City of Saint Paul's
2020 Stormwater Permit Annual Report

Minnesota Pollution Control Agency
National Pollutant Discharge Elimination System
Permit No. MN 0061263
May 2021

SAINT PAUL
MINNESOTA

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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, and again on July 12, 2018. The reissued permit requires submittal of a revised Stormwater Management Program (SWMP), which will be submitted to the MPCA with this Annual Report.

The Saint Paul SWMP was developed, and is administered by, the various 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 Inspections. 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 2020.

MS4 Permit Coordinator

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MCM 1: Public Education & Outreach

BMP 1.1: STORMWATER PUBLIC EDUCATION AND OUTREACH ACTIVITIES

Description

The City implements public education and outreach programs in accordance with the *PUBLIC EDUCATION AND OUTREACH WORK PLAN* (included within the SWMP) 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

- Quantities and descriptions of educational materials distributed and the number of visits by the public to **stormwater** education websites.
- A summary of the education and outreach activities held including dates of events.
- Any modifications made to the program as a result of the annual evaluation as described in Part III.C.1.b.(5).
- If the **Permittee** relied upon other organizations for some, or all, of its education and outreach program, include a summary of activities conducted by those other organizations.

2020 Activities

COVID-19 required the transition of traditional water quality education to a hybrid of self-serve/virtual programs. This included stenciling kits that could be checked out and virtual presentations highlighting urban non-point source pollution and related environmental issues. A TMDL factsheet was created and made part of our water quality education programs in effort to educate the public on impaired waters within St. Paul. It was also made available to the public on the City's website. The factsheet defined TMDLs, identified the impaired waters located within St. Paul, and listed possible ways residents can aid in improving water quality. A pdf version of the factsheet can be found in the Appendix. Summaries of the Public Education and Outreach activities are within Appendix, and within the updated Stormwater Management Program Public Education and Outreach Work Plan.

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

- A summary of the written public input received on the **SWMP** and the **Permittee**'s response to the input as described in Part III.C.2.
- Any modifications made to the **SWMP** as a result of the input received during the public meeting.
- The date and location of the public meeting as described in Part III.C.2.a.
- A formal resolution from the **Permittee**'s governing body adopting the annual report and the **SWMP** as required in Part III.C.2.e. The resolution must be submitted to the **Agency** no later than August 30th of each year if not available at the time of annual report submittal.

2020 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.

A notice of the availability of the documents for review, and public comment, was 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. The City typically holds a public meeting to provide an opportunity for public input regarding the Annual Report and Stormwater Management Program. This process was modified because of COVID-19 and associated limitations on public gatherings. There was still opportunity for public comments via email and mail format through the Public Works Department.

Once finalized, the Annual Report and updated Stormwater Management Program are also made available on the website. 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, and updated Stormwater Management Program, 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

- The number of spills and **illicit discharge**s that occurred and a description of the response, containment, and cleanup of the spills and **illicit** discharges.
- The number of **illicit discharge** inspections and/or screening activities completed during the reporting year and a description of the response, investigation, and enforcement response procedures utilized to eliminate the **illicit discharge**s.
- Reports of alleged **illicit discharge**s received, including date(s) of the report(s), and a description of the response, investigation, and enforcement response procedures utilized to eliminate the **illicit discharge**(s).
- Sources of **illicit discharge**s, including a description and the responsible party if known.
- Identification of **outfall**s or other areas where **illicit discharge**s have been discovered and a description of the response, investigation, and enforcement response procedures utilized to eliminate the **illicit discharge**(s).
- A description of the education and outreach activities, implemented during the reporting year, to inform municipal employees, the public, and industry about reporting, responding to, and eliminating **illicit discharge**s.

2020 Activities

Spill Response

The Sewer Maintenance section of the Sewer Utility, or 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. 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.

In 2020, Sewer Utility developed a contact list summarizing all the MS4 contacts of adjacent municipalities and agencies. This was done in effort to expedite response time and to assure proper notification of adjacent communities when an illicit discharge occurs.

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 and created a fact sheet (both included within the Appendix) in 2013 defining allowable discharges to the storm sewer system.

The City's Right of Way (ROW) inspectors respond 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 included within 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 2020, DSI sent out 28 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 information 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 2020 are within the Appendix.

Staff Training

- The Department of Public Works hosts an Annual Utility Coordination meeting to facilitate utility and street system reconstruction projects. A component of this meeting includes stormwater management items such as erosion and sediment control in the public Right-of-Way, Allowable Discharges to the Storm Sewer System, Best Management Practices, etc. Attendees are comprised of various municipal employees and utility companies.
- In 2020, the Department of Safety and Inspections conducted Illicit Discharge Training for 32 staff.
- Various Sewer Utility personnel attend the Sewer Collection System Operators Conference conducted by the Minnesota Pollution Control Agency on an annual basis.
- Various Sewer Utility personnel attend illicit discharge detection and elimination training conducted by a consultant an annual basis.

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

- A description and the date of the most recent update to the electronic storm sewer system inventory and map completed during the reporting year.

2020 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 has a computer-based asset and infrastructure management system. This system includes both the storm and sanitary sewer networks. With various sewer system modifications occurring on an annual basis, updating of the computer-based asset and infrastructure management system occurs on an ongoing basis.

In 2020, a comprehensive map was updated that identifies BMP locations, and their contributing drainage areas, that Public Works operate. This map can be utilized to aid in spill response, maintenance, inspection, plan review, and locating.

Watershed and Storm Sewer Outfall Inventory

An inventory of Saint Paul's storm sewer outfalls is located 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 included 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 are issued NPDES permits by the MPCA are identified 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 is 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

- The number of **illicit discharge** inspections and/or screening activities completed during the reporting year and a description of the response, investigation, and enforcement response procedures utilized to eliminate the **illicit discharge**s.
- Identification of **outfall**s or other areas where **illicit discharge**s have been discovered and a description of the response, investigation, and enforcement response procedures utilized to eliminate the **illicit discharge**(s).
- A description of the education and outreach activities, implemented during the reporting year, to inform municipal employees, the public, and industry about reporting, responding to, and eliminating **illicit discharge**s.

2020 Activities

Detection and Removal Screening Program

The field screening program to detect and investigate contaminated flows in the storm drain system is a part of the City's daily operations. Sewer Maintenance crews routinely inspect and clean the storm sewer system throughout the City. Inspections of flows that generate unusual odors, stains, and deposits are included in the annual outfall inspection program. In addition, Sewer Maintenance performs Gopher State One-Call utility locating for the storm sewer system, integrating visual inspection for illicit discharges

The City conducts its own stormwater quality monitoring activities via a Consultant, and also coordinates with the Capitol Region Watershed District on comprehensive stormwater quality monitoring program in Saint Paul.

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.

GIS mapping is implemented as a tool to support various activities. Information that is gained through the sewer system inspection program can 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 programs, stormwater quality monitoring, and day-to-day sewer operations.

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 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.

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 Public Works Department have Clean Water Policies which are distributed, reviewed, and signed by all field staff. (See Appendix).
- The Department of Public Works hosts an Annual Utility Coordination meeting to facilitate utility and street system reconstruction projects. A component of this meeting includes stormwater management items such as erosion and sediment control in the public Right-of-Way, etc. Attendees are comprised of various municipal employees and utility companies.
- The Department of Public Works developed a Dry Weather Screening written procedure, included within the Appendix of the SWMP.
- The Department of Public Works developed a IDDE Field Guide, and routinely updates and trains staff on current procedures.
- In 2020, the Department of Safety and Inspections conducted a training in August for zoning staff, including two new city staff members.

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.

2020 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 inpectors. 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 2020 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.

2020 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 provide a detailed review of site plans, and track process to identify stormwater management opportunities. Additionally, DSI and Public Works staff provide a review of all site plans from a sustainable water quality perspective. During 2020, City Departments received 103 site plan applications, and issued final approval, with the appropriate permits issued, on 57. Continued attention to erosion and sediment control plan submittals, along with increased awareness in the industry, provided for better compliance during site inspections.

Inspection and Enforcement
Ongoing site inspections are performed by DSI inspectors. In 2020, DSI inspectors conducted 68 erosion control inspections at various new and redevelopment sites.

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, improved 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 standard form utilized for documenting field inspections on private projects is found in the Appendix. The form supplements 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 standard forms for both public and private construction sites.
- Public Works Right-of-Way Division uses a form when ROW inspectors inspect Utility Installation work. (See Appendix.)
- In 2018, DSI revised the Site Plan Erosion and Sediment Control Review Procedure. 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.
- The Department of Public Works developed an Environmental Enforcement Response Procedure for application on Public Works Construction sites included within the Appendix of the SWMP.
- The Department of Public Works developed a SWPPP Inspections standard operating procedure for application on Public Works Construction sites included within the Appendix of the SWMP.

Staff Training

- The Department of Public Works hosts an Annual Utility Coordination meeting to facilitate utility and street system reconstruction projects. A component of this meeting includes stormwater management items such as erosion and sediment

control in the public Right-of-Way, etc. Attendees are comprised of various municipal employees and utility companies.

- 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, Public Works ROW inspectors, Department of Safety and Inspections Building inspectors and Parks Environmental Services staff. The certification includes a recertification component within a 3-year period, which ensures training stays current with techniques and regulations.

MCM 4: Construction Site Erosion & Sediment Control

BMP 4.2 MUNICPAL 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

- The number of construction stormwater complaints received and the responses to those complaints.
- The number of site inspections completed and a summary of inspection findings.
- The number of violations of the Permitee regulatory mechanism(s) for construction site stormwater runoff control and the types of enforcement response procedures utilized.
- The title of construction stormwater training attended by Permitee staff.

2020 Activities

Non-Linear, 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 forms 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 2020, Public Works Construction inspectors continued to work with internal forces and watershed district staff on erosion and sediment control compliance.

Standard Operating Procedures and Checklists

- The Department of Public Works developed an Environmental Enforcement Response Procedure for application on Public Works Construction sites included within the Appendix of the SWMP.
- The Department of Public Works developed a SWPPP Inspections standard operating procedure for application on Public Works Construction sites included within the Appendix of the SWMP.

Staff Training

- The Department of Public Works hosts an Annual Utility Coordination meeting to facilitate utility and street system reconstruction projects. A component of this meeting includes stormwater management items such as erosion and sediment control in the public Right-of-Way, etc. Attendees are comprised of various municipal employees and utility companies.
- 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, Public Works ROW inspectors, Department of Safety and Inspections Building

inspectors and Parks Environmental Services staff. The certification includes a recertification component within a 3-year period, which ensures training stays current with techniques and regulations.

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 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.

2020 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 2020, 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.

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.

2020 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. In 2016, the City entered into a contract to update the Local Surface Water Management Plan. As a part of this planning effort, various ordinances will be analyzed, and revisions proposed. This will assist in future planning to meet the identified Proposed Activities and Implementation Schedule. The City coordinates with the CRWD and RWMWD in the development of a BMP database and procedures to ensure that private BMPs are maintained. The City's Local Surface Water Management Plan was adopted by City Council in 2019.

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.

2020 Activities

- ***Public Works Projects***
  - Griggs-Scheffer (Phase I): Public Works installed multiple subsurface infiltration trenches ($185,000).
  - Tedesco: Public Works installed a subsurface infiltration trench ($110,000).
  - Como Hunting Valley: Public Works installed a SAFL baffle and sumped structure ($84,000).
  - Como Avenue Trail: Public Works installed two subsurface infiltration trenches ($268,000).
  - Johnson Parkway Trail: Public Works installed a subsurface infiltration trench and filtration swale ($300,000).
  - Bush-Desoto Pond: In 2020 Public Works entered an engineering design contract ($47,000) for pond expansion/retrofit based on feasibility study of 2019 (estimated construction cost 2022 $860,000).
- ***Parks and Recreation Projects***
  - Parks and Recreation received 2,980 hours 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 constructed and planted a 5,500 square foot wetland and vegetated buffer at Marydale Park (Loeb Lake).
  - Parks and Recreation coordinated with Capitol Region Watershed District on an aluminum sulfate treatment to reduce in-lake phosphorus levels at Como Lake in May 2020.
- ***City-Partner Collaborative Efforts***
  - Highland Bridge: Public Works, Parks & Private Development installation of Biofiltration Basins, StormTraps, StormFilters, Stormwater Wet Ponds/ Outlet Structures, Hydrodynamic Separators, and Wetland Expansion
  - Como Golf Course: Public Works, Parks, CRWD installation of Underground Infiltration System, Hydrodynamic Separator, and an Iron Enhanced Sand Filter.
  - Hillcrest Golf Course: Public Works, Parks, RWMWD, Port Authority Preliminary assessment and planning for comprehensive stormwater facilities to service entire 112 acre public/private redevelopment.

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 various 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 multi-year rehabilitation program for its storm and sanitary sewer system. The Sewer Utility complies with MnDOT's Standard Specifications for Construction and maintains Standard Plates and Specifications.

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.

2020 Activities

East Kittsondale Storm Tunnel System

The East and West Kittsondale Storm Tunnel Systems were originally constructed in the 1920s and 1930s. The 4.3 mile long tunnel systems are comprised of cast in place concrete through varying geologic formations (Glacial Till, Decorah Shale, Platteville Limestone, Glenwood Shale and St. Peter Sandstone). In 2019, a multi-phase rehabilitation effort was initiated to address insufficient access and structural deficiencies in the concrete ceiling, walls and invert of the tunnel systems. Phase I of the Kittsondale Storm Tunnel System Rehabilitation was completed in the Spring of 2020 with a construction cost of $1.8 Million. Phase II construction began in the Fall of 2020 and has an estimated construction cost of $1.2 Million.

Pump Stations

The City has five 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. In 2019, an elongated river flooding event required the operation of these pump stations.

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.

Broadway Pump Station

In 2018, the Sewer Utility embarked on an upgrade to the Broadway Sanitary Pump Station, which added a stormwater flood control pump station. The stormwater flood control pump station was installed to help mitigate temporary pumping operations required during a river flood scenario. Other improvements included the installation of a natural gas back-up generator. The project was completed in 2019 at a project cost of $1.6 Million.

Storm Sewer Inspection, Cleaning & Rehabilitation

- Sewer Utility installed 85 L.F. of cured-in-place pipe lining of storm sewer in 2020 ($6,500)
- Clarence-Minnehaha Televised Inspection: 97,000 L.F. of Storm Sewer ($121,000)
- Burns-McKnight Televised Inspection: 63,000 L.F. of Storm Sewer ($75,000)
- Ayd Mill Rd Televised Inspection: 2,400 L.F. of Storm Sewer ($12,000)
- Sewer Maintenance Televised Inspection: 21,000 L.F. of Storm Sewer ($150,000; combined with cleaning cost)
- Sewer Maintenance Cleaning: 14,300 L.F. 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 Saint Paul Street Vitality Program (SPSVP), 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.

2020 Activities

- Catch Basin Maintenance ($795,500)
  - Inspected: 602
  - Cleaned: 3,670
  - Repaired: 580
- Manhole Maintenance ($140,000)
  - Inspected: 543
  - Cleaned: 560
  - Repaired: 272

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

- A brief description of all **outfall** inspection findings including any improvement projects completed at the **outfall** locations.

2020 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 the Mississippi River outfalls were inspected in 2013, and in 2020 the following outfalls were inspected:

Mississippi River: 168
Upper Crosby Lake: 8
Crosby Lake: 4
Crosby Pond: 5

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.

2020 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. Public Works developed written procedures and a schedule to evaluate pond performance. The written procedure is included within the Appendix of the SWMP.

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, 2003/2004, 2013/2014, and 2017/2018. The estimated cycle for sediment removal from ponding areas is 20 years. Projects included re-installation of riprap 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.

In, 2020 Public Works lead an effort at the Birmingham-York and Third-Etna pond facilities to replace significant amounts of deteriorated riprap. Approximately 550 tons of riprap with geotextile filters ($64,000)

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.

