

# 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.

## **MS4 Permit Coordinator**

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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, 12<sup>th</sup> 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 7<sup>th</sup>, East 7<sup>th</sup>, 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)**

<b>Class</b>	<b>Spring/Summer</b>	<b>Fall</b>
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**

	<b>Jan to March</b>	<b>Nov to Dec</b>	<b>Total</b>
<b>Salt</b> (tons)	4,250	3,144	7,394
<b>Sand</b> (tons)	152	0	152
<b>Treated Salt</b> (tons)	3,445	28	3,473
<b>Brine</b> (gallons)	35,488	20,000	55,488
<b>Brine with Mg</b> (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](http://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



<b>Budget</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Storm Sewer Projects</b>						
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
	<b>\$2,990,000</b>	<b>\$3,549,800</b>	<b>\$3,610,796</b>	<b>\$3,673,012</b>	<b>\$3,736,472</b>	<b>\$3,801,202</b>
<b>Storm Sewer Maintenance</b>						
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
	<b>\$1,263,678</b>	<b>\$1,288,952</b>	<b>\$1,314,731</b>	<b>\$1,341,025</b>	<b>\$1,367,846</b>	<b>\$1,395,203</b>
<b>Stormwater Modeling &amp; Monitoring</b>						
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
	<b>\$240,793</b>	<b>\$341,994</b>	<b>\$348,834</b>	<b>\$355,811</b>	<b>\$362,927</b>	<b>\$370,185</b>
<b>Street Maintenance</b>						
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
	<b>\$3,194,254</b>	<b>\$3,258,139</b>	<b>\$3,323,302</b>	<b>\$3,389,768</b>	<b>\$3,457,563</b>	<b>\$3,526,715</b>
<b>Public Education Program</b>						
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
	<b>\$68,845</b>	<b>\$74,425</b>	<b>\$75,704</b>	<b>\$77,218</b>	<b>\$78,762</b>	<b>\$80,337</b>
<b>Total Budget</b>	<b>\$7,757,570</b>	<b>\$8,513,310</b>	<b>\$8,673,366</b>	<b>\$8,836,833</b>	<b>\$9,003,570</b>	<b>\$9,173,641</b>

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](http://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 2<sup>nd</sup> inspection of site after compliance date
  - 2<sup>nd</sup> 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 3<sup>rd</sup> inspection of site after compliance date
  - 3<sup>rd</sup> 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.



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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.

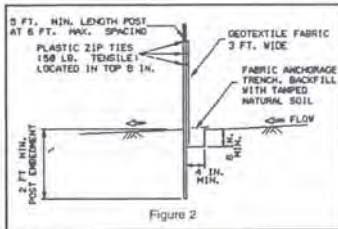


Erosion and sediment control devices are **REQUIRED** for any utility construction or grading project that will result in significant land disturbing activity in the public right-of-way.

- 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](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

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## 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

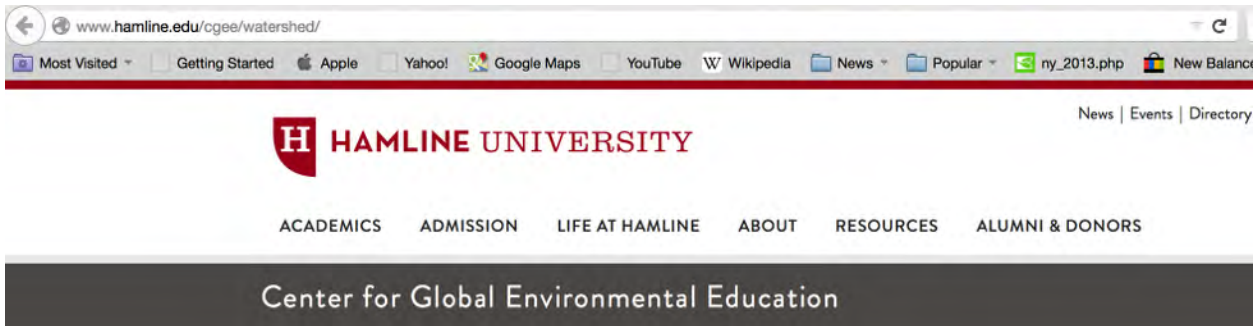
January	Nancy Lange, Public Utilities Commission	The Energy-Water Nexus
February	Alicia Uzarek, Friends of the Mississippi River	The Blue Star Award Program for Cities
March	Leslie Yetka, U of M Arboretum	The Arboretum Red Barn Site
April	April Rust, Minnesota Department of Natural Resources	Aquatic 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](http://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: [jl Larson25@hamline.edu](mailto:jl Larson25@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](mailto:watershedpartners@listserv.hamline.edu). If you would like to send and receive listserv emails, send a request to Jana Larson: [jl Larson25@hamline.edu](mailto: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/StormDrainGoalie](http://www.facebook.com/StormDrainGoalie)

**PROTECT LAKES & RIVERS**

**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

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### 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](http://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](mailto:jl Larson25@hamline.edu). A request for support and invoice are available on the Watershed Partners website: [www.hamline.edu/education/cgee/wsp-membershipinfo/](http://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).

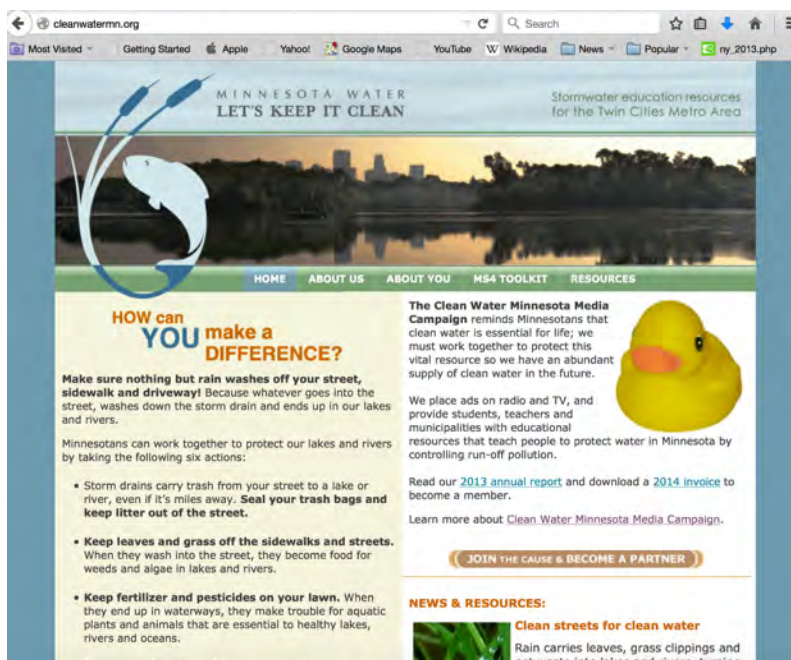


## **Distribution of "Fowl Water" and "Plop" DVDs**



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.

