-21 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration basin | Complete columns H through K | 09-009 | 44.97803977 | -93.13554525 | Lat-long | Other MS4 permittee | Saint Paul | 2009 | Victoria Street IB #1 - CRWD Permit Project | X |
| MS400206-22 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration basin | Complete columns H through K | 09-009 | 44.97785455 | -93.13572764 | Lat-long | Other MS4 permittee | Saint Paul | 2009 | Victoria Street IB #2 - CRWD Permit Project | X |
| MS400206-23 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 10-014 | 44.96975318 | -93.1415534 | Lat-long | Other MS4 permittee | Saint Paul | 2010 | Front-Victoria RSVP IT #1 - CRWD Permit Project | X |
| MS400206-24 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 10-014 | 44.96890305 | -93.14148903 | Lat-long | Other MS4 permittee | Saint Paul | 2010 | Front-Victoria RSVP IT #2 - CRWD Permit Project | X |
| MS400206-25 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Infiltration trench | Complete columns H through K | 10-014 | 44.97310806 | -93.13648939 | Lat-long | Other MS4 permittee | Saint Paul | 2010 | Front-Victoria RSVP IT #3 - CRWD Permit Project | X |
| MS400206-26 | Capitol Region Watershed District | MS400206 | 2014 | Filter | Permeable pavement with underdrain | Complete columns H through K | 10-014 | 44.97304126 | -93.13646793 | Lat-long | Other MS4 permittee | Saint Paul | 2010 | Victoria RSVP Permeable Pavement - CRWD Permit Project | X |
| MS400206-27 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Underground infiltration | Complete columns H through K | 11-018 | 44.98169511 | -93.1533578 | Lat-long | Other MS4 permittee | Saint Paul | 2011 | Como Zoo Gorilla Forest - CRWD Permit Project | X |
| MS400206-28 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Underground infiltration | Complete columns H through K | 12-002 | 44.99175515 | -93.14721823 | Lat-long | Other | Walgreens, Saint Paul | 2012 | Larpenteur Walgreens - CRWD Permit | X |
| MS400206-29 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 10-020 | 44.9755535 | -93.14995944 | Lat-long | Other MS4 permittee | Saint Paul | 2010 | Como Pool RG #1 - CRWD Permit Project | X |
| MS400206-30 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 10-020 | 44.97581686 | -93.14996481 | Lat-long | Other MS4 permittee | Saint Paul | 2010 | Como Pool RG #2 - CRWD Permit Project | X |
| MS400206-31 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 10-020 | 44.97582445 | -93.14961612 | Lat-long | Other MS4 permittee | Saint Paul | 2010 | Como Pool RG #3 - CRWD Permit Project | X |
| MS400206-32 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 10-020 | 44.97562712 | -93.14922988 | Lat-long | Other MS4 permittee | Saint Paul | 2010 | Como Pool RG #4 - CRWD Permit Project | X |
| MS400206-33 | Capitol Region Watershed District | MS400206 | 2014 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 10-020 | 44.97612424 | -93.14845204 | Lat-long | Other MS4 permittee | Saint Paul | 2010 | Como Pool RG #5 - CRWD Permit Project | X |
| MS400206-34 | Capitol Region Watershed District | MS400206 | 2014 | Supplemental_public_education_outreach | Publications | No ID information needed | NA | NA | NA | NA | Other MS4 permittee | Roseville | | Roseville stormwater management webpage updates | X |
| MS400206-35 | Capitol Region Watershed District | MS400206 | 2014 | Supplemental_public_education_outreach | Workshops/Clinics | No ID information needed | NA | NA | NA | NA | Other MS4 permittee | Saint Paul, CRWD | | Como Lake Spring Cleanup | X |
| MS400206-36 | Capitol Region Watershed District | MS400206 | 2014 | Improved_lawn_turf_vegetation_soil_practices | Yard waste collection | No ID information needed | NA | NA | NA | NA | Other MS4 permittee | CRWD, Saint Paul | | Como Subwatershed Neighborhood Leaf Litter Cleanups | X |
| MS400206-37 | Capitol Region Watershed District | MS400206 | 2014 | BMP_improvement_enhancement_retrofitting | Clean and repair stormwater structures | No ID information needed | NA | NA | NA | NA | Other MS4 permittee | Ramsey County, Saint Paul | | Como Golf Course Maintenance Dredging | X |
| MS400206-38 | Capitol Region Watershed District | MS400206 | 2014 | BMP_improvement_enhancement_retrofitting | | No ID information needed | NA | NA | NA | NA | Other MS4 permittee | Ramsey County, Saint Paul | | Como Lake Aeration System | X |
| MS400206-39 | Capitol Region Watershed District | MS400206 | 2014 | Supplemental_street_sweeping | Street sweeping | No ID information needed | NA | NA | NA | NA | Other MS4 permittee | Saint Paul, Roseville, Falcon Heights, Ramsey County | | Municipal street sweeping | X |
| MS400206-40 | Capitol Region Watershed District | MS400206 | 2014 | BMP_improvement_enhancement_retrofitting | BMP maintenance | No ID information needed | NA | NA | NA | NA | Permittee (you) | CRWD, Saint Paul, Roseville, Falcon Heights, Ramsey County | | Catch basin cleaning | X |