Snelling-Midway Stormwater Reuse System
2020 was the initial year of operation for the stormwater reuse system at the Snelling-Midway Superblock. Collected and treated stormwater is utilized for irrigation in public and private areas, stormwater reuse capacity is also available for usage at future private developments adjacent to Allianz Field. Sewer Utility contracted with Capitol Region Watershed District (CRWD) for the operation of the reuse system. Annual operating expenditures were approximately $45,000. The 2020 Operation Report is included within the Appendix.

Staff Training
- City staff from multiple departments attended the Minnesota Water Resources Conference.

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. 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. During cleaning operations, sediment control measures are applied as needed to prevent removed material from re-entering the storm drain system.

2020 Activities

- Material removed from stormwater ponds, BMPs and catch basins by Sewer Utility: 1,200 tons ($33,500).

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

- Date of Spring and Fall residential street sweeping activities
- Approximate amount of material removed by street sweeping activities

2020 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 almost every weekday.

Residential street spring sweeping activities occurred March 30, 2020 thru May 7, 2020. The primary material swept in the spring is debris from winter months. Fall sweeping occurred October 19, 2020 thru November 25, 2020. 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 Operations

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

Class I-A & B Downtown or Loop streets

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

Class II - Outlying Commercial and Arterial Streets
These streets, which have business or commercial properties fronting on them, are the City's major arteries. They have heavy volumes of both vehicular and pedestrian traffic. Typical examples are University, Snelling, West 7th, East 7th, Rice, Payne, Arcade, Summit and Grand. Class II streets are typically swept or cleaned six to ten times annually on the following schedule: every two weeks in October and November for fall cleanup and every 3 to 6 weeks in April through September for Spring cleanup, litter, tree debris and sediment cleanup. Occasional winter sweeping is done if weather permits, and there are special events. All routine maintenance, including patching and repairing of street surfaces, is done on a scheduled or as-needed basis. 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 710,000 square yards of paved streets and alleys were chip sealed in 2020. 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 State licensed disposal 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.

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 440 trash receptacles and disposes of refuse from neighborhood cleanups each year.

2020 Street Sweeping Quantities (Cubic Yards)

Season	Spring/Summer	Fall
Totals	2,625	10,360

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.

2020 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

Typically 3 or 4 snow emergencies are declared during per winter. It is anticipated that ice control materials used for 2021 will be similar to 2020 quantities.

2019/2020 Ice Control Material Quantities

Salt (tons)	13,230

Staff 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 new operators attended a Snow and Ice Control training session. 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. Plow trainings were completed on November 3rd and 4th, 2020, along with SPOT training on September 28th and October 9th, 2020.

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

2020 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.

SWPPP Development: Public Works hired a consultant to prepare a SWPPP for the Sewer Maintenance Property in 2018. Public Works has requested proposals for development of SWPPPs at Como-Western, Pleasant-View, and the Dale Street Complex.

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 new operators attended a Snow and Ice Control training session. 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.

- The Department of Public Works hosts an Annual Utility Coordination meeting to facilitate utility and street system reconstruction projects. A component of this meeting includes stormwater management items such as erosion and sediment control in the public Right-of-Way, etc. Attendees are comprised of various municipal employees and utility companies.
- Various Sewer Utility personnel attend the Sewer Collection System Operators Conference conducted by the Minnesota Pollution Control Agency on an annual basis.
- Various Sewer Utility personnel attend illicit discharge detection and elimination training conducted by a consultant an annual basis.

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

2020 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 new operators attended a Snow and Ice Control training session. 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.
- The Department of Public Works hosts an Annual Utility Coordination meeting to facilitate utility and street system reconstruction projects. A component of this meeting includes stormwater management items such as erosion and sediment control in the public Right-of-Way, etc. Attendees are comprised of various municipal employees and utility companies.
- Various Sewer Utility personnel attend the Sewer Collection System Operators Conference conducted by the Minnesota Pollution Control Agency on an annual basis.
- Various Sewer Utility personnel attend illicit discharge detection and elimination training conducted by a consultant an annual basis.
- Various Parks personnel maintained their non-commercial pesticide application licenses to ensure proper application and management of pesticides.

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.10 STORMATER 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.

2020 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.

In 2016, the City entered into a contract to update the Local Surface Water Management Plan. As a part of this planning effort, various ordinances will be analyzed and revisions proposed. This will assist in future planning to meet the identified Proposed Activities and Implementation Schedule.

In 2017-2019, Parks and Recreation, Public Works, and Capitol Region Watershed District participated in the initial development of a Como Park Stormwater Master Plan that will aid in the installation of water quality improvement projects impacting Como Lake. Anticipated implementation of regional BMPs to occur in 2020.

In 2020, Parks and Recreation, Public Works, and Ramsey-Washington Metro Watershed District, Saint Paul Port Authority, and other partners, participated in the initial development of planning documents for redevelopment of Hillcrest Golf Course that will aid in the installation of water quality improvement projects.

In 2020, the Public Works Department entered an engineering contract to further a feasibility study of retrofitting Bush-Desoto Pond for potential stormwater quality benefits. This design will include the addition of a hydrodynamic separator to provide a level of pretreatment to the pond. The extents of the pond will also be extended to maximize its size and increasing the volume of infiltration. The design plans are expected to be completed in 2021.

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, and Metropolitan Council Environmental Services.

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 Monitoring Program. Monitoring is completed at various locations including: constructed stormwater BMPs, proposed locations for stormwater BMPs, and groundwater sites. Electronic water monitoring equipment is used to collect water quantity and quality data on a continuous basis from selected sites.

2020 Activities

Monitoring Program

The City of Saint Paul collaborated with CRWD on the 2020 Stormwater Monitoring Program. Sites monitored by CRWD include: outfalls, BMPs, lakes and ponds. Many sites are full water quality monitoring stations, while other sites capture level data. CRWD publishes their current Monitoring information on their website at: www.capitolregionwd.org.

In 2020, the City, through a consultant, conducted the Stormwater Monitoring Program. Below is a list of the range of Stormwater Monitoring. Electronic water monitoring equipment was used to collect water quantity and quality data on a continuous basis from stormwater BMPs, which included:

- Water level at 6 sites
- Flow volumes at 6 sites
- Composite water quality sampling at 6 sites
- Groundwater elevation at 2 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 comprehensive report summarizing 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.

In 2017, the City, through a consultant, participated in the formation of the Twin Cities Water Monitoring and Data Assessment Group. The group is formed from public-sector water resources practitioners as a way to establish and promote standard practices for: water quality monitoring, data analysis and data stewardship. The City's representative has continued to participate in this group on an annual basis.

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 street reconstruction projects. The modeling includes the development of an XPSWMM and P8 models. In 2020 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 from 2020 is found in the Appendix. Historically, pollutant loading calculations were offset by one year due to analysis timelines. With improvements in data management, the timeline needed for analysis has been reduced.

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.

Assessment Process for Annual Reporting

- On a form provided by the **Commissioner**, an assessment of progress toward meeting each **applicable WLA**. The assessment of progress must include:
  - A list of all **BMP**s being applied to achieve each **applicable WLA**. For each **structural stormwater BMP**, the **Permittee** must provide a unique identification (ID) number and geographic coordinate. If the listed **structural stormwater BMP** was inventoried during the 2011 Phase I **MS4** permit term, the same ID number must be used.
  - **A list of all** BMP**s the** Permittee **submitted with the** TMDL **compliance schedule and the stage of implementation for each** BMP**.**
  - An updated estimate of the cumulative reductions in loading achieved for each **pollutant of concern** associated with each **applicable WLA**.
  - **An updated narrative describing any adaptive management strategies used (including projected dates) for making progress toward achieving each** applicable WLA**.**
  - **The results of the comparison(s) of estimated pollutant loading(s) to each** impaired water **in the** Permittee**'s jurisdiction and the** Permittee**'s** WLA **for that** impaired water**.**

2020 Activities

A TMDL factsheet was created and made part of the City's water quality education programs in effort to educate the public on impaired waters within St. Paul. It was also made available to the public on the City's website. The factsheet defined TMDLs, identified the impaired waters located within St. Paul, and listed possible ways residents can aid in improving water quality. A pdf version of the factsheet can be found in the Appendix.

TCMA Chloride TMDL (Como, Battle Creek, Kasota Ponds West, Mallard Marsh)

- Participation in the Adopt-a-Drain Program.
- Participation in the Storm Drain Stenciling Program.
- Membership and Participation in Watershed Partners and Clean Water MN Public Education Program.
- Public Works equipment upgrades, advancements in de-icing technologies, and training.
- Cooperative Monitoring Program.

South Metro Mississippi River TSS TMDL

- Participation in the Adopt-a-Drain Program.
- Participation in the Storm Drain Stenciling Program.

- Membership and Participation in Watershed Partners and Clean Water MN Public Education Program.
- Public Works Street Sweeping Program.
- Public Works Pond Cleaning and Sump Cleaning Programs.
- Public Works Municipal Mitigation Program (2020: Griggs-Scheffer, Tedesco, Johnson Pkwy, Snelling-Midway, Como Ave, Bush-Desoto Pond).
- Cooperative Monitoring Program.
- Development & Redevelopment Mitigation Program (2020: Highland Bridge Site Redevelopment, Hillcrest Golf Course, other Private Site Plans).

Como Lake Excess Nutrients TMDL

- Participation in the Adopt-a-Drain Program.
- Participation in the Storm Drain Stenciling Program.
- Membership and Participation in Watershed Partners and Clean Water MN Public Education Program.
- Public Works Street Sweeping Program.
- Public Works Pond Cleaning and Sump Cleaning Programs.
- Cooperative Monitoring Program.
- Participation in Como In-Lake Management Plan
- Participation in Como Park Stormwater Master Plan.

Battle Creek TSS TMDL

- Participation in the Adopt-a-Drain Program.
- Participation in the Storm Drain Stenciling Program.
- Membership and Participation in Watershed Partners and Clean Water MN Public Education Program.
- Public Works Street Sweeping Program.
- Public Works Pond Cleaning and Sump Cleaning Programs.
- Cooperative Monitoring Program.

Fish Creek E. Coli TMDL

- Participation in the Adopt-a-Drain Program.
- Participation in the Storm Drain Stenciling Program.
- Membership and Participation in Watershed Partners and Clean Water MN Public Education Program.
- Public Works Street Sweeping Program.
- Public Works Pond Cleaning and Sump Cleaning Programs.
- Cooperative Monitoring Program.

Wakefield Lake Phosphorus TMDL

- Participation in the Adopt-a-Drain Program.
- Participation in the Storm Drain Stenciling Program.
- Membership and Participation in Watershed Partners and Clean Water MN Public Education Program.
- Public Works Street Sweeping Program.
- Public Works Pond Cleaning and Sump Cleaning Programs.
- Cooperative Monitoring Program.

Appendix

Minnesota Pollution Control Agency

National Pollutant Discharge Elimination System

Permit No. MN 0061263

May 2021

SAINT PAUL
MINNESOTA

Budget	2020	2021	2022	2023	2024	2025
Storm Sewer Projects						
Stormwater Quality Improvements	$500,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Storm Sewer Tunnel Rehabilitation	$3,500,000	$3,500,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000
	$4,000,000	**$4,500,000**	**$5,000,000**	**$5,000,000**	**$5,000,000**	**$5,000,000**
Storm Sewer Maintenance						
Storm Sewer Cleaning, Inspection & Repair	$364,333	$371,620	$379,052	$386,633	$394,366	$402,253
Pond-Levee Inspection & Maintenance	$230,577	$235,189	$239,892	$244,690	$249,584	$254,576
Catch Basin Inspection, Cleaning & Repair	$795,452	$811,361	$827,588	$844,140	$861,023	$878,243
Manhole Cleaning, Inspection & Repair	$161,617	$164,849	$168,146	$171,509	$174,939	$178,438
BMP Cleaning	$135,096	$137,798	$140,554	$143,365	$146,232	$149,157
Snelling Midway Green Infrastructure District	$88,000	$115,000	$115,000	$115,000	$115,000	$115,000
	$1,687,075	**$1,720,817**	**$1,755,233**	**$1,790,337**	**$1,826,144**	**$1,862,667**
Stormwater Modeling & Monitoring						
Stormwater Modeling	$171,000	$174,420	$177,908	$181,467	$185,096	$188,798
Stormwater Monitoring	$145,000	$154,000	$157,080	$160,222	$163,426	$166,695
	$316,000	**$328,420**	**$334,988**	**$341,688**	**$348,522**	**$355,492**
Street Maintenance						
Street Sweeping	$5,295,025	$5,400,926	$5,508,944	$5,619,123	$5,731,505	$5,846,135
Neighborhood Cleanups	N/A Covid	$160,000	$163,200	$166,464	$169,793	$173,189
	$5,295,025	**$5,560,926**	**$5,672,144**	**$5,785,587**	**$5,901,299**	**$6,019,325**
Public Education Program						
Storm drain stenciling including door hangers	$49,650	$49,815	$50,811	$51,828	$52,864	$53,921
MN Cities Stormwater Coalition	$4,640	$4,733	$4,827	$4,924	$5,022	$5,123
Cleanwater MN & Watershed Partners	$20,000	$20,000	$20,400	$20,808	$21,224	$21,649
Adopt a Drain	$10,247	$7,000	$7,140	$7,283	$7,428	$7,577
	$84,537	**$81,548**	**$83,179**	**$84,842**	**$86,539**	**$88,270**
Total Budget	**$11,382,637**	**$12,191,710**	**$12,845,544**	**$13,002,455**	**$13,162,504**	**$13,325,754**

2% used for annual inflation where projected amounts unknown

DEPARTMENT OF SAFETY AND INSPECTIONS
Ricardo X. Cervantes, Director

CITY OF SAINT PAUL
Christopher B. Coleman, Mayor

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

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

Standard Operating Procedures for Erosion and Sediment Control Complaint

1) Someone sees an erosion and sediment control issue (dirt on street, etc).
- They should call the City Complaints Office: 651-266-8989

2) Complaint is passed on from Complaints Office to Senior Building Inspector (651-266-9021)

3) Building Inspector follows up on complaint using DSI Erosion and Sediment Control Worksheet

4) If Building Inspector determines source is from the Public Right-of-Way (ROW) or from City Construction Projects the complaint will be forwarded to the Public Works Inspectors –
- For Private Utility Construction in ROW: 651-487-7250 (General Number for ROW Permit Section)
- For City Construction Projects: 651-266-6081 (Street Engineering Construction Division)

Public Works Inspector will inspect and follow up accordingly

5) First Inspection
- DSI Erosion and Sediment Control Worksheet completed
- If site is non-compliant: Building Inspector issues immediate verbal order, if possible, or issues a written order if no one is on site, to address situation, sets a compliance date based on the nature of the complaint, and notes details of non-compliance in Worksheet

6) Second Inspection
- Building Inspector Conducts 2nd inspection of site after compliance date
- 2nd DSI Erosion and Sediment Control Worksheet completed
- If continued non-compliance: Building Inspector issues written orders, sets a new compliance date based on the nature of the complaint, and notes details of non-compliance in Worksheet

7) Third Inspection
- Building Inspector Conducts 3rd inspection of site after compliance date
- 3rd DSI Erosion and Sediment Control Worksheet completed
- If continued non-compliance, proceed with stopping construction work at the site, or submitting the violation to the City Attorney for potential prosecution, or pursue abatement if sediment crosses boundary of the site and project is greater than 1 acre.