## [www.cleanwatermn.org](http://www.cleanwatermn.org)



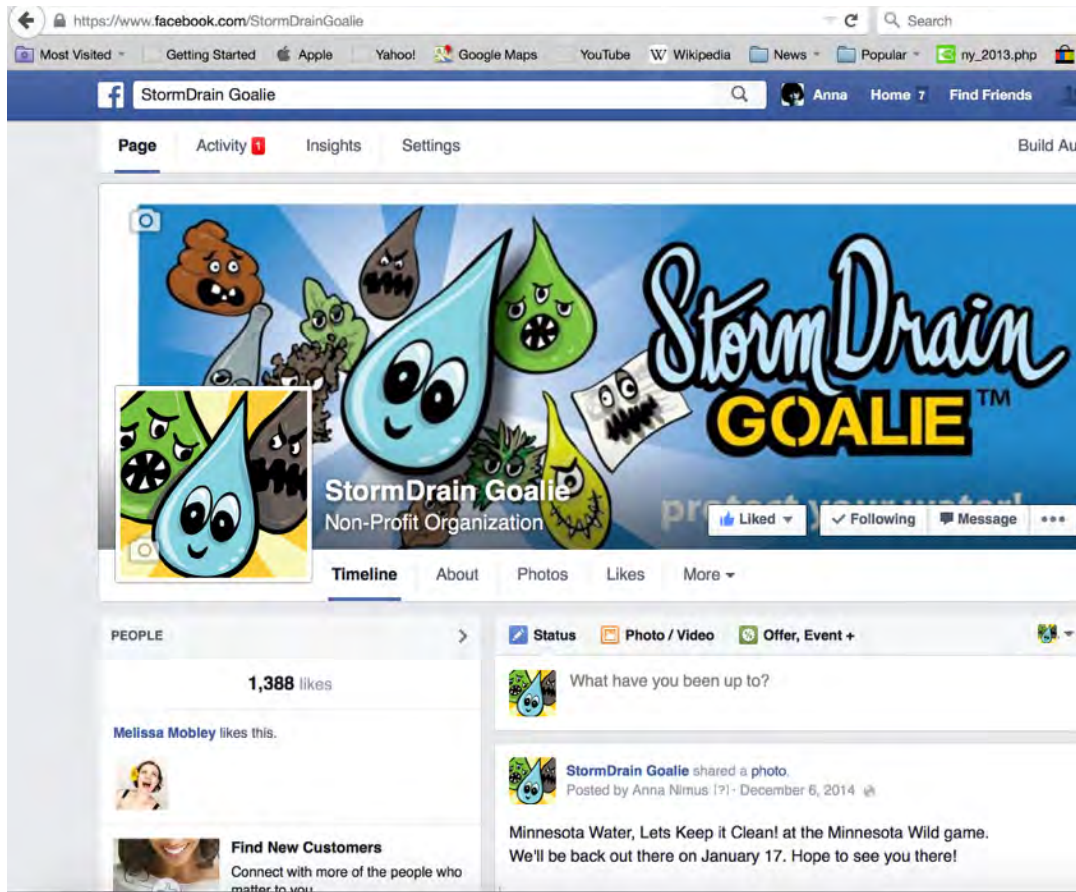
The Clean Water MN website launched in 2005. Though we plan to update this site in the coming year or so, it is still a functioning resource for clean water educators.

### **Resources most frequently accessed on cleanwatermn.org:**

- [Minnesota MS4 Toolkit](http://cleanwatermn.org/MS4-Toolkit.aspx): 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](http://cleanwatermn.org/getdoc/c3507554-5c63-4127-b6c3-d42923afd7d2/Doc-Upload.aspx): 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
<b>Total Revenue</b>	<b>\$84,800.00</b>	<b>\$74,227.25</b>	<b>\$159,027.25</b>
<b>EXPENSE</b>			
<b>1. Watershed Partners Coordination</b>			
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
<b>Subtotal</b>	<b>\$49,300.00</b>	<b>\$19,740.93</b>	<b>\$69,040.93</b>
<b>2. Watershed Exhibit Implementation</b>			
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
<b>Subtotal</b>	<b>\$22,000.00</b>	<b>\$10,619.00</b>	<b>\$32,619.00</b>
<b>3. Clean Water MN</b>			
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
<b>Subtotal</b>	<b>\$13,500.00</b>	<b>\$39,919.64</b>	<b>\$53,419.64</b>
<b>TOTAL 2015 EXPENDITURES</b>	<b>\$84,800.00</b>	<b>\$70,279.57</b>	<b>\$155,079.57</b>
<b>ROLLOVER TO 2016</b>		\$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  
Khoom Phem  
Siv Tas Lawm

**MANTENGA FUERA DE LOS DRENAJES PARA TORMENTAS**  
MUAB COV NTAWM NO TSHEM 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 khoom phem hauv vaj tsev pov tseg kom zoo.