| Entry ID | Permittee | MS4 ID | Reporting year | BMP/Activity | BMP Description | Location and ID Information Needed? | BMP ID | y-coord (lat, e.g. 44.9866) | x-coord (long, e.g. -93.2581) | Coordinate system (e.g. lat-long, UTM) | Who owns this BMP/activity? | If applicable, name other owner(s) | Year when BMP was implemented | Note(s) | Como Lake - Phosphorus |
|-------------|-----------------------------------|----------|----------------|--|---|-------------------------------------|--------|-----------------------------|-------------------------------|--|-----------------------------|--|-------------------------------|---|------------------------|
| MS400206-41 | Capitol Region Watershed District | MS400206 | 2014 | BMP_improvement_enhancement_retrofitting | Clean and repair stormwater structures | No ID information needed | NA | NA | NA | NA | Permittee (you) | CRWD, Saint Paul, Roseville, Falcon Heights, Ramsey County | | Stormwater BMP maintenance | X |
| MS400206-42 | Capitol Region Watershed District | MS400206 | 2014 | Supplemental_public_education_outreach | Presentations | No ID information needed | NA | NA | NA | NA | Permittee (you) | CRWD, Saint Paul, Roseville, Falcon Heights, Ramsey County | | Public education activities | X |
| MS400206-43 | Capitol Region Watershed District | MS400206 | 2014 | Supplemental_employee_education_training | Staff training | No ID information needed | NA | NA | NA | NA | Permittee (you) | CRWD, Saint Paul, Roseville, Falcon Heights, Ramsey County | | Municipal training on winter road, parking lot and sidewalk maintenance | X |
| MS400206-44 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Underground infiltration | Complete columns H through K | 15-181 | 44.992739 | -93.139299 | Lat-long | Other MS4 permittee | Roseville | 2015 | 36" underground infiltration trench | x |
| MS400206-45 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | 15-182 | 44.992147 | -93.139584 | Lat-long | Other MS4 permittee | Roseville | 2015 | Raingarden at Church | x |
| MS400206-46 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Underground infiltration | Complete columns H through K | | 44.98169511 | -93.1533578 | Lat-long | Other MS4 permittee | Saint Paul | 2011 | Como Gorilla Subsurface Infiltration Pipe Gallery | |
| MS400206-47 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Underground infiltration | Complete columns H through K | | 44.98169511 | -93.1533578 | Lat-long | Other MS4 permittee | Saint Paul | 2011 | Como Gorilla 2nd Subsurface Infiltration Pipe Gallery | |
| MS400206-48 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | | 44.9757004 | -93.1442032 | Lat-long | Other MS4 permittee | Private | 2013 | Twin Cities German Immersion School Rain Garden | |
| MS400206-49 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | | 44.9872017 | -93.1564026 | Lat-long | Other MS4 permittee | Saint Paul Public Schools | 2012 | Chelsea Heights Rain Garden | |
| MS400206-50 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | | 44.986599 | -93.1569977 | Lat-long | Other MS4 permittee | Private | 2014 | Como Language School Rain Garden | |
| MS400206-51 | | | | | | | | | | | | | | | |
| MS400206-52 | | | | | | | | | | | | | | | |
| MS400206-53 | | | | | | | | | | | | | | | |
| MS400206-54 | | | | | | | | | | | | | | | |
| MS400206-55 | | | | | | | | | | | | | | | |
| MS400206-56 | | | | | | | | | | | | | | | |
| MS400206-57 | | | | | | | | | | | | | | | |
| MS400206-58 | Capitol Region Watershed District | MS400206 | 2015 | Manufactured_device | Hydrodynamic separator | No ID information needed | NA | 44.9789009 | -93.153801 | Lat-long | Other MS4 permittee | Saint Paul | | W Picnic lot Stormceptor | |
| MS400206-59 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Underground infiltration | Complete columns H through K | | 44.9789009 | -93.153801 | Lat-long | Other MS4 permittee | Saint Paul | | W Picnic lot Drain (Dry Well) | |
| MS400206-60 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | | 44.9812012 | -93.1547012 | Lat-long | Other MS4 permittee | Saint Paul | | Como Amusement Park Rain Garden | |
| MS400206-61 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Bioretention with no underdrain (rain garden) | Complete columns H through K | | 44.9822998 | -93.1405029 | Lat-long | Other MS4 permittee | Saint Paul | | Lakeview Rain Garden East of Lake | |
| MS400206-62 | Capitol Region Watershed District | MS400206 | 2015 | Swale_or_strip | Grass channel/waterway | Complete columns H through K | | 44.9864006 | -93.1451035 | Lat-long | Other MS4 permittee | Saint Paul | | Nebraska Ave W swale | |
| MS400206-63 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Underground infiltration | Complete columns H through K | | 44.9803009 | -93.1514969 | Lat-long | Other MS4 permittee | Saint Paul | | Palm Lot Stormwater Recharge | |
| MS400206-64 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Underground infiltration | Complete columns H through K | | 44.9752007 | -93.1524963 | Lat-long | Other MS4 permittee | Saint Paul | 2006 | McMurray Soccer Field 1 | |
| MS400206-65 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Underground infiltration | Complete columns H through K | | 44.9748993 | -93.1504974 | Lat-long | Other MS4 permittee | Saint Paul | 2006 | McMurray Soccer Field 2 | |