DEPARTMENT OF SAFETY AND INSPECTIONS
Bob Kessler, Director

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*

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:

Staff Procedure - Review Checklist for Site Plan Erosion Control
revised 2018

Project Name and/or Address:_____ Site Plan Review Date:_____

1. Does this project result in moving 50 cubic yards or more or will building permit be issued?
   Unless grading activity is included in a general building permit, a grading permit shall be required for the placement, removal or movement of more than fifty (50) cubic yards of fill
   ☐ Yes – Continue ☐ No – Stop

2. Does this project disturb greater than 10,000 square feet?
   Grading activities in excess of ten thousand (10,000) square feet require site plan review in accordance with section 61.402(a) of the Saint Paul Legislative Code.
   ☐ Yes – Continue ☐ No – Complete erosion control review per §33.03(g)3

3. Does this project disturb greater than 1-acre?
   If yes, MPCA Construction Stormwater Permit required; verify watershed permit.
   ☐ Yes – Continue per §52.04 ☐ No – Complete erosion control review per §61.402(c)(11)

Document on this form, or other form as appropriate, the adequacy of erosion and sediment control. Use the minimal criteria below as a starting point for beginning the standard procedure.

Indicate plan sheets containing erosion control methods:

	CRITERIA	OK	Issue	N/A	Comment
	Rock construction entrance identified on plans				
	Perimeter protection				
	Inlet protection for catch basins				
	Street sweeping note on plans				
	Stabilization shown for disturbed areas				
	Other items as scope of work requires				

Supplemental Plan Information
Disturbed area:
Permanent runoff control practice(s):

Staff Notes for site plan revision/approval:

Procedure

1. Review plan in accordance with grading §33.03(g)3, site plan review and approval §61.402(c)(11) and/or stormwater pollution control plan §52.04. (MPCA "Manual for Protecting Water Quality in Urban Areas")
2. Document plan review comments in Site Plan Review Committee conditional approval letter.
3. Document plan review decision in Site Plan Review approval letter. State if MPCA Construction Stormwater Permit is required; if so, approval contingent on obtaining permit card, verified at https://cf.pca.state.mn.us/water/stormwater/csw/search.cfm

CITY OF SAINT PAUL
Melvin Carter III, Mayor

Public Works
Right-of Way Division

Telephone: 651-266-6151
Facsimile: 651-266-9765
Email: PW-ROWpermits@ci.stpaul.mn.us

The Most Livable City in America

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. (See official Public Works Right-of-Way Erosion Control Policy, dated 2/23/2015.)

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.

- Inlet protection and perimeter control must be installed **BEFORE** any land disturbance begins.
- Temporary land stabilization practices should be installed:
  - Daily for temporary stockpiles on or near street (including plastic cover); *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 (2017) for guidance to preventing pollutants from leaving construction sites: https://www.erosion.umn.edu/resource-links/pocketbook-guide

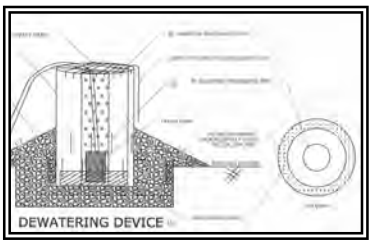
PUBLIC WORKS – STANDARD PLATES for TEMPORARY SEDIMENT CONTROL
https://www.stpaul.gov/departments/public-works/standard-plates/sewers-appurtenances

TEMPORARY SEEDING AND MULCHING, OR PLASTIC COVER
Temporary seeding and mulching quickly protects 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.

Filter types are shown in Public Works standard plates 2400A, 2401, and 2402. Protection(s) must be removed upon completion of work.



DEWATERING TREATMENT
Site-specific devices, including flocculant pipes or socks, can be used to reduce sediment in pumped discharge. Refer to Public Works standard plate 2403 for controlling dewatering activities.

Clear discharge is defined as a maximum NTU reading of 50 plus the background receiving water at the time of discharge.

DAILY AND AS-NEEDED STREET SWEEPING
Street sweeping is used to clean the pavement and curb-line area on a regular basis to remove tracked sediment, debris, and other pollutants from paved surfaces.

Rev. 2020

CITY OF SAINT PAUL
Christopher B. Coleman, Mayor

Public Works
Right-of-Way Division

elephone: 651-487-7250
F x: 651-487-7245

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 (overfill, 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:_____

\\Atlantis\STP-PWUsers\SewerUtility\annew\My Documents\Home\Annew\EPA Audit\EPA Audit Report\Robbins\Spill Reporting Form.doc
3/8/2010

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**
kit absorbs ~8 gallons	30	17"x19" pads
	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**
kit absorbs ~5 gallons	10	17"x19" pads
	2	3"x4' socks
	2	Hazardous Waste Bags
	1	Pair Nitrile Gloves
	4	Spill Reporting Forms

G:\Div\A-OPERATIONS\Environmental Services\Leaks-Spills-Clean Ups\spill kits.xls

SAINT PAUL PARKS AND RECREATION

POLICY

DEPARTMENT

NUMBER: DIV. 4.4.2
PLACEMENT: Physical Resource Management
EFECTIVE DATE: 03/2010
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
Ensure all employees under his/her jurisdiction are aware of this policy and procedures.	Advise all employees of this policy and procedures.	Adhere to the policy.
Ensure that supervisors in his/her section enforce this policy and procedures.	Ensure that employees follow this policy and procedures.	Follow the procedures.
	Issue warnings or initiate disciplinary action as needed to ensure employee compliance.	Ask for additional training if needed.

Owner: Karin Misiewicz, Parks Supervisor **Next Review Date:** 02/11

G:\Div\A-ADMINISTRATION\POLICY\Division-wide Policies\4.0 Physical Resource Management\DIV. 4.4.2 Water Protection Policy.doc

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.

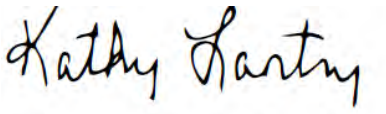
2. Employees will not blow, broom, sweep, whip, or shovel anything including dirt, silt, sand, debris, weeds, or other organic material into such body of water.

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:



_____

Kathy Lantry, Public Works Director

Next Review: November 1, 2021

CITY OF SAINT PAUL
Mayor Christopher B. Coleman

390 City Hall
15 West Kellogg Boulevard
Saint Paul, MN 55102

Telephone: 651-266-8510
Facsimile: 651-228-8513

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.

2020 Discharges Addressed

Date	Discharge	Action
January 2020	Complaint received of sanitary back-up into street at 411 Main (Dorothy Day)	Sewer Maintenance responded to clean the spill. Spill reported to MPCA.
January 2020	Blocked sanitary sewer main at 1359 Magnolia causing spill.	Sewer Maintenance responded to clean the spill. Spill reported to MPCA.
February 2020	Complaint of sludge coming from garage at 1491 Simpson.	Sent to DSI to address and enforce.
April 2020	Complaint received of sanitary back-up at 1340 Fourth Street.	Sewer Maintenance responded to clean the spill. Spill reported to MPCA.
April 2020	Blocked sanitary sewer main at 1363 Magnolia causing spill.	Sewer Maintenance responded to clean the spill. Spill reported to MPCA.
April 2020	Complaint of sewer back-up at 1340 and 1341 E 7th St. Property owner was pumping out basement and discharging	Sewer Maintenance responded to clean the spill. Spill reported to MPCA.
April 2020	Acetone spill from tanker on I-94 (MNDOT MS4).	Private Contractor deployed booms and initiated clean-up.
April 2020	Drilling mud in Griggs St from utility contractor working in ROW.	Sent to ROW to enforce.
April 2020	Erosion and Sediment Control complaint at 685 Minnehaha (West Minnehaha Play Field).	Sent to Parks Design to address.
April 2020	Erosion and Sediment Control complaint at 1410 Seventh Street (Private Development).	Sent to DSI to address and enforce.
April 2020	Sediment entering storm drain at Private Storage Yard at Eaton Street.	Sent to DSI to address and enforce.
April 2020	Erosion and Sediment Control complaint at the Rivoli Private Development.	Sent to DSI to address and enforce.
May 2020	Complaint received of private contractor discharging sanitary to CB at 1219 Cleveland Ave.	Sent to ROW to enforce. Sewer Maintenance vactored out CB.
June 2020	Complaint received from Ramsey County re landscape company washing concrete into CB at 1600 Minnehaha.	Sewer Maintenance investigated, DSI sent letter to landscape company. DSI issued water quality complaint letter.
July 2020	Complaint received from MPCA re pool discharge, carpet cleaning discharge, and pet washing at 1385 Jessamine.	Sent to DSI to address and enforce. Letters sent to responsible parties.
August 2020	Trash truck leaking hydraulic fluid in alley behind 750 Magnolia.	Sewer Maintenance responded to clean the spill. Spill reported to MPCA.
November 2020	Complaint received from CRWD re slurry at 1326 Energy Park.	DSI to send a letter, ROW and Ramsey County notified. Sent to DSI to address and enforce. Letters sent to responsible parties.
December 2020	Blocked sanitary sewer main at 505 Rice St.	Sewer Maintenance responded to clean the spill. Spill reported to MPCA.
December 2020	55 gal. drum found in Hazel Nokomis pond.	Sewer Maintenance removed drum, solidified product, and surrounding soil.

Metro Watershed Partners

2020 Annual Program Report

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

MINNESOTA WATER
LET'S KEEP IT CLEAN

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Metro Watershed Partners 2020 Report

Introduction

Metro Watershed Partners is a coalition of more than seventy public, private and non-profit organizations in the Twin Cities metro area. Through collaborative education and outreach, the Metro Watershed Partners promote a public understanding that inspires people to act to protect water in their watershed. Since 1996, 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 programs with consistent messages to the general public, local government staff and elected officials, and
- to provide WSP members a place and means to share information, generate ideas, and coordinate and support collaborative watershed education programs.

In 2020, members contributed $44,314.00 to support monthly meetings, exhibit checkout, administrative functions, and state fair outreach. (The state fair was canceled this year, and funds rolled over to next year may be used to support the development of new exhibit pieces.) Members contributed $142,591.06 to support Adopt-a-Drain and the Clean Water Minnesota outreach campaign.

Leadership

The work of **Metro Watershed Partners** is guided by a steering committee that includes stormwater education professionals from watershed organizations, non-profits and government agencies. In 2020, our steering committee members were:

Abby Moore, Mississippi Watershed Management Organization
Angie Hong, Washington Conservation District
Emily Johnson, Anoka SWCD
Jen Dullum, Vermillion River Watershed JPO
Kris Meyer, Freshwater
Leslie Yetka, City of Minnetonka
Lyndon Torstenson, National Park Service, Mississippi National River & Recreation Area
Rebecca Haug, City of Blaine
Samantha Connolly, MPCA
Tracy Fredin, Center for Global Environmental Education, Hamline University

Clean Water MN

2020 Outreach Projects Report

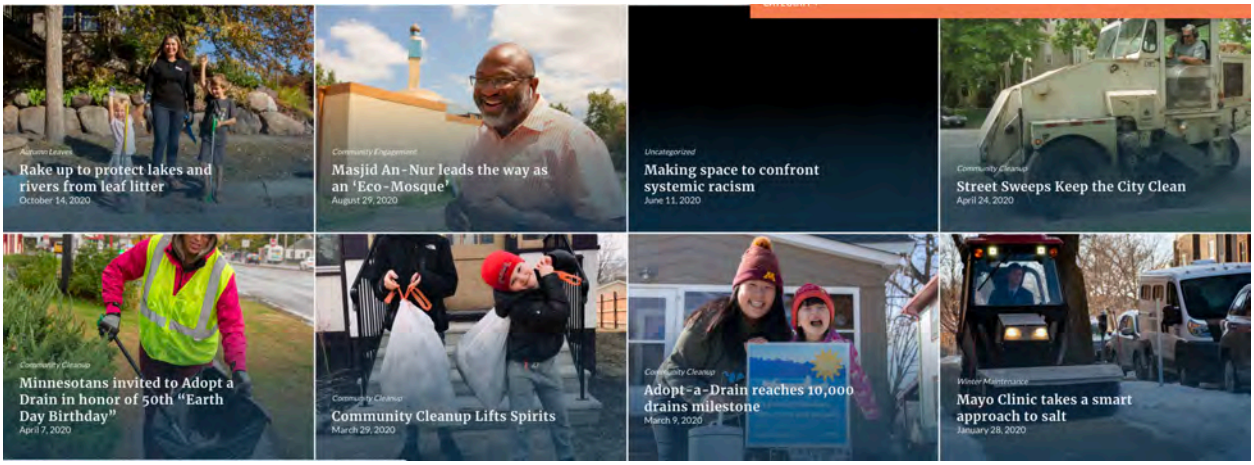
Clean Water MN is the collaborative outreach project of the Metro Watershed Partners. Working together, we provide resources, training, and support to partners as they work to inspire homeowners in the Twin Cities metro area to keep water clean and healthy.

The steering committee of the Metro Watershed Partners oversees the work of Clean Water MN. Jana Larson from Hamline University manages campaign fundraising and the creation and implementation of communication and outreach programs. As part of this work, we regularly ask stakeholders to tell us how to best serve the needs of MS4s.

Cleanwatermn.org features seasonally appropriate stories about metro area residents taking action at home and in their lives to keep Minnesota water clean and healthy. The stories are designed for partners to use in their own communications—via websites, Facebook, Twitter, newsletters, and such.

Along with each story we create a suite of professional photographs, accessible to partners online for use in their own stories and publications. Each story links to informational resources on our own site and other websites. In 2020 we published eight new stories.

The cleanwatermn.org website also features informational pages, calls to action, a “Find My Watershed” map, information about the partnership, educational resources, and a list of our partners. We will continue to develop and add content to the site in 2021 and beyond.