7

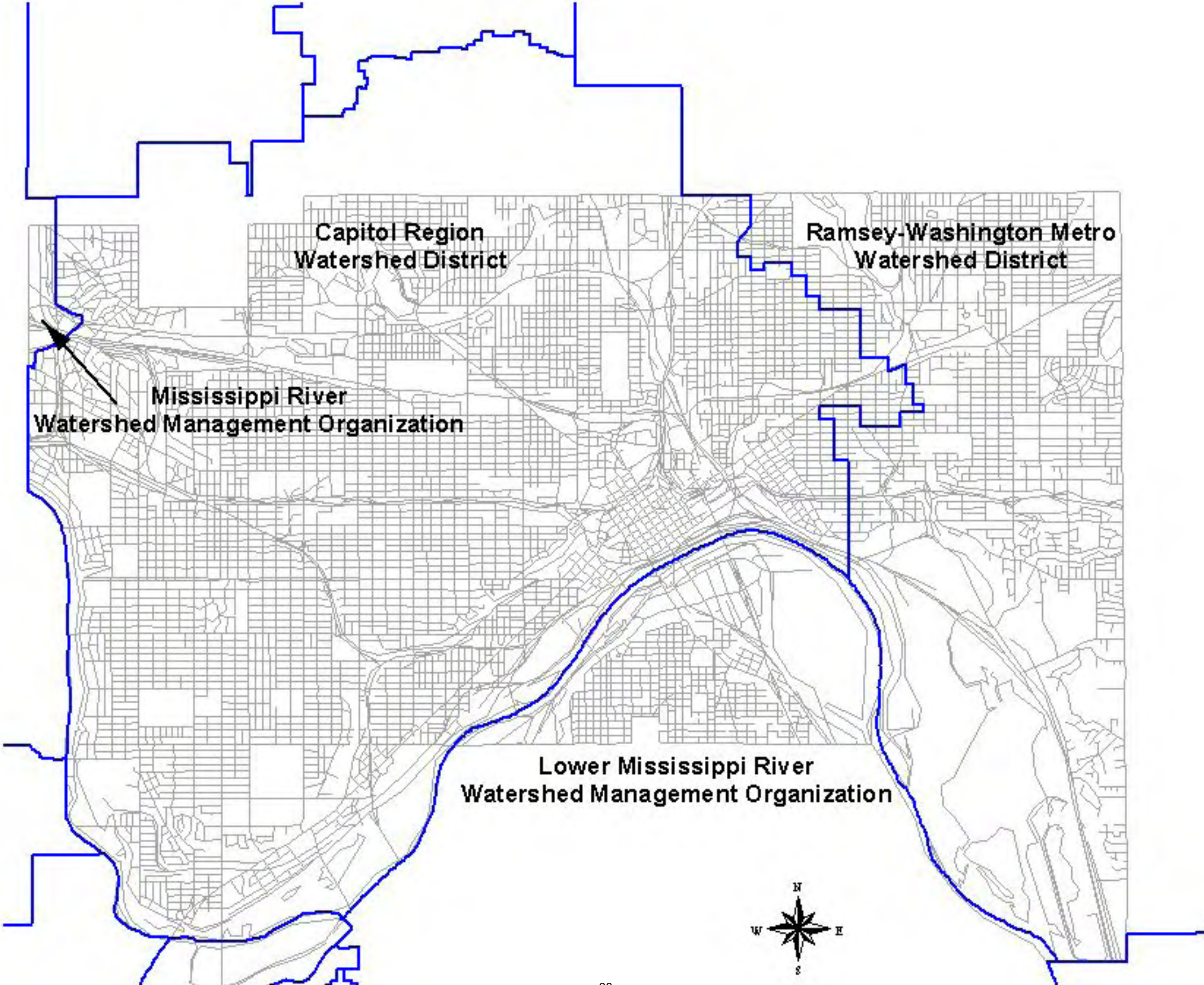
Shovel snow first and only apply salt when it is above 15° F.  
**Retire la nieve con una pala primero y aplique sal cuando esté sobre los 15°F.**  
Thob daus ua ntej thiab tsuas siv ntsev.



Recycling & Disposal Guide  
[ramseyatoz.co.ramsey.mn.us](http://ramseyatoz.co.ramsey.mn.us)  
[www.stpaul.gov/publicworks](http://www.stpaul.gov/publicworks)  
[www.fmr.org](http://www.fmr.org)