| Entry ID | Permittee | MS4 ID | Reporting year | BMP/Activity | BMP Description | Location and ID Information Needed? | BMP ID | y-coord (lat, e.g. 44.9866) | x-coord (long, e.g. -93.2581) | Coordinate system (e.g. lat-long, UTM) | Who owns this BMP/activity? | If applicable, name other owner(s) | Year when BMP was implemented | Note(s) | Como Lake - Phosphorus |
|--------------|-----------------------------------|----------|----------------|--------------|--------------------------|-------------------------------------|--------|-----------------------------|-------------------------------|--|-----------------------------|------------------------------------|-------------------------------|----------------------------------|------------------------|
| MS400206-66 | Capitol Region Watershed District | MS400206 | 2015 | Infiltrator | Underground infiltration | Complete columns H through K | | 44.9742012 | -93.1520996 | Lat-long | Other MS4 permittee | Saint Paul | 2006 | McMurray Soccer Field 3 | |
| MS400206-67 | Capitol Region Watershed District | MS400206 | 2015 | Filter | Underground sand filter | Complete columns H through K | | 44.9782982 | -93.1335983 | Lat-long | Other MS4 permittee | Saint Paul | 2013 | West Como Park Elementary School | |
| MS400206-68 | Capitol Region Watershed District | MS400206 | 2015 | Filter | Underground sand filter | Complete columns H through K | | 44.9780998 | -93.1340027 | Lat-long | Other MS4 permittee | Saint Paul | 2013 | Dock Como Park Elementary School | |
| MS400206-69 | Capitol Region Watershed District | MS400206 | 2015 | Filter | Underground sand filter | Complete columns H through K | | 44.9821014 | -93.1502991 | Lat-long | Other MS4 permittee | Saint Paul | | Japanese Garden | |
| MS400206-70 | | | | | | | | | | | | | | | |
| MS400206-71 | | | | | | | | | | | | | | | |
| MS400206-72 | | | | | | | | | | | | | | | |
| MS400206-73 | | | | | | | | | | | | | | | |
| MS400206-74 | | | | | | | | | | | | | | | |
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| MS400206-76 | | | | | | | | | | | | | | | |
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| MS400206-136 | | | | | | | | | | | | | | | |
| MS400206-137 | | | | | | | | | | | | | | | |
| MS400206-138 | | | | | | | | | | | | | | | |