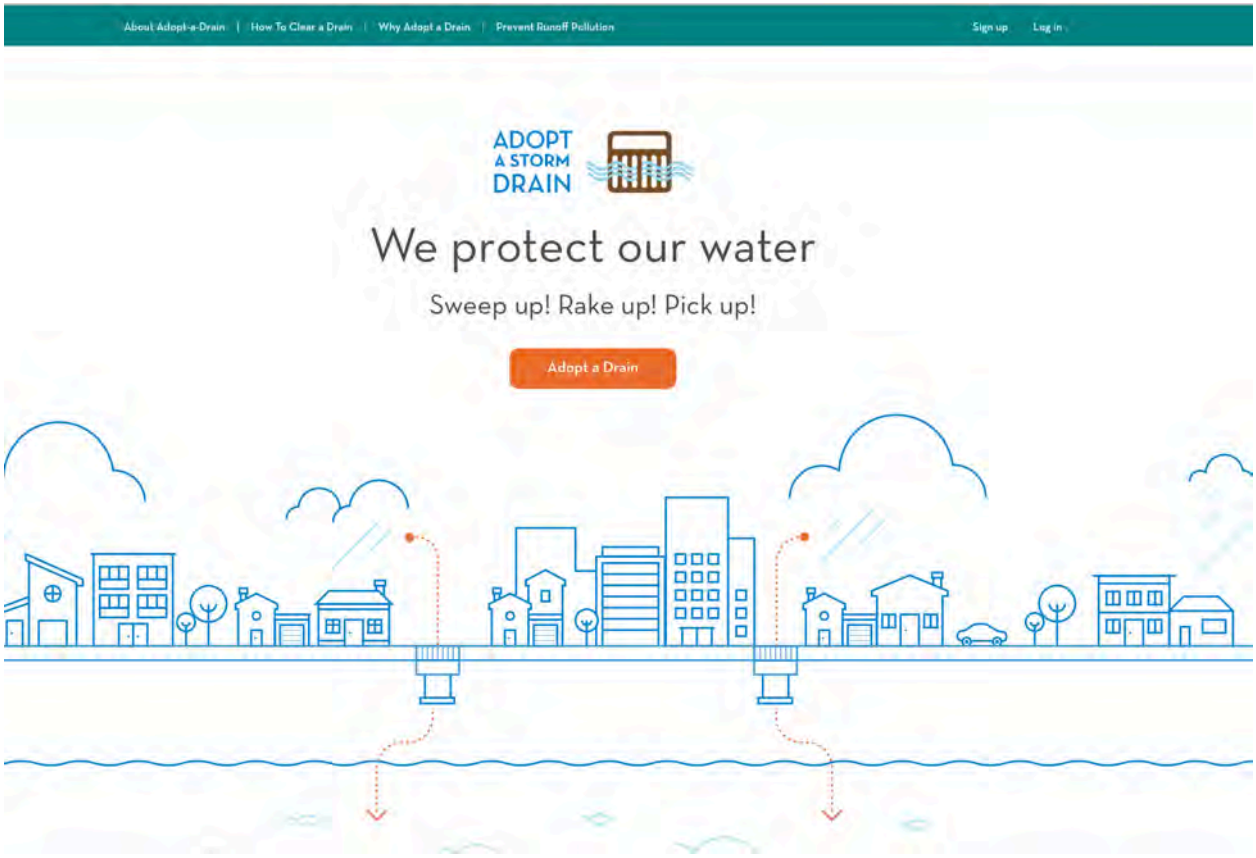
Campaign Analytics

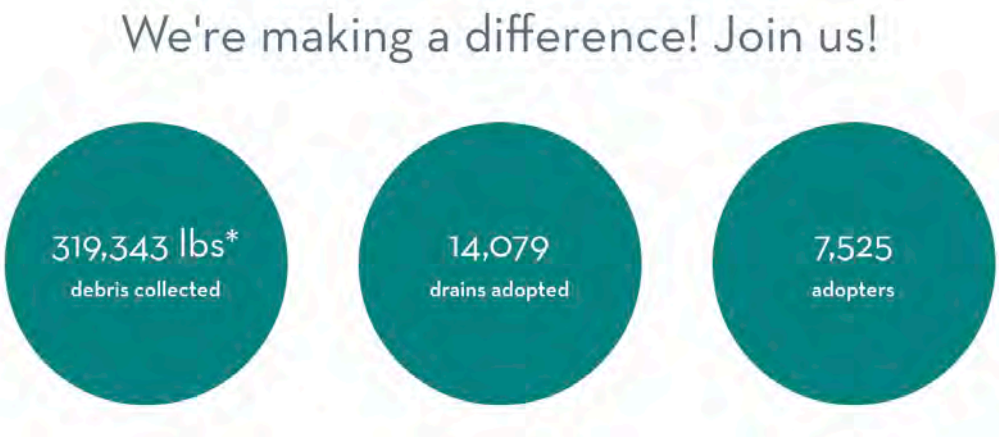
In order to provide some measure of the impact of our work, we have created a system of unique, trackable links for our partners to use when they publish a story from Clean Water MN. This allows us to measure click-through rates to CleanWaterMN.org for each partner individually. Below you will find a summary of these analytics, which paint a general picture of engagement with each story. These numbers do not reflect, however, the total number of readers for any given story, since trackable links are not always used, and some readers may not click on the link to read the full story. Analytics reports with a breakdown for each partner can be found at: http://bit.ly/2rxvGE6

Month	Blog Title	Total page views	Unique page views	Average duration
January	A Song to Sweep to from Frassati Academy	2,513	1,821	0:03:34
February	Mayo Clinic Takes a Smart Approach to Salt	852	765	0:02:02
March	Adopt-a-Drain reaches 10,000 drains milestone	1,119	938	0:02:02
April	Community Cleanup Lifts Spirits	1,859	1,647	0:02:49
April (special event post)	Minnesotans invited to Adopt a Drain in honor of 50th “Earth Day Birthday”	n/a	n/a	n/a
May	Street Sweeps Keep the City Clean	705	604	0:01:37
June	Making space to confront systemic racism	701	604	0:02:15
July	[no new blog post]	469	373	0:01:09
August	[no new blog post]	362	313	0:01:08
September	Masjid An-Nur leads the way as an ‘Eco-Mosque’	473	404	0:01:25
October	Rake up to protect lakes and rivers from leaf litter	1,185	1,031	0:02:09
November	[no new blog post]	665	576	0:01:50
December	[no new blog post]	647	542	0:01:39
Total click-throughs to CWMN site		11,550	9,618	

Adopt a Storm Drain News and Accomplishments in 2020:

Adopt-a-Drain continues to use and improve the website at adopt-a-drain.org. Available to all residents in the metro area and Rochester since March of 2019, the program has now launched in Saint Cloud, and a new "suggest a drain" feature allows anyone in the state of Minnesota to adopt a storm drain.



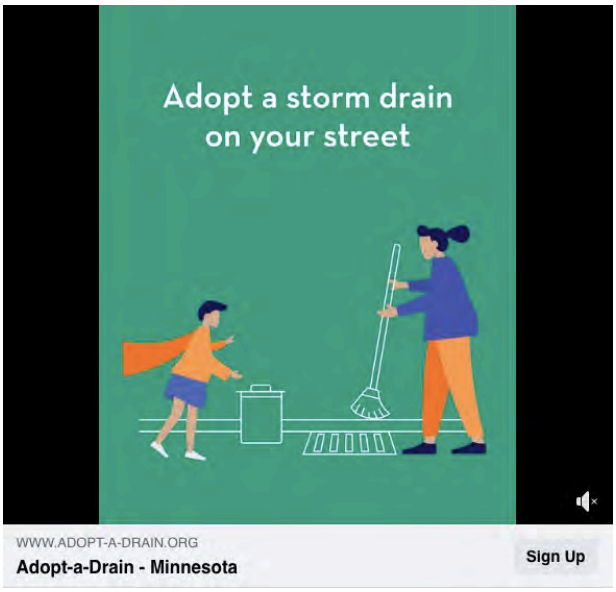


Drain adoption increased by nearly 40% in 2020; we now have more than 7,500 participants who have adopted more than 14,000 storm drains.

Special promotional events

To drive participant reporting and engagement and recruit new members to the Adopt-a-Drain program, we held three special online promotional events in 2020.

1. **During the month of April,** we celebrated "Earth Day Birthday"—A social media campaign that encouraged people to sign up to adopt a storm drain in honor of the 50th birthday of Earth Day. Everyone who signed up during the month of April or reported what they cleaned up from their drains received "Earth Day Birthday" temporary tattoos. We also received 200 coupons from Dangerous Man brewing and sent them to people who reported what they collected, while supplies lasted. In April: 742 new signups, 1,306 drains adopted, 15,350.9 lbs of debris cleaned, and 552 people who reported cleanings.



2. From **August 1 through Labor Day**, we promoted a refer-a-friend campaign both on social media and via our monthly newsletter to adopters. Everyone who signed up during that time received a yard sign, welcome packet, and tote bag. All existing participants who referred a friend also received a tote bag. During this month, 334 new participants signed up, as a result of 105 referrals.

3. From **October 26 – November 1** we promoted a fall leaf cleanup. Everyone who reported the amount of leaves they collected during that week was added to a drawing for ten tote bags that we gave away every day of the event. 70 tote bags were awarded. 9,118.5 pounds of debris were reported by 293 people during the week.

Clean Water Begins at Your Curb – Video on TPT

In April, Metro Watershed Partners, Hamline University and TPT co-produced a new 90-second animation that traces the connections between storm drains and local waterways, emphasizing the crucial role of community members in preventing water pollution. It played during the spring and summer on TPT, reaching more than a million viewers. You can find it on the homepage of adopt-a-drain.org and at https://www.tpt.org/clean-water-begins-curb/

Communication with participants

Throughout the year, Adopt-a-Drain participants are encouraged to report their work via a bimonthly email newsletter that also features stories about participants in the metro area, drain cleaning tips and best practices, latest reporting statistics, and other Adopt-a-Drain news.

This year, we created and launched a new website feature that asks all participants to commit to reporting their work, and to opt in to receive automated email reminders at the frequency they choose. In December, we sent a postcard to all participants who had not yet reported their work, and received an additional 700 responses. As a result of this outreach, the reporting rate increased from 42% to 47%.

Adopt-a-Drain staff have the opportunity to communicate directly with participants of the program, communicating with an average of 10-20 participants per week, to answer questions about stormwater issues and connect them with resources in their community.

Customizable print and electronic resources for promoting Adopt-a-Drain and Community Cleanups are available in multiple formats for download on the "For Partners" page of CleanWaterMN.org. These resources include: direct mail postcards, utility bill inserts, door hangers, promotional flyers, billboards, and images with logos for posting to social media.

We are continuing to revise and improve these resources so please continue to check that page for the latest updates. Along with an updated set of customizable print resources, we are working on and will soon release an updated set of brand guidelines. Stay tuned for that!

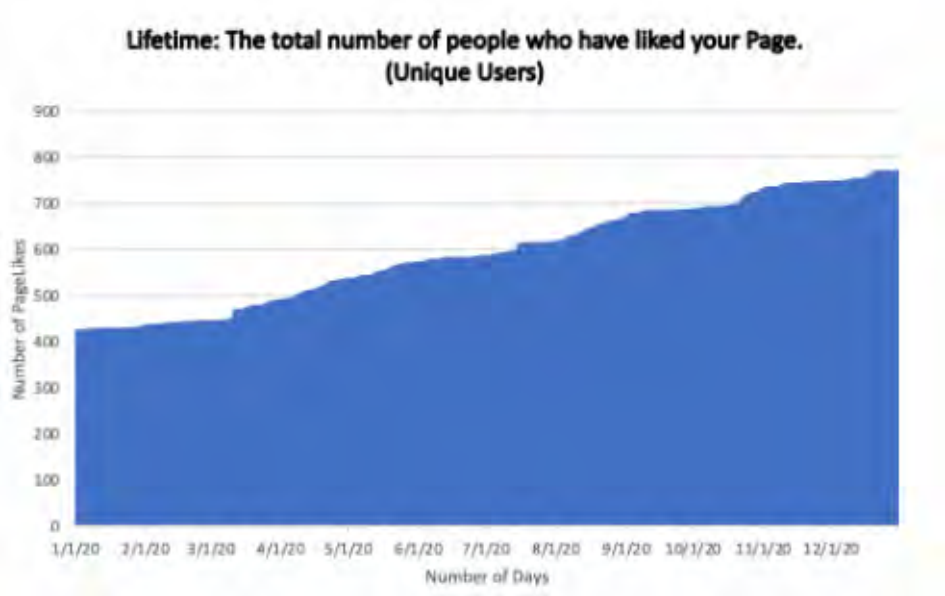
3-year baseline study of Adopt-a-Drain

In November, we completed a baseline study of the Adopt-a-Drain program in Minneapolis, with an emphasis on understanding how to reach underserved populations in the city. This research was funded by the City of Minneapolis and conducted in collaboration with researchers at the University of Minnesota's Center for Changing Landscapes. A presentation of study findings will be given at the upcoming Watershed Partners meeting on April 14, 2021.

Adopt-a-Drain on Facebook, Twitter and Instagram

In 2020 the Adopt-a-Drain Social Media team focused on posting high-quality and consistent content across all of our social media platforms. With the assistance of a social media consultant we implemented strategic tactics to gain followers, increase engagement and reach a large audience on all of our Adopt-a-Drain social media accounts.

On January 1st, 2020 the Adopt-a-Drain Facebook page had 427 page likes and as of December 31st 2020 it has 779 page likes. During that period there were 352 new page likes. That is an increase of 82%.

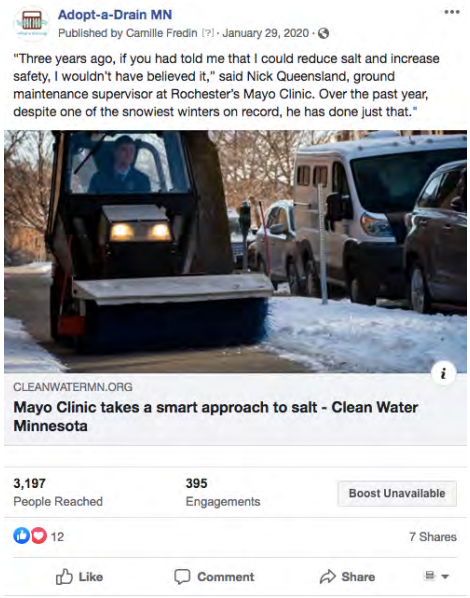


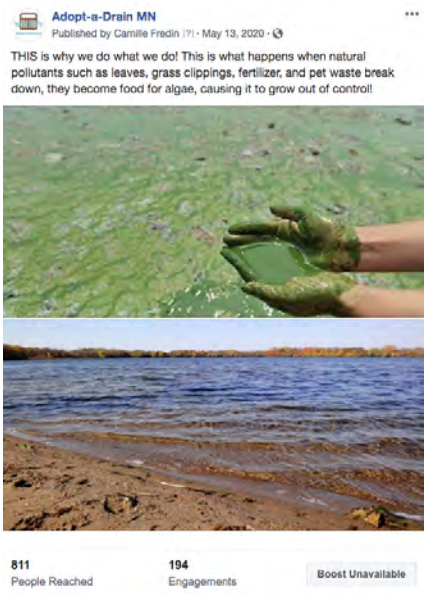
On January 1st, 2020 the Adopt-a-Drain Twitter account had 119 followers and as of December 31st 2020 it has 228 followers. During that period there were 109 new followers. That is an increase of 91%.

On January 1st, 2020 the Adopt-a-Drain Instagram account had 201 followers and as of December 31st 2020 it has 857 followers. During that period there were 656 new followers. That is an increase of 326%.

From August 1st 2019 to December 31st 2019 there were 138 posts created and posted.
In 2020 we posted 342 posts on Facebook. That is an increase of 148%.
We had a high amount of engagement on our posts in 2020. In 2020 on our Facebook Page there were 7,112 engagements including likes, comments, and shares.

Our most engaging posts of the year on Facebook were the following.





Impressions

In 2020 Adopt-a-Drain's social media reached a large number of people. On Facebook we reached a total of 137,994 people. Organically 108,001 people were reached and 35,887 people were reached with non-organic promotions.

In 2021 we are going to continue to focus on posting high-quality and consistent content as we strive to educate and engage our current audience and simultaneously continue to reach new audiences.

2020	Instagram	Twitter	Facebook
January	1,551	3,930	7,254
February	167	1,105	3,581
March	5,245	5,406	4,837
April	5,111	9,014	45,452
May	3,109	9,660	6,413
June	4,245	7,360	4,672
July	5,556	9,094	7,237
August	5,910	12,300	22,150
September	4,893	9,134	6,804
October	6,278	10,500	13,441
November	7,384	11,100	10,247
December	7,523	10,900	5,906
TOTAL:	56,972	99,503	137,994

Follow us! Like us! Share our posts!

https://www.facebook.com/AdoptaDrainMN/
https://www.instagram.com/adoptadrain/
https://twitter.com/adoptadrainmn

Watershed Partners listserv

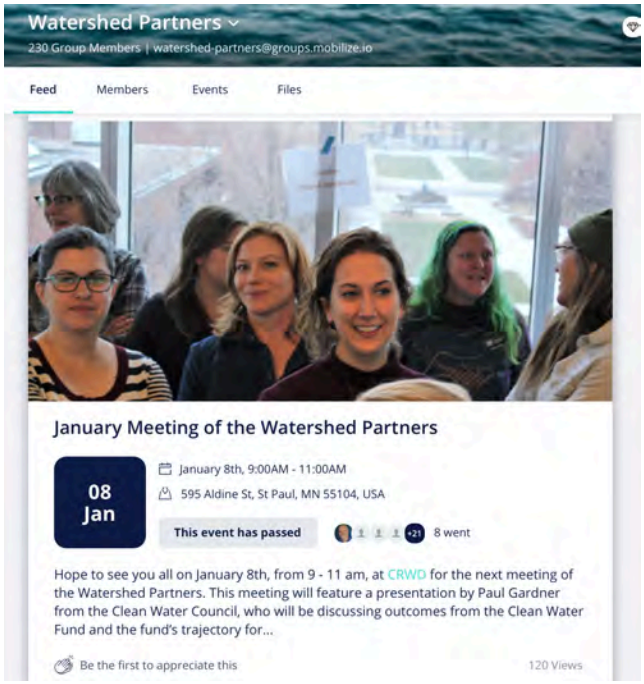
The Metro Watershed Partners listserv is a forum for watershed educators, legislators and industry professionals throughout the state to share information and resources.