# Watershed Organizations in Saint Paul



City of St. Paul  
**Stormwater  
 Monitoring Program**



**Figure 1-1  
 Monitoring Site  
 Location Map**



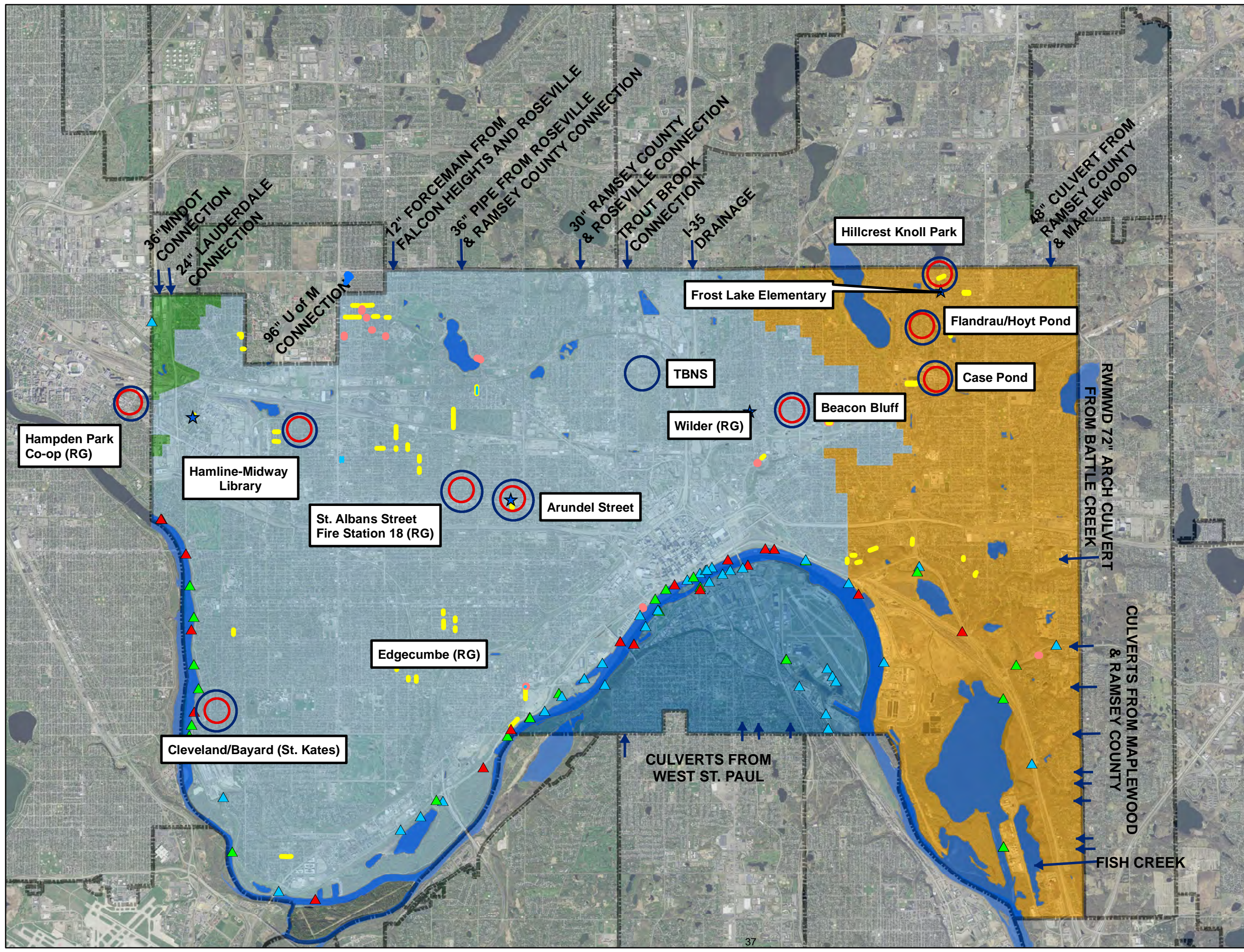
0 2,500 5,000 10,000  
 Feet

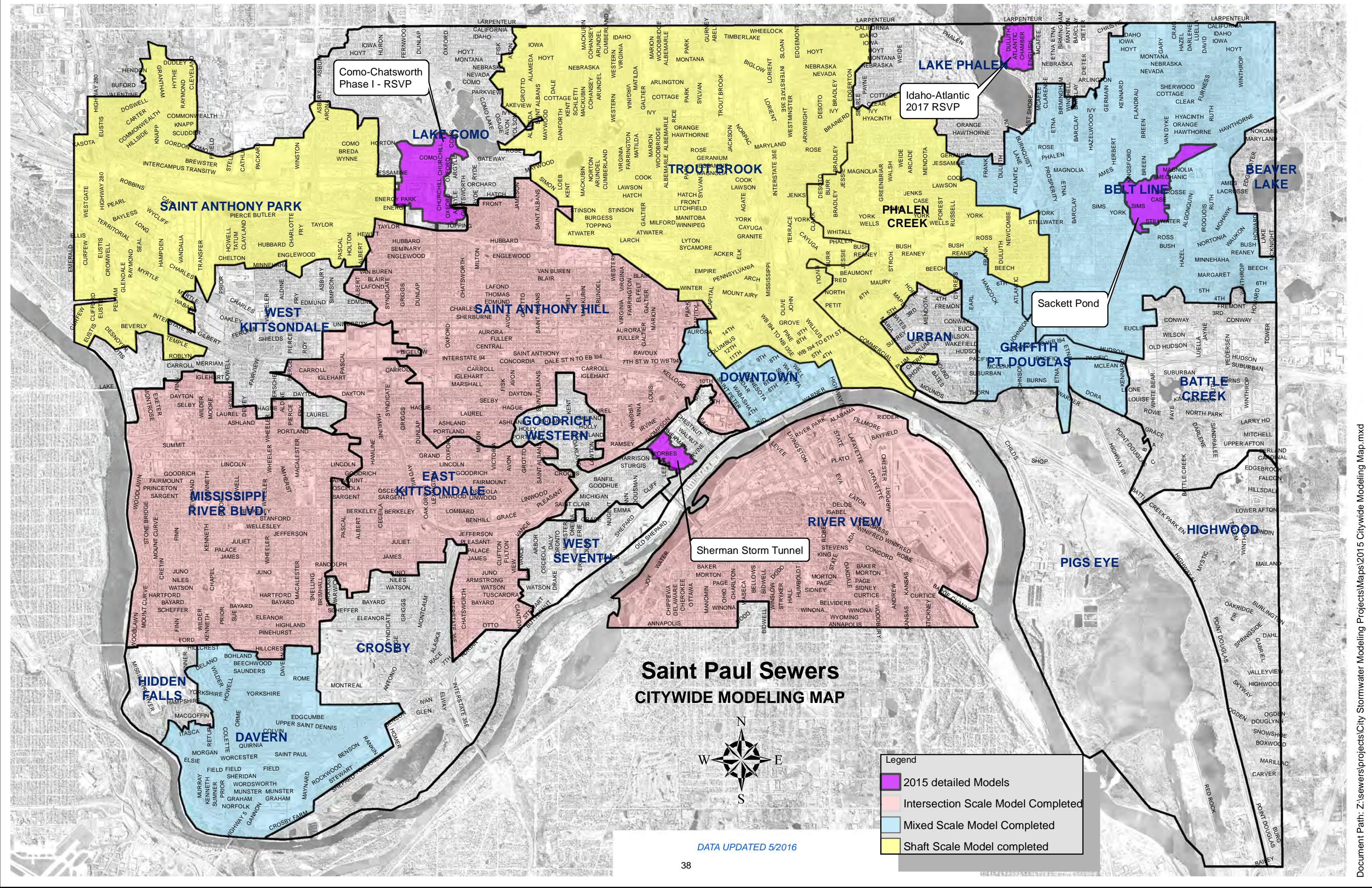
**Legend**

- 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

Sherman Storm Tunnel

Sackett Pond

### Saint Paul Sewers CITYWIDE MODELING MAP



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

DATA UPDATED 5/2016



## 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<sub>i</sub> = the flow for an individual event [cf]
- C<sub>i</sub> = 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<sub>j</sub> = correction factor for storms that produce no runoff [.]

R<sub>v</sub> = runoff coefficient [.]

A = area of the watershed [acre]

Values used in loading calculations:

C = Table 1

P = Table 2

P<sub>j</sub> = 0.85

R<sub>v</sub> 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**

<b>Watershed</b>	<b>Area [acre]</b>	<b>Runoff Coefficient [.]</b>	<b>Precipitation Site [.]</b>
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)**