Cumulative Reductions Spreadsheet

| Category 1: Summary of quantitative reductions (Annual Pollutant Load Reduction). | | | | | | | | | | | Optional | |
|---|----------|------------------------|----------------|------|------|------|------|------|------|------|--------------------|----------------------------|
| Permittee | MS4 ID | TMDL project | Units | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Calculation method | Notes |
| Capitol Region Watershed District | MS400206 | Como Lake - Phosphorus | pounds reduced | 140 | 187 | | | | | | P8, WinSLAMM, | Due to refined modeling of |
| Category 2: Summary of qualitative reductions (# of BMPs). | | | | | | | | | | | Optional | |
| Permittee | MS4 ID | TMDL project | | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Notes | |
| Capitol Region Watershed District | MS400206 | Como Lake - Phosphorus | | 24 | 24 | | | | | | | |

Non-implemented activities (BMP Inventory)

Place an "X" in a cell if the activity applies to the TMDL shown in the column

| <u>Permittee</u> | <u>MS4 ID</u> | <u>BMP description</u> | <u>Status</u> | <u>Reporting year</u> | <u>Notes (Optional)</u> | <u>Como Lake - Phosphorus</u> |
|-----------------------------------|---------------|--|--------------------|-----------------------|--|-------------------------------|
| Capitol Region Watershed District | MS400206 | Gotfried's Pit Improvement Project | Discontinued | 2014 | Construction was completed in 2012, however, this project provided primarily flooding reduction benefits | |
| Capitol Region Watershed District | MS400206 | Roselawn Ave. Street Reconstruction Project | Under construction | 2015 | Construction completed in 2010, however, BMP performance not yet estimated. | x |
| Capitol Region Watershed District | MS400206 | Falcon Heights Street Reconstruction Project | Under construction | 2015 | Construction completed in 2014, however, BMP performance not yet estimated. | x |
| Capitol Region Watershed District | MS400206 | Curtis Pond Stormwater Improvement Project | Under construction | 2015 | Construction completed in 2014, however, BMP performance not yet estimated. | x |
| Capitol Region Watershed District | MS400206 | Gotfried's Pit Subwatershed Feasibility Study | Planned | 2018 | Roseville | x |
| Capitol Region Watershed District | MS400206 | Roseville public education on snow removal | Planned | 2015 | Roseville | x |
| Capitol Region Watershed District | MS400206 | Roseville Design Standards Review and Revisions | Planned | 2015 | Roseville | x |
| Capitol Region Watershed District | MS400206 | Roseville Public Education Partnerships | Planned | 2016 | Roseville | x |
| Capitol Region Watershed District | MS400206 | Roseville Parks Renewal Program - Stormwater Improvements | Planned | 2016 | Roseville | x |
| Capitol Region Watershed District | MS400206 | County Road Maintenance Program - Drainage Improvements | Planned | 2015 | Ramsey County | x |
| Capitol Region Watershed District | MS400206 | County 5-Year Transportation Improvement Program - Stormwater BMPs | Planned | 2015 | Ramsey County | x |
| Capitol Region Watershed District | MS400206 | | | | | |
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| Capitol Region Watershed District | MS400206 | | | | | |

Provide an up-dated narrative describing any adaptive management strategies used (including projected dates) for

CRWD, Saint Paul, Roseville, Falcon Heights, and Ramsey County are working together to implement cost-effective stormwater best management practices to achieve the categorical wasteload allocation for phosphorus in Como Lake. As reported, CRWD and its partners have achieved 50% of its load reduction goal. There are number of recent completed projects that will be reported next year that shall show continued progress towards achieving the TMDL goal for Como Lake. The partners are conducting subwatershed feasibility studies and other efforts to identify future opportunities for implementing stormwater BMPs. The partners are also conducting an in-depth inventory of existing BMPs constructed in the Como Park area that will be included in next year's TMDL report.