Our listserv is hosted by Mobilize, an online interactive communications platform for discussions, chat, events, files, and networking that is accessible online, via email, or mobile app.

The listserv is now hosted at: https://watershedpartners.mobilize.io

Messages can posted online to a feed or sent via email: watershed-partners@groups.mobilize.io

There is a connected subgroup of the listserv for Adopt-a-Drain administrators from member cities and watershed districts to share information and resources at: adopt-a-drain-user-group@groups.mobilize.io



These are private forums and anyone who would like to be added to either Mobilize group must send an email request to jlarson25@hamline.edu

In 2020, the Metro Watershed Partners listserv continued to provide more than two hundred user-members with an effective tool to promote educational programs, share information about professional programs, and exchange information with other watershed educators, legislators and businesses.

2020 Accomplishments of the Metro Watershed Partners

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 2020, the Watershed Partners held 10 meetings; 40 – 50 partners attended each meeting. Our meetings moved online beginning in March, and meeting attendance increased! We're pleased to see that partners continue to value our meetings, and demonstrate energy for collaboration and information sharing; we plan to continue offering workshops and events in 2021 and beyond.

2020 PARTNER MEETINGS — TOPICS AND PRESENTERS

January	Outcomes from the Clean Water Fund	Paul Gardner, Clean Water Council
February	Chloride Resources and Assistance	Brooke Asleson, Minnesota Pollution Control Agency
March	What's Working for Conservation 2020; Lawns to Legumes Update	Dan Shaw and Tara Kline from BWSR
May	Climate change and rainfall – where can/should/will all the water go?	Leslie Yetka, City of Minnetonka and Janna Kieffer, Barr Engineering
June	Moving environmental education online; Big River Journey, a case study	John Shepard & Tracy Fredin of Hamline University's Center for Global Environmental Education and Lyndon Torstenson of the National Park Service.
July	Anti-Racism Conversation	
September	Stormwater nutrient pollution of Twin Cities waters: sources and solutions	Sarah Hobbie, University of Minnesota
October	Preparing for and Responding to Diverse Audiences and Changing Demographics in Water-related Outreach and Communications	Megan Dayton, Senior Demographer at Minnesota's State Demographic Center; Mark Doneux, Administrator, Capitol Region Watershed District; Tammy Schmitz, Communications and Outreach Specialist
November	Art for Water	Alex Van Loh and Kris Meyer, Freshwater; Beth Carreno, RCWD; and guest artists
December	Plant for the Future	Mary Hammes, Environmental Stewardship and Volunteer Manager, Mississippi Park Connection

2020 Financial Report

In response to our fundraising requests, 55 supporting members contributed: $44,314.00 to the Watershed Partners in support of meetings, state fair outreach, administration, exhibit maintenance, development and checkout; and $142.591.06 to support Adopt-a-Drain, the Clean Water MN website and public outreach campaign.

Supporting Members of the Metro Watershed Partners, Adopt-a-Drain, and the Clean Water MN Media Campaign in 2020

Andover
Anoka Conservation District
Bassett Creek WMC
Blaine
Bloomington
Brown's Creek WD
Cannon River WP
Capitol Region Watershed District
Carver County
Circle Pines
Columbia Heights
Comfort Lake-Forest Lake WD
Coon Creek WD
Crystal
East Metro Water Resources
Eden Prairie
Edina
Elm Creek WMC
Excelsior
Fridley
Hastings
Hennepin County
Hopkins
Lakeville
Lauderdale
Lower Mississippi River WMO
Middle St. Croix WMO
Minneapolis
Minnehaha Creek WD
Minnetonka
Mississippi NRRA
Mound
New Brighton
Nine Mile Creek WD
Pioneer-Sarah Creek WC
Prior Lake
Ramsey-Washington Metro WD
Rice Creek WD
Richfield
Riley Purgatory Bluff Creek WD
Rochester
Rosemount
Roseville
Saint Louis Park
Saint Paul
Shingle Creek WMC
Shoreview
South Washington WD
Vadnais Lake Area WMO
Vermillion River Watershed JPO
Washington Conservation District
Wayzata
West Mississippi WMC
White Bear Lake
Woodbury

WSP 2020 ACCOUNTING	IN-KIND	CASH	TOTAL
REVENUE			
CWMN funds rollover		$5,118.94	$5,118.94
Watershed Partners coordination	$53,800.00	$23,993.00	$77,793.00
Watershed Partners exhibit	$22,000.00	$20,321.00	$42,321.00
Media campaign	$5,500.00	$41,273.00	$46,773.00
Adopt-a-Drain		$101,318.06	$101,318.06
Total revenue	$81,300.00	$192,024.00	$273,324.00
EXPENSE			
1. Watershed Partners Coordination			
Principle Investigator		$10,848.22	$10,848.22
Program Coordinator	$12,000.00	$13,000.00	$25,000.00
Steering Committee	$32,400.00		$32,400.00
Meeting room rental fees	$4,500.00	$0.00	$4,500.00
Technology maintenance	$1,400.00	$0.00	$1,400.00
Meeting expenses		$691.80	$691.80
Postage and printing		$0.00	$0.00
Subtotal	$50,300.00	$24,540.02	$74,840.02
2. Watershed Exhibit Implementation			
Exhibit coordination	$4,500.00	$0.00	$4,500.00
State fair expenses		$0.00	$0.00
Storage and check-out	$5,000.00		$5,000.00
Subtotal	$9,500.00	$0.00	$9,500.00
3. Clean Water MN			
Campaign coordination	$5,500.00	$22,000.00	$27,500.00
Printing and postage		$0.00	$0.00
Blog writing and photography		$5,625.00	$5,625.00
Web hosting and maintenance		$1,208.36	$1,208.36
Graphic design and video production (TPT and Earth D		$9,972.33	$9,972.33
Focus group research			$0.00
Meeting expenses		$250.00	$250.00
Cleanup kit resources			$0.00
Subtotal	$5,500.00	$39,055.69	$44,555.69
4. Adopt-a-Drain			
Site license		$30,000.00	$30,000.00
Program coordination		$25,000.00	$25,000.00
Program implementation		$18,738.00	$18,738.00
Social media and communications		$20,981.24	$20,981.24
End of year mailing		$2,500.00	$2,500.00
Subtotal	$0.00	$97,219.24	$97,219.24
TOTAL	$65,300.00	$160,724.95	$226,024.95
ADMINISTRATION FEE		$13,441.68	$13,441.68
TOTAL		$174,166.63	$239,466.63
ROLLOVER		$17,857.37	

2021 WSP DRAFT BUDGET	IN-KIND	CASH	TOTAL
REVENUE			
CWMN funds rollover		$17,857.37	
Watershed Partners coordinatio	$53,800.00	$23,993.00	$77,793.00
Watershed Partners exhibit	$22,000.00	$20,321.00	$42,321.00
Media campaign	$5,500.00	$41,273.00	$46,773.00
Adopt-a-Drain		$101,318.06	$101,318.06
Total revenue	$81,300.00	$204,762.43	$286,062.43
EXPENSE			
1. Watershed Partners Coordination			
Principle Investigator	$2,500.00	$6,000.00	$8,500.00
Program Coordinator	$12,000.00	$13,000.00	$25,000.00
Steering Committee	$32,400.00		$32,400.00
Meeting room rental fees	$4,500.00	$1,200.00	$5,700.00
Technology maintenance	$1,400.00	$1,000.00	$2,400.00
Meeting expenses		$2,000.00	$2,000.00
Postage and printing		$200.00	$200.00
Subtotal	$52,800.00	$23,400.00	$76,200.00
2. Watershed Exhibit Implementation			
New exhibit creation		$10,000.00	$10,000.00
Exhibit coordination	$4,500.00	$5,000.00	$9,500.00
State fair expenses		$15,000.00	$15,000.00
Storage and check-out	$5,000.00		$5,000.00
Subtotal	$9,500.00	$30,000.00	$39,500.00
3. Clean Water MN			
Campaign coordination	$5,500.00	$24,000.00	$29,500.00
Printing and postage		$400.00	$400.00
Blog writing and photography		$6,000.00	$6,000.00
Web hosting and maintenance		$2,000.00	$2,000.00
Graphic design and website updates		$10,000.00	$10,000.00
Focus group research			$0.00
Meeting expenses		$1,000.00	$1,000.00
Cleanup kit resources			$0.00
Subtotal	$5,500.00	$43,400.00	$48,900.00
4. Adopt-a-Drain			
Site license		$30,000.00	$30,000.00
Program coordination		$25,000.00	$25,000.00
Program implementation		$14,000.00	$14,000.00
Social media and communications		$20,000.00	$20,000.00
End of year mailing		$3,500.00	$3,500.00
Subtotal	$0.00	$92,500.00	$92,500.00
TOTAL	$67,800.00	$189,300.00	$257,100.00
ADMINISTRATION FEE		$14,333.37	$14,333.37
TOTAL (INCL. ADMIN)	$67,800.00	$203,633.37	$271,433.37

Adopt-a-Drain in St. Paul, 2020

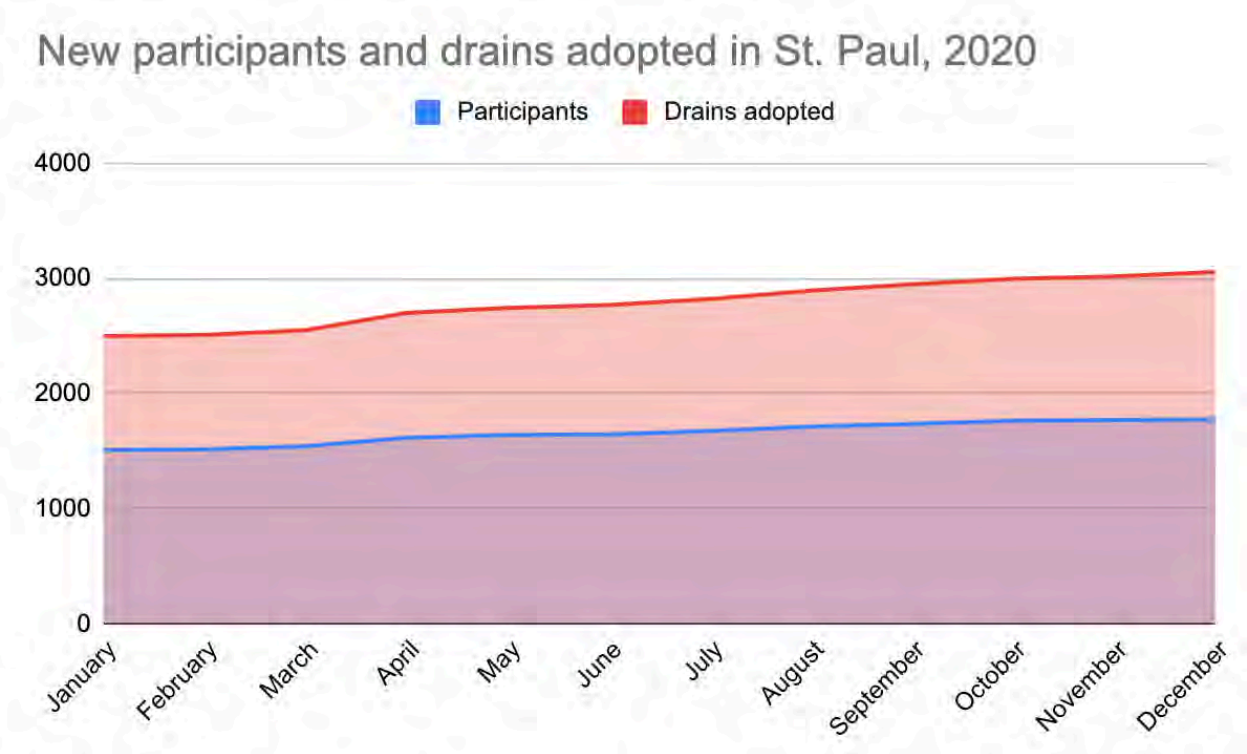
Annual Report

271
new participants in 2020

565
drains adopted in 2020

1,777
total participants

3,057
total adoptions



2020 Reporting Data

645 St. Paul participants reported cleanings, which represents 36.6% of all participants in the city.

St. Paul participants collected 45,148.0 lbs of debris from their adopted storm drains in 2020.

Debris Type	Amount (lbs)
Brown leaves	29,651.3
Grass and green leaves	3,104.5
Sediment and dirt	10,607.4
Trash	1,563.7
Salt	221.0

In 2019, the total amount reported was 17,190.7 lbs.

Month	New participants	Drains adopted	Debris collected (lbs)	Time spent (hours)
January	6	10	8,443.7	218.2
February	4	9	3,468.9	117.5
March	28	41	2,069.6	23.1
April	74	150	4,616.0	58.8
May	24	42	460.2	24.1
June	4	27	3,780.5	81.8
July	30	51	1,668.4	33.1
August	38	73	1,290.0	34.2
September	23	56	1,206.0	21.1
October	28	48	6,341.1	76.2
November	6	19	8,568.9	76.8
December	6	39	3,234.7	85.8
TOTALS	**271**	**565**	**45,148.0**	**850.7**

Geographic Breakdown: Watershed and Subwatershed

Drains adopted: Cumulative total
Debris collected: 2020 data only.

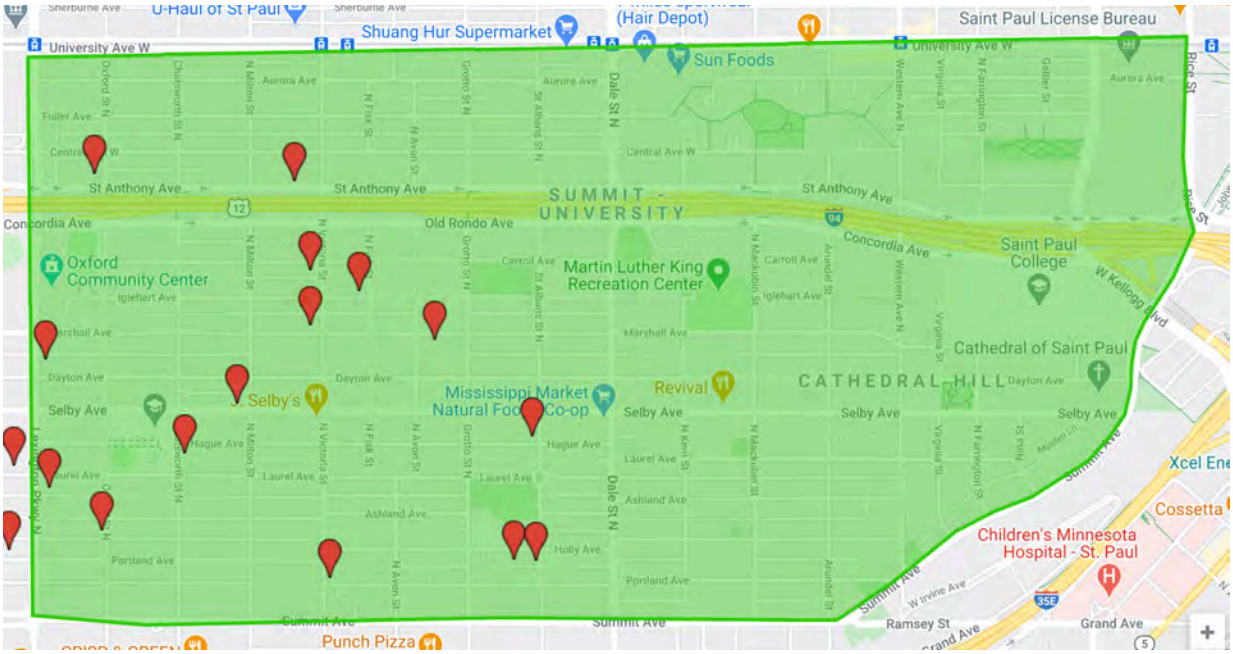
Watershed	Drains adopted	Debris collected (lbs)	Time spent (hours)
Capitol Region	2,556	40,252.25	721.0
Ramsey-Washington Metro	388	3,202.3	96.1
Lower Mississippi River	95	1,656.3	14.4
Rice Creek	18	311.5	19.1