	<b>Cl</b>	<b>TKN</b>	<b>Total P</b>	<b>NO2+NO3</b>	<b>TSS</b>	<b>VSS</b>
<b>Battle Creek</b>	306080	7590	1381	1354	836452	227462
<b>Beaver Lake</b>	47750	1184	216	211	130490	35485
<b>Belt Line</b>	852389	21138	3847	3772	2329400	633451
<b>Crosby</b>	348073	8632	1571	1540	951211	258670
<b>Davern</b>	375702	9317	1696	1663	1026715	279202
<b>Downtown</b>	266622	6612	1203	1180	728622	198140
<b>East Kittsondale</b>	620188	15380	2799	2744	1694843	460891
<b>Fish Creek</b>	17070	423	77	76	46648	12685
<b>Goodrich/Western</b>	141943	3520	641	628	387902	105485
<b>Griffith/Pt. Douglas</b>	145415	3606	656	643	397388	108065
<b>Hidden Falls</b>	69727	1729	315	309	190549	51817
<b>Highwood</b>	296420	7351	1338	1312	810052	220283
<b>Lake Como</b>	316617	7852	1429	1401	865247	235293
<b>Lake Phalen</b>	223307	5538	1008	988	610252	165950
<b>Mississippi River Blvd.</b>	736234	18258	3323	3258	2011972	547130
<b>MRWMO</b>	36538	906	165	162	99852	27153
<b>Phalen Creek</b>	465809	11551	2102	2061	1272956	346164
<b>Pigs Eye</b>	623548	15463	2814	2759	1704026	463388
<b>Riverview</b>	788575	19556	3559	3490	2155009	586027
<b>St. Anthony Hill</b>	864499	21439	3902	3826	2362494	642450
<b>St. Anthony Park</b>	889294	22053	4014	3935	2430252	660876
<b>Trout Brook</b>	1333496	33069	6018	5901	3644164	990984
<b>Urban</b>	103254	2561	466	457	282170	76733
<b>West Kittsondale</b>	308300	7645	1391	1364	842518	229112
<b>West Seventh</b>	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
<b>Battle Creek</b>	225756	2339	347	248	215535	61443
<b>Beaver Lake</b>	35219	365	54	39	33624	9585
<b>Belt Line</b>	608518	6305	936	668	580968	165618
<b>Crosby</b>	249803	2588	384	274	238493	67988
<b>Davern</b>	269632	2794	415	296	257424	73384
<b>Downtown</b>	192621	1996	296	211	183900	52425
<b>East Kittsondale</b>	445093	4612	685	488	424941	121139
<b>Fish Creek</b>	12362	128	19	14	11802	3364
<b>Goodrich/Western</b>	102547	1063	158	113	97904	27910
<b>Griffith/Pt. Douglas</b>	107254	1111	165	118	102398	29191
<b>Hidden Falls</b>	50041	518	77	55	47776	13620
<b>Highwood</b>	218631	2265	336	240	208732	59504
<b>Lake Como</b>	223736	2318	344	246	213607	60893
<b>Lake Phalen</b>	160431	1662	247	176	153168	43664
<b>Mississippi River Blvd.</b>	528376	5475	813	580	504454	143806
<b>MRWMO</b>	26950	279	41	30	25730	7335
<b>Phalen Creek</b>	334653	3467	515	367	319501	91081
<b>Pigs Eye</b>	459911	4765	707	505	439089	125172
<b>Riverview</b>	581630	6027	895	638	555297	158300
<b>St. Anthony Hill</b>	624558	6471	961	685	596281	169983
<b>St. Anthony Park</b>	644014	6673	991	707	614856	175278
<b>Trout Brook</b>	942311	9764	1450	1034	899648	256465
<b>Urban</b>	74181	769	114	81	70822	20189
<b>West Kittsondale</b>	217859	2257	335	239	207995	59294
<b>West Seventh</b>	103653	1074	159	114	98960	28211

\*Values based solely on individual site's CRWD data



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

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

\*Values based solely on individual site's CRWD data

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

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

\*Values based solely on individual site's CRWD data

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

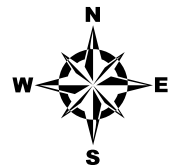
	<b>CI</b>	<b>TKN</b>	<b>Total P</b>	<b>NO2+NO3</b>	<b>TSS</b>	<b>VSS</b>
<b>Battle Creek</b>	12997	726	161	137	96227	19462
<b>Beaver Lake</b>	2028	113	25	21	15012	3036
<b>Belt Line</b>	127227	7106	1572	1343	941947	190505
<b>Crosby</b>	11808	660	146	125	87423	17681
<b>Davern</b>	12745	712	157	135	94362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

\*Values based solely on individual site's CRWD data

# City of St. Paul Loading Assessment




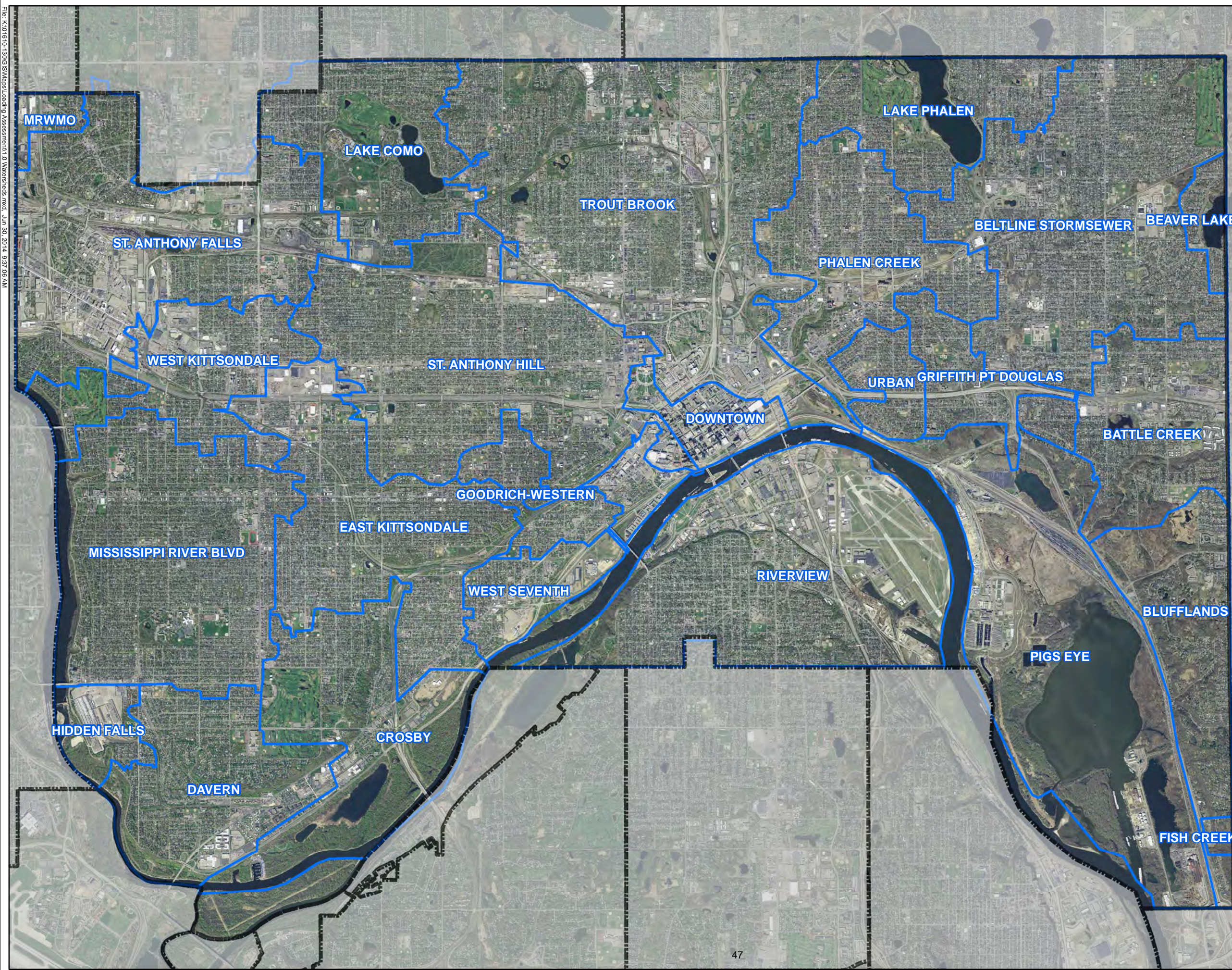
### Figure 1. Watersheds



0 2,000 4,000 8,000  
Feet

### Legend

 Major Subwatersheds



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## Outfall Inventory

Outfall	Location	Watershed	Pipe Size	Acres
	<b>Bridal Veil Creek</b>			
005	South of Buford	Bridal Veil	42"	
	<b>Mississippi River</b>			
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
<del>250</del>	<del>Ontario- abandoned</del>	<del>Downtown</del>	<del>24"</del>	
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	<del>Wacouta</del>	<del>Downtown</del>	<del>42"</del>	<del>40</del>