Subwatershed	Drains adopted	Debris collected (lbs)	Time spent (hours)
Mississippi River (CRWD)	407	6,628.1	102.1
St. Anthony Park towards the Mississippi River	315	4,621.4	78.7
Como Lake	314	9,290.3	89.1
Trout Brook (City of St. Paul)	304	2,019.1	53.0
East Kittsondale routes to Mississippi River	292	3,429.4	69.1
St. Anthony Hill towards the Mississippi River	265	5,772.6	136.5
West Kittsondale routes to Mississippi River	174	2,370.2	68.5
Davern St and routes to Mississippi River	153	3,101.1	44.1
St. Paul Beltline pipe to the Mississippi River	134	713.9	29.9
Lake Phalen	130	1,644.7	39.1
City of St. Paul-Mississippi River	95	1,656.3	14.4
Phalen Creek	94	722.0	25.6
Crosby Lake	79	1,107.8	29.7
Goodrich-Western routes to Mississippi River	63	433.3	12.9
Battle Creek	58	273.6	9.2
Downtown Subwatershed routes to Mississippi River	54	408.2	22.4
West Seventh towards the Mississippi River	41	509.3	6.9
Mississippi River Bottomlands	28	226.7	6.5
Urban Subwatershed towards the Mississippi River	21	69.0	2.5
Beaver Lake	17	93.4	1.3
Blufflands	13	317	7.3
Hidden Falls	4	0	0.0
Fish Creek	1	0	0.0
Wakefield Lake	1	15	2.0

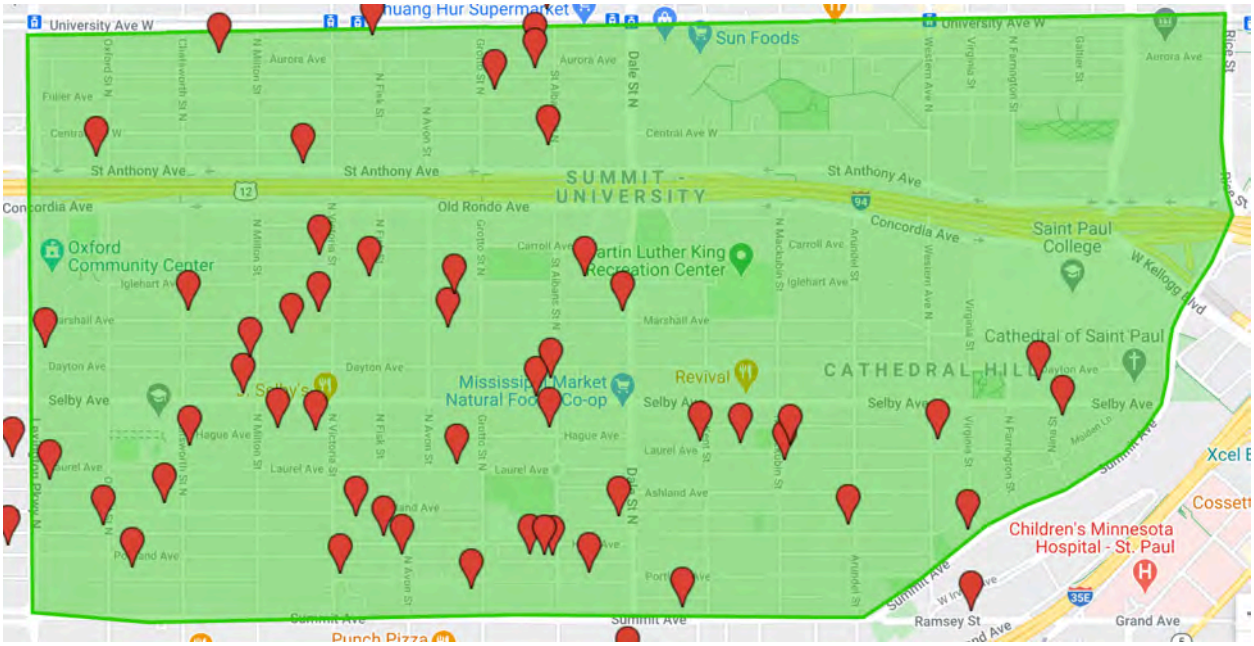
Results of Promotion

In July, instead of doorhanging we sent a direct postcard mailing to 5,999 residences in the Summit-University neighborhood. Following the promotion in July, there were 15 new signups in the Summit-University neighborhood, for a total of 51 participants in the neighborhood.

New adopters after July, 2020



Total adopters



Mailings and Signs Summary

The City of St. Paul sponsored the mailing of welcome packets and delivery of signs to participants for 2020. In total, 234 signs were delivered to St. Paul participants.

Saint Paul (Total: 234)

- Capitol Region: 193
  - Mississippi River: 181
  - Como Lake: 12
- Ramsey-Washington: 35
  - Mississippi River: 20
  - Lake Phalen: 14
  - Beaver Lake: 1
- Lower Mississippi: 6

What is a TMDL?

Total Maximum Daily Load

Total Maximum Daily Load (TMDL) is the largest amount of a pollutant that can be in a body of water while still meeting Minnesota water quality standards. Every year, the Minnesota Pollution Control Agency (MPCA) develops a list of **impaired waters**, bodies of water that do not meet water quality standards. The MPCA establishes a TMDL plan for impaired bodies of water that identifies the amount specific pollutants need to be reduced to meet water quality standards. This process is required by The Clean Water Act and is approved by the U.S. Environmental Protection Agency.

WHERE?

Impaired waters in Saint Paul:

Battle Creek, Como Lake, Fish Creek, Kasota Ponds, Mississippi River, Lake Pickerel and Lake Phalen.

WHAT?

Major pollutants include:

chloride, E. coli, mercury, total suspended solids and excess nutrients like nitrogen.

CAUSES

Poor water quality often occurs due to:

- Runoff from yards and pavement.
- Winter salting of roads and sidewalks.
- Fertilizers from lawns and agriculture.
- Atmospheric pollutants.
- Sediments in the bodies of water.

SOLUTIONS

What you can do to improve water quality:

- Rake leaves and debris out of the street.
- Sweep up grass clippings.
- Learn how to properly apply reduced amounts of fertilizer in the summer and salt in the winter.
- Reduce the use of motor vehicles.

FRIENDS OF THE MISSISSIPPI RIVER
FMR.ORG

SAINT PAUL

Information Source: https:/epa.gov/tmdl/overview-total-maximum-daily-loads-tmdls

FRIENDS OF THE MISSISSIPPI RIVER

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

101 East Fifth Street
Suite 2000
Saint Paul, MN 55101

651-222-2193
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St. Paul Water Quality Education Project- 2020 Final Report
Submitted by Friends of the Mississippi River
12/3/2020

This report summarizes Friends of the Mississippi River's activities in fulfillment of our 2020 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 four key program areas, which are described in greater detail in this report:

1. Storm drain stenciling and cleanups
2. Extra education
3. Storm drain mural installation
4. Community educational workshops and events

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 15-30 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. Due to the pandemic, this year FMR transitioned to a majority of no-contact stenciling kits pick up and drop off. These kits provide all of the supplies to stencil as well as educational materials, however these groups do not receive the 15-30 minute presentation.

In addition to stenciling outings, FMR also coordinates 2-3 litter-cleanups/invasive species pulls within the city each year.

Outreach:

In 2020, 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)
- Announcement at Big River Journey teacher trainings in February and August 2020
- Posting on FMR's website, social media (Facebook, Instagram and Twitter pages), as well as announcements in FMR's email newsletter, *Mississippi Messages*
- Postings on the volunteer website VolunteerMatch

Accomplishments:

Stenciling:

Storm drain stenciling did continue this year though with no-contact pick-up and drop off options due to the pandemic and concerns about gathering in groups. FMR Program Assistant Ashley O'Neill Prado facilitated the program and Kate Clayton (Youth Coordinator) assisted with the few in person group requests this year. In total, 22 groups including school and college groups, community groups, corporations and residents of the City of St. Paul participated in storm drain stenciling outings. A list of the 22 groups, with event dates and goals achieved, is attached at the end of this report.

114 volunteers stenciled 1013 storm drains and distributed 1,199 educational door hangers within the city, for a total of 319 hours of volunteer work. Stenciling that did take place covered a much of St. Paul though was concentrated in the western portion of St. Paul. We are actively looking for more community partners in the eastern portion of St. Paul as the pandemic eliminated the opportunity to work with our regular contacts over the course of 2020. A map of specific locations is included at the end of this report.

Cleanups:

The interest in cleanups was drastically limited this year, again, most likely due to the pandemic. In 2020 FMR facilitated one group cleanup with a total of 13 people, contributing 26 total hours. This cleanup took place at Pickerel Lake near Harriet Island and along the floodplain bike trail. The event date and accomplishments are attached at the end of this report. For this outing FMR provided general education, trash bags and gloves as well as coordinated with the City of St. Paul Parks and Recreation Department.

In total, FMR engaged 125 volunteers for 337 hours in cleanup and stenciling outings in 2020. This year FMR did not achieve our goals due to the COVID-19 pandemic, schools shutting down and restrictions on the numbers of people gathering in one location. Activities were halted in March before the volunteer season started and through the rest of the year people were hesitant to schedule or participate in group outings. Schools also canceled all field trips for the 2020 year, significantly cutting into FMR's standard audience.

Since many of the programs this year were either virtual or flexible such as a stenciling kit reservation, the weather was not an issue and we did not need to cancel any St. Paul events we did have planned once we were able to gather groups starting in June.

Though surveys were shared with program participants, survey response was also very limited. In general, the no-contact stenciling kit program was well received by people who were looking to help without joining a large group and they were interested in continuing to engage with FMR to learn more about water quality.

Equipment:

FMR staff coordinated the purchase, storage and maintenance of storm drain stenciling supplies for the 2020 season. Below is an inventory of supplies remaining at the end of the 2020 season. See previous reports for a comparison with prior years.

Equipment:
Gloves: Plenty
Clipboards: 25
Goggles: 17
Full paint cans: 77
Partial paint cans: 15
Brushes: 22
Vests: 61
Cones: 30
Buckets: 13
Trash Bags: Plenty
Flyers/Door Hangers: ~5,500

Stencils:
Drains to River: 31
Drains to Creek: 23
Drains to Lake: 29
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 previous years multiple formats including classroom presentations, interpretive field trips, and participation in special events (i.e. the Children's Water Festival) existed. This year, most of the programs prior to March were in a similar format; however, everything after March was conducted in a virtual format. Unfortunately, this change also limited the number of programs that FMR was able to facilitate as everyone was working to adjust to the change. Using the time during the shutdown in the spring FMR staff reformatted the standard educational programming, created curriculum and posted resources to the FMR website. Each educational program still includes information about urban runoff pollution and methods for its prevention, and additional topics still may include the water cycle, watersheds, erosion, wetlands, river ecosystems, landscape change, and habitat restoration. These presentations are designed to increase knowledge of urban non-point source pollution and related environmental issues, and may include demonstrations, PowerPoint presentations, games/activities and discussion topics. FMR Youth Coordinator, Kate Clayton, primarily provided extra education experiences, with assistance from Program Assistant Ashley O'Neill Prado.

Outreach:

In 2020, 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 February and August 2020
- Featured in the FMR monthly newsletter and on social media

Accomplishments:

This year, FMR coordinated 12 classroom presentations, participated in one special event (Children's Water Festival in a virtual format) and held one virtual field trip. In total we provided extra education for 338 participants in the City of St. Paul. Classroom lessons averaged 1 hour. A list of the schools and participants is attached to the end of this report.

Due to the closure of schools and disruption of our regular event season in the spring FMR staff spent time creating online resources for area schools and partner organizations to use. These resources reflect our regular educational offerings and cover the same information. Data collected from Google analytics show that we had an additional 895 engagements with our online curriculum. This includes webpage views, worksheet downloads and video views, though we cannot tell if those views were students or teachers who then used the materials while working with their students.

Storm Drain Mural

Prior to the start of the pandemic, FMR had contracted with artists Liv Novotny and Violeta Rotstein, the same artists who painted the 2019 mural. We had classroom visits planed with Open World Learning Community and Cherokee Heights Elementary both on the West Side of St. Paul. Unfortunately, schools shut down and then transitioned to a virtual format before we could hold those workshops. As an alternative we worked with teachers to provide virtual resources and gather ideas from students through tools on the Google platform.

The mural was painted in August at the traffic circle on Harriet Island.

- 5/4/2020: Open World Mural Feedback (60 students)
- 5/11/2020: Cherokee Heights Mural Feedback (3 students)
- 8/16/2020: Painting Day

COMMUNITY EDUCATION WORKSHOPS AND EVENTS

Description:

The workshops and stenciling outings included continued development of our River Friendly Homes and Gardens workshops (updating information on the impact of storm water pollutants on water quality, best practices for rain garden 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). Much of the messaging is crafted around quick, memorable items that individuals can take home, making them more easily interjected under shorter formats for presenting, like those of the stenciling events. Staff also updated printed materials on these topics that were distributed at the workshops.

TMDL Worksheet

FMR staff gathered information about total maximum daily load regulations in St. Paul and specific impaired water bodies. That information was compiled by FMR Program Assistant Ashley O'Neill Prado into a fact sheet which was shared with the City of St. Paul. This fact sheet was also printed out by FMR and handed out to all of the people who came to collect rain barrels. Unfortunately, the lessons that we were anticipating on holding were canceled due to the school shut down in the spring. The fact sheet will continue to be a resource available to participants of future FMR workshops.

River Friendly Homes and Gardens - Make and Take Rain Barrel Workshop:

Much of the workshop focuses on conserving water and reducing runoff pollution. In addition to providing an overview of stormwater issues related to urban runoff pollution, the workshop introduces alternative lawn-care practices, landscaping with native plant species, proper use of lawn fertilizer, rain gardens, rain barrels, backyard composting, green roofs, pervious pavement, soil testing and more. Participants are provided with handouts listing local resources for additional education, cost-share programs, or purchasing supplies.

FMR hosted a rain barrel pick-up and virtual workshop in 2020 to maintain social distancing measures for participants. The rain barrel pick-up did result in 60 barrels distributed to 45 participants which is equivalent to other years when we would facilitate in person rain barrel workshops. Participants received a barrel, a conversion kit, TMDL fact sheet, and information on how to contribute to water conservation and water quality efforts in St. Paul.

The virtual workshop provided attendees with background on river pollutants coming from our homes, yards, and streets or developed areas, and encouraged water-friendly actions for individuals to take to improve water quality. Stewardship & Education Youth Coordinator, Kate Clayton, and Volunteer Coordinator, Sophie Downey, facilitated the workshop while Program Director Laura Mann Hill and Program Assistant Ashley O'Neill Prado filmed a demonstration on how to assemble a rain barrel. The workshop was recorded for use by participants in the future.