## 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
<del>352</del>	<del>off Child's Road</del>	<del>Pig's Eye</del>	<del>12"</del>	
<del>354</del>	<del>off Child's Road</del>	<del>Pig's Eye</del>	<del>12"</del>	
<del>356</del>	<del>off Child's Road</del>	<del>Pig's Eye</del>	<del>12"</del>	
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
	<b>Upper Lake</b>			
152	Springfield	Crosby	15"	
	<b>Crosby Lake</b>			
153	Rankin	Crosby	27"	
154	Homer	Crosby	30"	
155	Leland	Crosby	30"	
	<b>Fairview North Pond</b>			
500	Tatum & Pierce Butler	St. Anthony Park	6'	
510	Pierce Butler & Aldine	St. Anthony Park	54"	
	<b>Lake Como</b>			
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

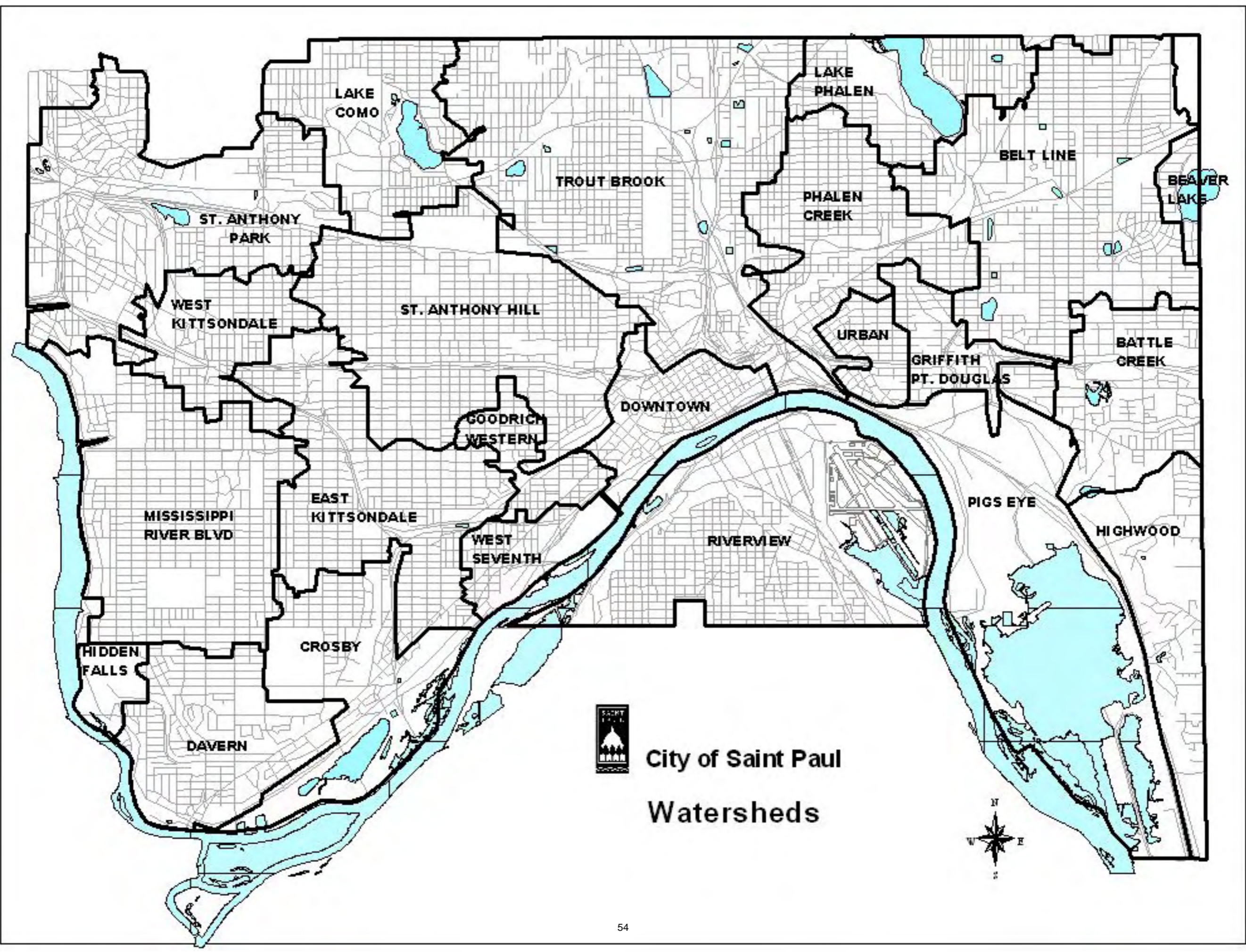


## Outfall Inventory

Outfall	Location	Watershed	Pipe Size	Acres
	<b>Loeb Lake</b>			
630	Jessamine	Troutbrook	36"	
	<b>Lake Phalen</b>			
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
	<b>Beaver Lake</b>			
<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
	<b>Suburban Pond</b>			
---	Suburban & VanDyke (RWMWD's)	Battle Creek	102"	
750	Suburban & WB Ave	Battle Creek	27"	
760	Suburban & Hazel	Battle Creek	54"	
	<b>Little Pig's Eye Lake</b>			
770	near fish hatchery	Griffith/Pt. Douglas	72"	
	<b>Pig's Eye Lake</b>			
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>	
	<b>Battle Creek</b>			
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 &amp; 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>	