- Du Nord warehouse, Vandalia St, St. Paul. October 24, 2020 (45 participants, 60 barrels)

Outreach:

Participants for the workshop were recruited using the following means:

- Posts and boosted posts on patch.com
- Posting on FMR's website and announcements in FMR's Mississippi Messages newsletter
- Targeted ads through social media, including Facebook and Instagram
- Posting on various online event calendars

Accomplishments:

The following table summarizes public event participation in 2020:

Name	Date	Location	# Participants
Rain Barrel pick up	10/24/2020	Du Nord warehouse Vandalia Street	45
Rain Barrel Virtual workshop	10/28/2020	Virtual Zoom Workshop	14
Total			59

Photos:

Photo albums of the events listed in this report can be viewed on FMR's Flickr site at the following links:

Storm Drain Stenciling
- https://www.flickr.com/photos/friendsmissriv/albums/72157715349537372

Storm Drain Mural
- https://www.flickr.com/photos/friendsmissriv/albums/72157715525247226

Rain Barrel Workshop:

- https://www.flickr.com/photos/friendsmissriv/albums/72157716832516426


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 cesped 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 tsheb rau ntawm cov nyom ntawm koj tog tsev los yog tom lub chaw ntxuav tsheb - tsis txhob ntxuav rau ntawm lub chaw nres tsheb 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 tsheb thiab tu tej roj uas tau txeej 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 15ºF.
   Thob daus ua ntej thiab tsuas siv ntsev.

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

City of St. Paul

2020 Water Quantity & Quality Monitoring Program

Figure 1-1

2020 Monitoring Site Locations

36" MNDOT CONNECTION
24" LAUDERDALE CONNECTION
12" FORCEMAIN FROM FALCON HEIGHTS AND ROSEVILLE
36" PIPE FROM ROSEVILLE & RAMSEY COUNTY CONNECTION
30" RAMSEY COUNTY & ROSEVILLE CONNECTION
TROUT BROOK CONNECTION
I-35 DRAINAGE
48" CULVERT FROM RAMSEY COUNTY & MAPLEWOOD
96" U of M CONNECTION
Frost Elementary (RG)
Victoria Street BMP & Pervious Pavement
Hampden Park BMP & Co-op (RG)
Wilder (RG)
Beacon Bluff BMP
Sackett Park
RWMWD 72" ARCH CULVERT FROM BATTLE CREEK
St. Albans Street BMP & Fire Station 18 (RG)
Jackson Street Pervious Pavement
Battle Creek
CULVERTS FROM MAPLEWOOD & RAMSEY COUNTY
CULVERTS FROM WEST ST. PAUL
FISH CREEK

N
W E
S

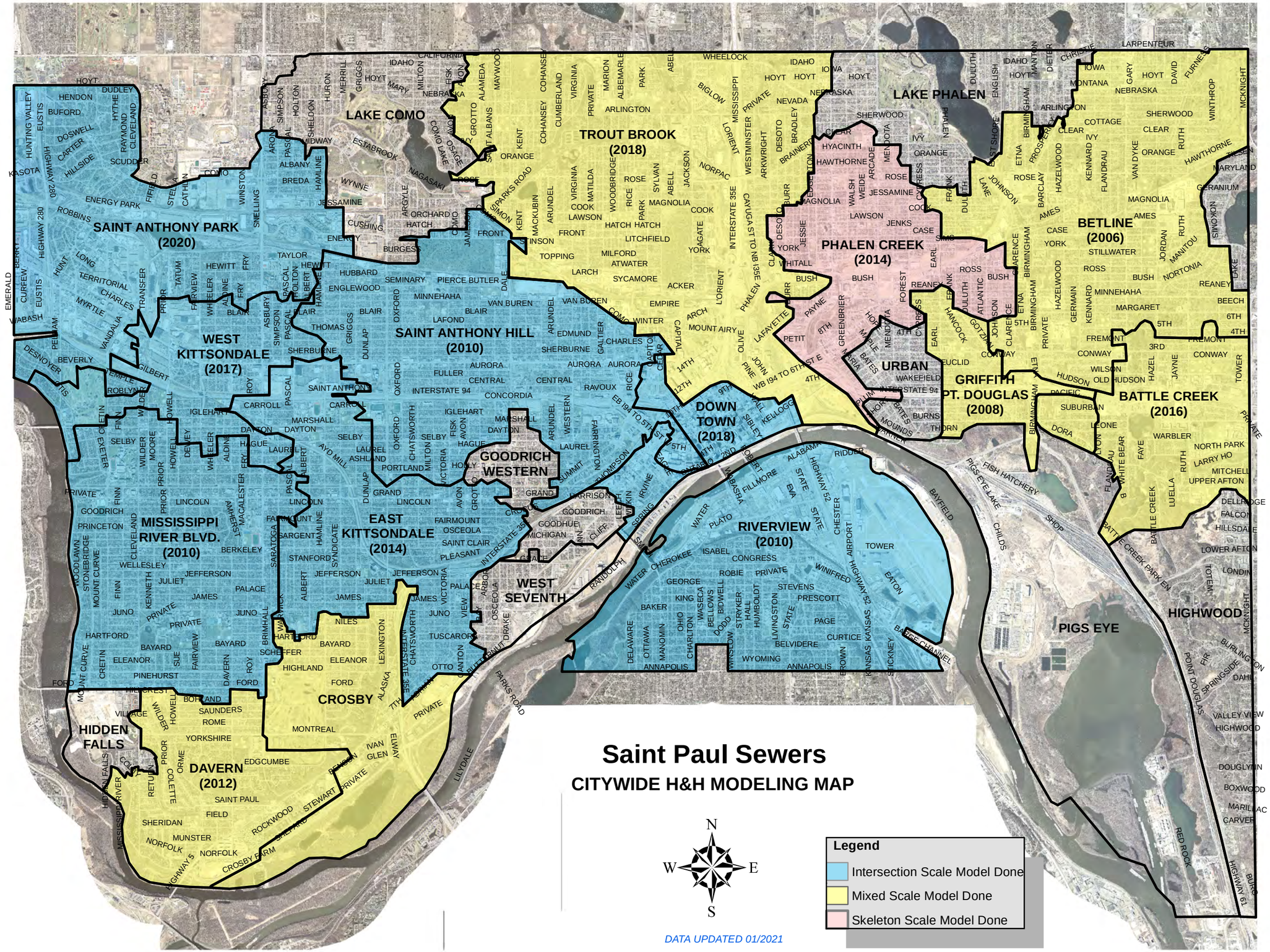
0 2,500 5,000 10,000
Feet

Legend

- Raingarden/Infiltration Basin
- Infiltration Trench
- Pervious Pavement
- Capitol Region Watershed District
- Lower Mississippi River WMO
- Mississippi WMO
- Ramsey/Washington/Metro WD
- 2019 Monitoring Locations
- 2020 Monitoring Locations
- Rain Gauge Locations

Outfalls

- 30" - 48"
- 50" - 72"
- > 72"


LAKE COMO
TROUT BROOK (2018)
LAKE PHALEN
SAINT ANTHONY PARK (2020)
WEST KITTSONDALE (2017)
SAINT ANTHONY HILL (2010)
PHALEN CREEK (2014)
BETLINE (2006)
URBAN
GRIFFITH
PT. DOUGLAS (2008)
BATTLE CREEK (2016)
DOWN TOWN (2018)
GOODRICH
WESTERN
MISSISSIPPI RIVER BLVD. (2010)
EAST KITTSONDALE (2014)
WEST SEVENTH
RIVERVIEW (2010)
PIGS EYE
HIGHWOOD
HIDDEN FALLS
CROSBY
DAVERN (2012)
Saint Paul Sewers
CITYWIDE H&H MODELING MAP
N
W
E
S
Legend
Intersection Scale Model Done
Mixed Scale Model Done
Skeleton Scale Model Done
DATA UPDATED 01/2021
Document Path: Z:\sewers\projects\City Stormwater Modeling Projects\Maps & Index\Citywide Modeling Map.mxd

Saint Paul Sewers

CITYWIDE P8 MODELING MAP

Legend

- Subwatershed P8 Model Done
- Pond P8 Model Done

P8	MODELS	DONE	BY:
1.	SYLVAN-ACKER POND:		TKDA
2.	BARGE CHANNEL PONDS:		TKDA
3.	FLANDRAU-HOYT;		BARR
4.	FLANDRAU-CASE;		BARR
5.	BIRMINGHAM-YORK:		BARR
6.	HAZEL-NOKOMIS:		BARR
7.	HAZEL-ROSS:		BARR
8.	BIRMINGHAM-MINNEHAHA:		BARR
9.	ETNA-THIRD:		BARR
10.	WILDVIEW-LENNOX:		CITY
11.	HIGHWOOD OAK BLUFF:		CITY

DATA UPDATED 01/2021

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Outfall Inventory

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

Outfall Inventory

Outfall	Location	Watershed	Pipe Size	Acres
156	Elway	Crosby	60"	
158	Elway	Crosby	90"	820
160	Otto	E. Kittsondale	tunnel	177
170	Bay	E. Kittsondale	tunnel	1699
180	Sumac	West 7th	tunnel	8
190	Drake	West 7th	tunnel	158
195	Fountain Cave	West 7th	42"	39
200	Richmond	West 7th	20"	142
201	Richmond	West 7th	42"	
206	Western	West 7th	30"	98
210	Smith -1992	Good/West	tunnel	424
220	Sherman	Downtown	48"	41
230	Chestnut	Downtown	27"	82
240	Eagle	Downtown	3'x5' brick	77
~~250~~	~~Ontario~~ abandoned	~~Downtown~~	~~24"~~	
260	Market	Downtown	24"	
270	St. Peter	St. Anthony Hill	tunnel	2653
280	Cedar	Downtown	tunnel	
290	Minnesota	Downtown	tunnel	115
295	Robert	Downtown	tunnel	5
300	Jackson	Downtown	36"	27
310	Sibley	Downtown	48"	10
~~315~~	~~Wacouta~~	~~Downtown~~	~~12"~~	~~10~~

Outfall Inventory

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

Outfall Inventory

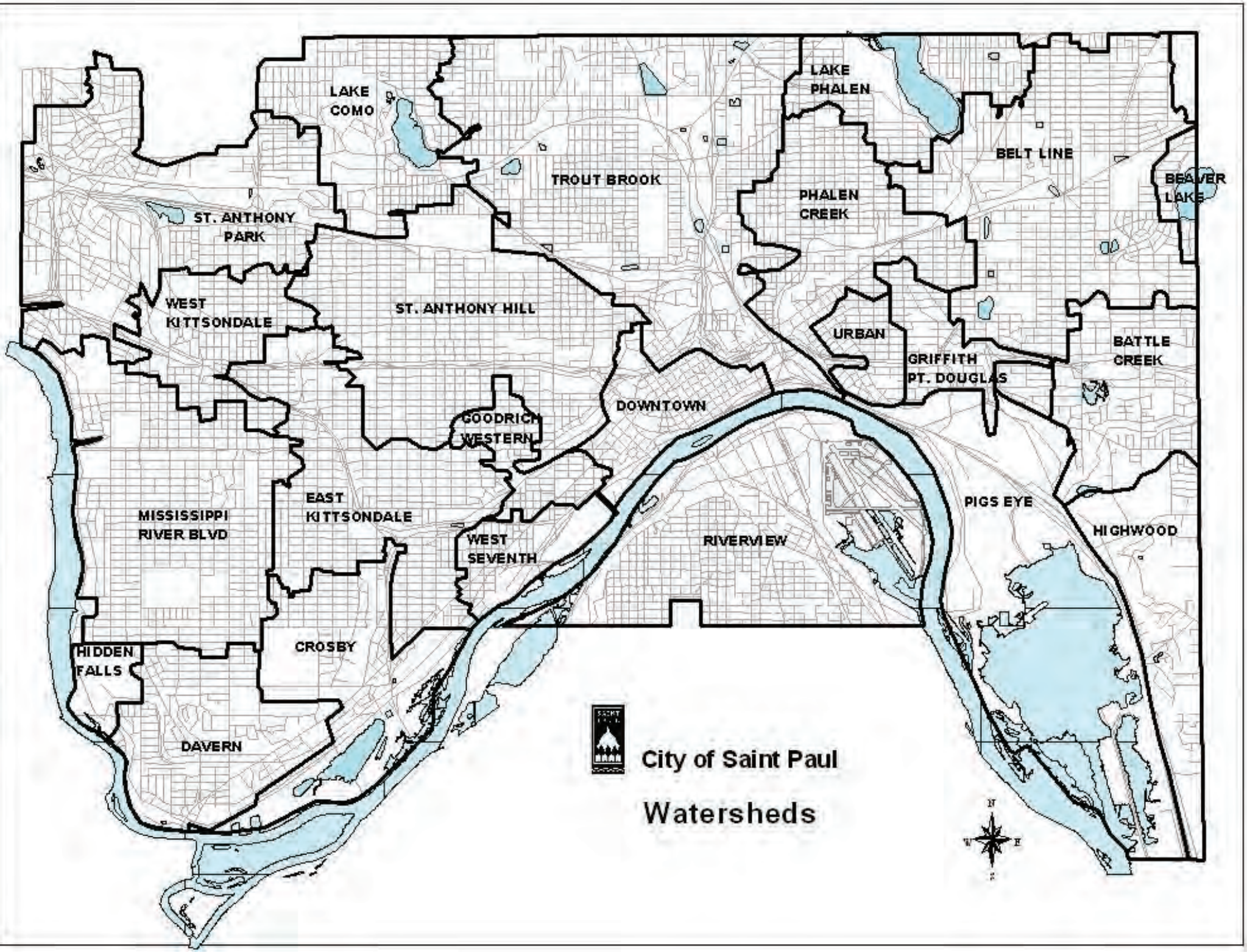
Outfall	Location	Watershed	Pipe Size	Acres
	Upper Lake			
152	Springfield	Crosby	15"	
	Crosby Lake			
153	Rankin	Crosby	27"	
154	Homer	Crosby	30"	
155	Leland	Crosby	30"	
	Fairview North Pond			
500	Tatum & Pierce Butler	St. Anthony Park	6'	
510	Pierce Butler & Aldine	St. Anthony Park	54"	
	Lake Como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

Outfall Inventory

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

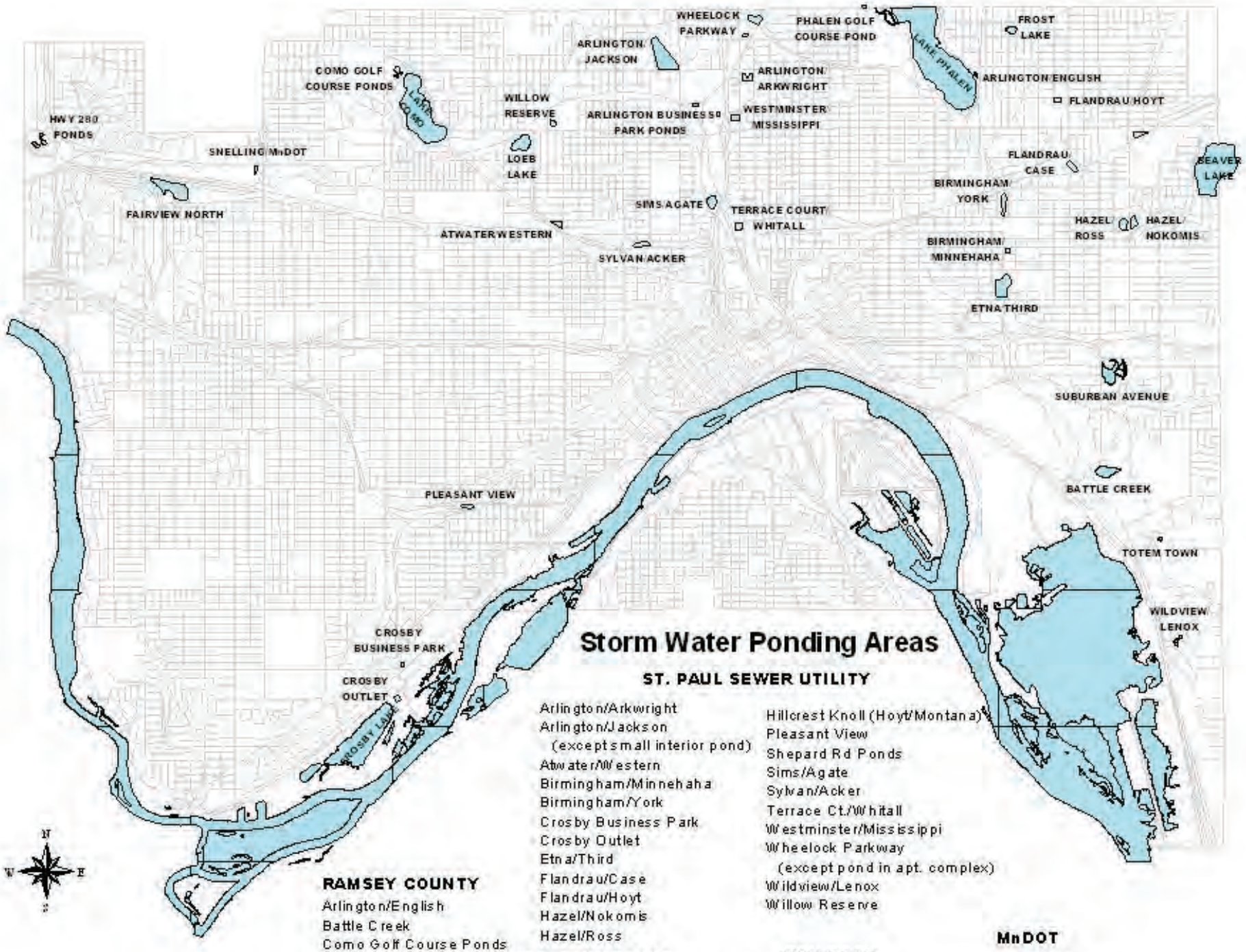
Outfall Inventory

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


LAKE COMO
LAKE PHALEN
TROUT BROOK
BELT LINE
BEAVER LAKE
PHALEN CREEK
ST. ANTHONY PARK
WEST KITTSONDALE
ST. ANTHONY HILL
URBAN
BATTLE CREEK
GRIFFITH
PT. DOUGLAS
DOWNTOWN
GOODRICH
WESTERN
MISSISSIPPI RIVER BLVD
EAST KITTSONDALE
WEST SEVENTH
RIVERVIEW
PIGS EYE
HIGHWOOD
CROSBY
HIDDEN FALLS
DAVERN
City of Saint Paul
Watersheds
N
W
E