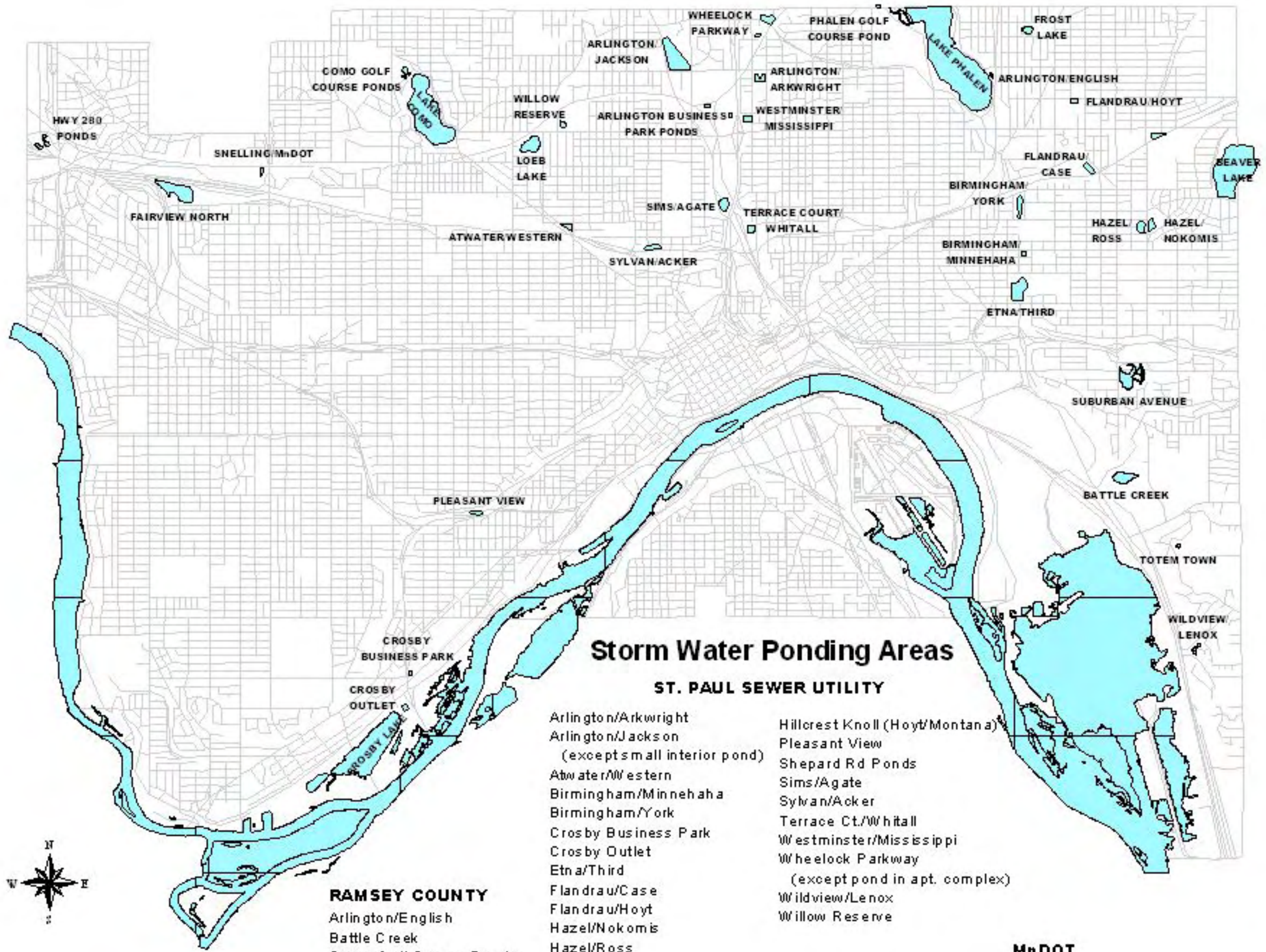


**City of Saint Paul  
Watersheds**



## 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**

<b>Ponding Area</b>	<b>Drainage Area (acres)</b>	<b>Population 2000 Census</b>	<b>Pond Area (acres)</b>	<b>Storage Capacity (Acre-feet)</b>
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
<b>Total</b>	<b>4436.2</b>	<b>43633.6</b>		

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

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

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



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

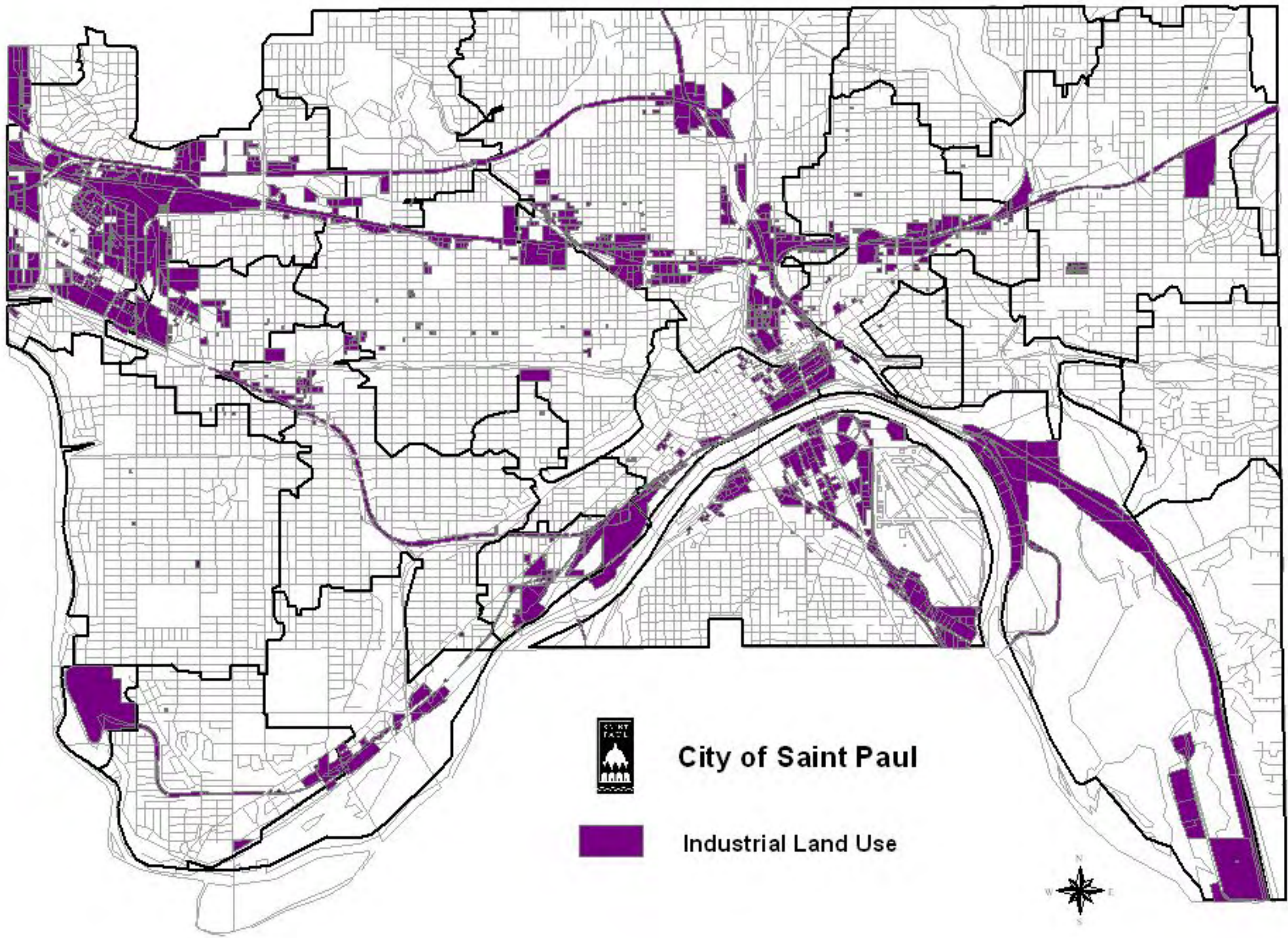
<b>Permit #</b>	<b>Permittee</b>	<b>Facility Address</b>	<b>Waterbody</b>	<b>Use</b>	<b>Type of Discharge</b>
MN0062669	Archdiocese of St. Paul/Minneapolis	226 Summit Ave. St. Paul, MN 55102	Miss R	Religious Organization	Industrial
MN0053988	Ashland Chemical Inc.	395 James Ave. St. Paul, MN 55102	Miss 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)**

<b>Permit #</b>	<b>Permittee</b>	<b>Facility Address</b>	<b>Waterbody</b>	<b>Use</b>	<b>Type of Discharge</b>
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)**



<b>Permit #</b>	<b>Permittee</b>	<b>Facility Address</b>	<b>Waterbody</b>	<b>Use</b>	<b>Type of Discharge</b>
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

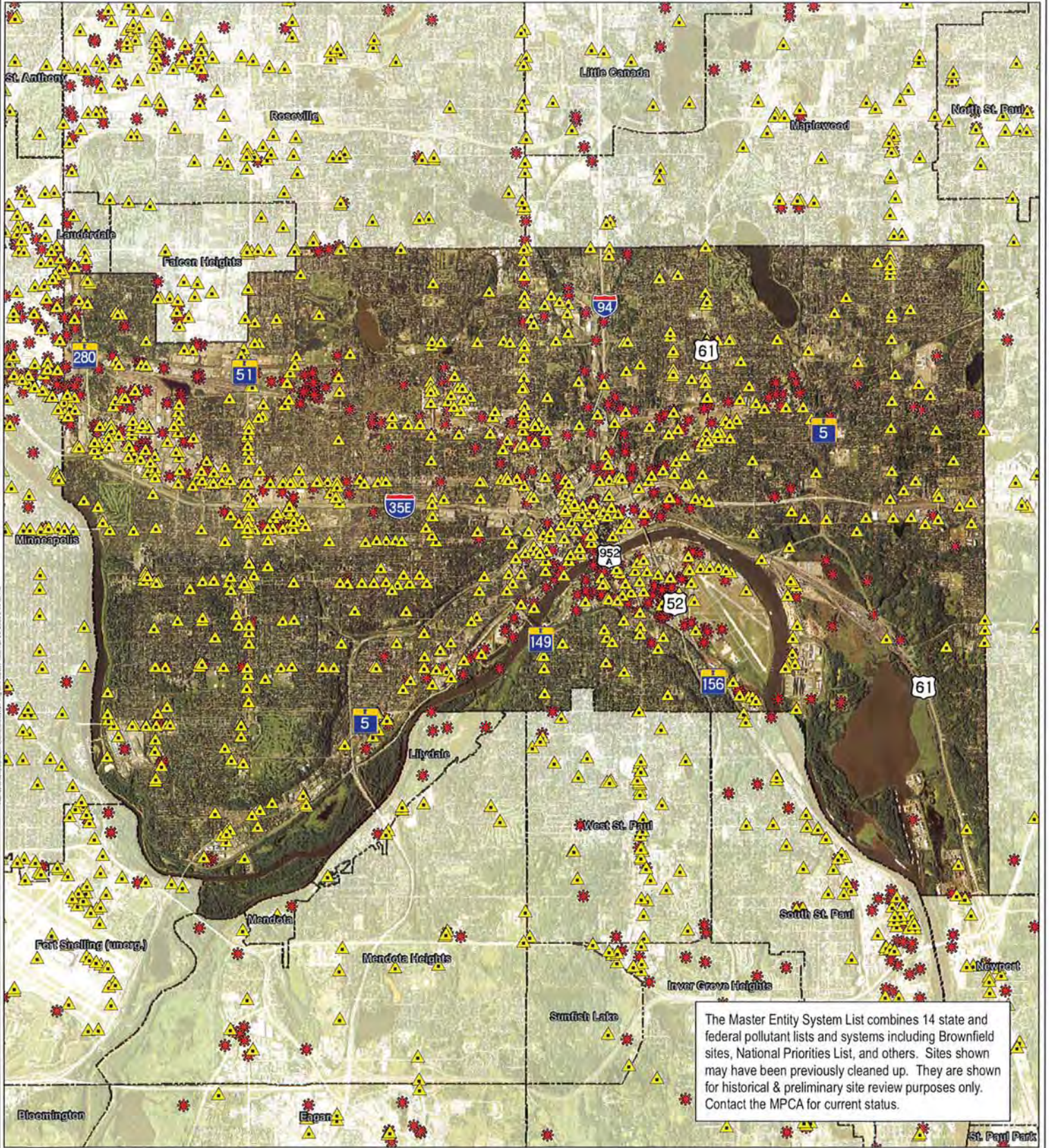
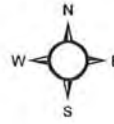




Pollutant Source Locations  
 Stormwater Modeling  
 Volume Reduction Inventory  
 2010 RSVP Stormwater Study  
 City of St. Paul, MN

**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															
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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															
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## 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)**

<b><u>Non-implemented activities (BMP Inventory)</u></b>						<b>Place an "X" in a cell if the activity applies to the TMDL shown in the column</b>
<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					
Capitol Region Watershed District	MS400206					
Capitol Region Watershed District	MS400206					
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Capitol Region Watershed District	MS400206					
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.**