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
Surburban Avenue
Totem Town

ST. PAUL PARKS

Phalen Golf Course Pond

RAILROAD

Fairview/North

MnDOT

Hwy. 280
Snelling/MnDOT

City of Saint Paul

Storm Water Ponding Area Inventory

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

Drainage area only includes area in St. Paul.

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

Storm Water Ponding Areas by Watershed Area

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

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

Pond Assessment

Items	Pond	P8 Model	Subwatershed	Drainage Area (Acres)	Pond Area (Acres)	TSS Removal Rate (LBS/YR)	TP Removal Rate (LBS/YR)
1	Arlington/Arkwright		Troutbrook	302.3	5.00		
2	Arlington/Jackson		Troutbrook	699.4	14.50		
3	Arthur Ditch		Riverview	49.2	0.90		
4	Atwater/Western	2019	Troutbrook	127.3	2.70		
5	Barge Channel Ponds	2018	River View	39.7	0.84	27,314.00	51.61
6	Beacon Bluff (Upper pond and underground storage)		Phalen Creek	143.6	0.50		
7	Birmingham/Minnehaha	2014	Belt Line	43.8	0.90	6,588.00	8.76
8	Birmingham/York	2014	Belt Line	146.5	2.20	55,364.00	32.63
9	Bush/Desoto	2019	Troutbrook	47.1	0.84		
10	Crosby Business Park		Crosby	39.6	1.00		
11	Crosby Outlet		Crosby	866.0	5.50		
12	Etna/Third	2014	Belt Line	235.9	4.70	84,877.00	68.77
13	Flandrau/Case	2014	Belt Line	95.2	0.70	20,285.00	11.26
14	Flandrau/Hoyt	2014	Belt Line	494.7	1.90	229,416.00	209.51
15	Great Western Drainage Channel		Riverview	275.0	1.53		
16	Hazel/Nokomis	2014	Belt Line	81.0	2.30	43,513.00	33.07
17	Hazel/Ross	2014	Belt Line	57.0	4.00	14,590.00	10.13
18	Hillcrest Knoll	2014	Belt Line	37.0	4.41		
19	Highwood/Oak Bluff		Highwood	38.0	0.30	6,149.00	13.70
20	Phalen Blvd./Johnson		Betline	23.5	0.40		
21	Phalen Blvd./Earl		Phalen Creek	3.2	0.14		
22	Phalen Blvd./Karl Neid		Phalen Creek	13.9	0.32		
23	Phalen Blvd./Burr (2 ponds)		Troutbrook	6.2	0.35		
24	Phalen G.C. Hole 7 Pond		Lake Phalen	99.4	0.70		
25	Pleasant/View		East Kittsondale	164.5	2.30		
26	Shepard Rd Ponds		Goodrich/Western and Downtown	61.8	1.26		
27	Sims/Agate		Troutbrook	174.6	5.30		
28	Sylvan/Acker	2019	Troutbrook	376.9	2.10	40,354.68	33.92
29	Terrace Ct./Whitall		Troutbrook	4.7	0.50		
30	Trillium Ponds - Jenks pond		Troutbrook	66.1	0.64		
31	Trillium Ponds -Magnolia pond		Troutbrook	42.6	0.31		
32	Trillium Ponds - Maryland pond		Troutbrook	34.8	0.85		
33	Westminster/Mississippi		Troutbrook	123.4	2.20		
34	Wheelock Pkwy - Upper		Troutbrook	19.0	1.30		
35	Wildview/Lennox		Highwood	19.3	0.73	2,359.70	13.70
36	Willow Reserve		Troutbrook	374.3	20.30		

Capitol Region Watershed District
595 Aldine Street • Saint Paul, MN 55104
T: 651-644-8888 • F: 651-644-8894 • capitolregionwd.org

DATE: March 5, 2021 (Revised May 4, 2021)
TO: Pat Murphy, PE, City of St. Paul Sewer Utility
FROM: Forrest Kelley, PE, Regulatory Division Manager
RE: Snelling-Midway Superblock Rainwater Reuse System Annual Report

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Background

Capitol Region Watershed District (CRWD and City of St. Paul have partnered to operate and maintain the rainwater reuse system installed as part of construction of Allianz Field and the surrounding 35- acre redevelopment of the former Midway Shopping Center and Metro Transit Bus Barn property, termed the Snelling-Midway Superblock. This memorandum serves to summarize the activities conducted during operation of the system in 2020, and satisfy Parts 4.A. and 5.C. of the attached Cooperative Agreement for Maintenance of Green Infrastructure at Snelling-Midway.

2020 Activities

The City of St. Paul accepted the reuse system and issued a notice to proceed on 5/5/20. CRWD contracted with Harris Companies to complete all tasks associated with operating the rainwater treatment, delivery, and monitoring components of the skid within the underground Vault 200 structure, and the pumping system within structure 251. Harris personnel began the system start up by first installing the domestic water meter on 6/3/20 to allow the system to utilize city water for irrigation. The submersible pumps were installed, and the treatment system was brought online 6/15/20 allowing the system to supplement irrigation demand with harvested rainwater. The required annual plumbing permit (#047228) was issued on 6/29/20. The pumps were removed for seasonal shutdown on 10/26/20 and 10/27/20. Winterization of the vault was coordinated with MN United FC grounds operations to coincide with irrigation system seasonal shutdown, resulting in a 2020 operational period spanning 133 days. CRWD paid 2020 invoices to Harris totaling $44,495 and spent 43 CRWD staff hours from 5/1/20 through 12/31/20. Service tickets, invoices, and spreadsheet tabulating labor and material costs are attached for reference.

Issues

Issues affecting system performance arose during 2020 operation. Some of the repair work could be considered outside the scope of normal operation and maintenance activities. These items are summarized below, and costs associated with the pump and VFD failures and repair are denoted by grey cells within the cost spreadsheet referenced above.

- During startup it was discovered that one of the irrigation booster pumps was not running properly, affecting irrigation system pressure and reducing irrigation system operation capacity.
- While starting the ozone injection system, the atmospheric gas meters triggered an alarm. The system was shut down and later re-pressurized with oxygen during maintenance of the compressor. A leak was identified at a loose hose connection and the connection was tightened. No leaks have been detected since.
- During calibration of the gas meters, it was identified that the Printed Circuit Board (PCB) LED display for the Carbon Monoxide sensor failed. All alarms were determined functional through the

test gas calibration process. This part was not replaced. Harris staff carry additional portable gas meters as precautionary backup.

- The two automatic backflush Orival filters were causing a pressure drop, and attempting to flush almost continuously. The filters were disassembled, cleaned, and rebuilt, noting the seals and gaskets had become dislodged.
- Harris staff noted fairly frequent clogging of filters resulting in pressure drops and reduced flow.
- Power outages or other electrical interruption caused a phase alarm on the Wunderlich-Malec panel and tripped the city water supply valve to default closed causing the booster pumps to run without water in the system. City water supply valve was switched to fail open.
- One of the Variable Frequency Drives (VFDs) for the booster pumps failed. Cause is unknown, but discussion occurred regarding power surges from the Xcel line coming into Allianz Field and a phase monitor was installed to determine if this is an issue. Results have not yet been received from Xcel. One VFD was replaced and power surge filters were installed to provide additional protection to the VFDs.

Performance

Flow data, environmental monitoring, and alarm information collected by the Rainwater Management Systems (RMS) controller is pushed to the City's Supervisory Control and Data Acquisition (SCADA) system. In 2020, CRWD contacted City staff periodically to retrieve data related to water use and function. Screenshots of the SCADA display are provided, along with a spreadsheet tabulating the flow meter readings. Clarification is needed on precise locations of flow measurements and the SCADA display fields to better understand total water use from domestic and rainwater sources. The total use for irrigation in 2020 appears to be measured at 1,093,000 gallons, with 399,000 gallons of domestic water use, resulting in approximately 694,000 gallons of treated rainwater use. The volume of 1,093,000 gallons of irrigation corresponds to 15.79 inches of irrigation over the 2.55- acre area for the 2020 operational period.This is an average of 0.81 inches per week. Additionally, the MSP International Airport recorded 17.17 inches of rainfall from 6/1/20 through 10/26/20.

The system is equipped with an actuated valve that draws down and filters stored rainwater in anticipation of a predicted rainfall event. In 2020, no drawdowns events occurred, indicating that sufficient reserve volume was available, and stored rainwater was utilized for irrigation. Significant 2020 rainfall events (excess of 1") occurred on 6/18/20(1.37"), 6/29/20(2.37"), and 8/10/20(1.27").

Treated rainwater usage in 2020 is limited to the broadcast and drip irrigation systems. No private development occurred to provide additional demand for treated rainwater. The MLS stadium does not use treated rainwater. Although the system treated and reused in excess of 1,000,000 gallons, it is not believed there are capacity issues at this time. Reused water is anticipated to be available for future private redevelopment in the Snelling-Midway Superblock.

Recommendations for 2021

CRWD has contacted MN United FC operations and groundskeeping staff to coordinate the preferred date for Harris to startup and pull the annual DSI plumbing permit for the reuse system. to provide adequate time to re-commission and ensure full operation of the treatment components to run irrigation off harvested rainwater. CRWD recommends the following items be discussed for consideration in 2021:

1. Discuss potential causes of, and request cost share for repair/replacement of items that experienced premature failure, such as booster pumps, VFDs, and CO gas meter display.

2. Replace the CO gas meter display PCB.
3. Replace the atmospheric gas sensors (recommended every 18 months).
4. Review the Prescriptive Program Rebate Application from Xcel Energy (attached) to determine eligibility for rebate on the replacement VFD, and determine the appropriate party to complete
5. Implement connection between RMS controller and Opti system to access real time flow data via the Opti dashboard and increase clarity on system performance (completed 4/15/21 by RMS/Opti at no cost to City).
6. Obtain information (sample, visual observation) on water quality in Roof Storage Tank A to help determine source of particulates causing frequent filter clogging. (Visual inspection completed by American Environmental 5/3/21. Summary to be provided and included in 2021 annual report.)

Next Steps

Assuming a likely reduction in the number of non-routine maintenance tasks in 2021, CRWD does not expect any increase to the $45,000 annual budget. Per Section 4.K. of the Agreement, CRWD proposes the items contained herein be reviewed, with requested and agreed upon adjustments to O&M practices to be discussed as they arise in 2021.

enc: Harris 2020 Service Tickets
Paid 2020 Harris Invoices
CRWD Staff Hour Log
2020 Service Cost Summary and Water Balance Spreadsheet
SCADA Display Screenshots
Cooperative Agreement
Xcel Energy MN HVAC-R Application

List of Industrial Stormwater Permit Holders

Obtained from MPCA Industrial Stormwater Permit database on 11/30/2020

Site Permit #	Site Address	Facility Name	Does MPCA consider Site No Exposure	Owner Name
MNR05384T	51 Maryland Ave E	Elliott Auto Supply Co. Inc	No	ELLIOTT AUTO SUPPLY CO., INC.,
MNR0538JV	1061 Red Rock Rd	Gavilon Grain, LLC	No	Gavilon Grain LLC
MNR0538N3	51 State St	Pier Foundry	No	Pier Foundry & Pattern Shop
MNR0538P4	515 Eaton St	Signature Flight Support STP	No	Signature Flight Support
MNR0538PH	701 Eaton St	Hubbard Broadcasting Hanger	No	Hubbard Broadcasting Inc
MNR0538TV	1303 Red Rock Rd	Upper River Services - Pig's Eye	No	Upper River Services Inc
MNR0538TX	40 State St	Upper River Services - State Street	No	Upper River Services
MNR0538VB	719 Eaton St	Minnesota Jet Inc	No	Northern States Power a MN Corp dba Xcel
MNR05396V	954 Minnehaha Ave W	St. Paul Brass & Aluminum Foundry	No	Saint Paul Brass & Aluminum Foundry
MNR0539Q8	867 Forest St	Northern Iron & Machine	No	Northern Iron of St Paul LLC
MNR0539QD	754 Rice St	Ace Auto Parts & Salvage Co., Inc.	No	Ace Auto Parts
MNR0539WR	690 Bayfield St	3M Aviation	No	3M Company
MNR0539XY	1678 Red Rock Rd	Gerdau - Saint Paul Mill	No	Gerdau Corporation
MNR053B2J	795 Barge Channel Rd	St Paul Alter River Terminal	No	Alter Trucking and Terminal Corporation
MNR053B32	801 Barge Channel Rd	Alter Metal Recycling - St. Paul	No	Alter Metal Recycling
MNR053B4B	644 Bayfield St	MAC - STP Downtown Airport	No	Metropolitian Airports Commission
MNR053B8Z	701 Barge Channel Rd	Hawkins - Terminal 2	No	Hawkins Inc
MNR053B94	1125 Childs Rd	Hawkins - Terminal I	No	Hawkins Inc
MNR053B96	309 Como Ave	Advanced Disposal Services - Vasko Solid Waste	No	Advanced Disposal Services
MNR053B97	198 Minnehaha Ave E	Apex Auto Salvage	No	Apex Auto Salvage
MNR053BDW	1425 Red Rock Rd	Hawkins Water Treatment Group - Red Rock	No	Hawkins Inc
MNR053BF3	1701 Pierce Butler Rte	Midway Hub	No	BNSF Railway Co
MNR053BJL	875 Prior Ave N	E-Z Recycling	No	E-Z Recycling
MNR053BK9	1999 Shepard Rd Ste A	Johnson Brothers Liquor Co	No	Johnson Brothers Liquor Company
MNR053BKC	1031 Childs Rd	Northern Metal Recycling - Dock	No	Northern Metals Recycling
MNR053BKF	521 Barge Channel Rd	Northern Metal Recycling - St Paul	No	Northern Metals Recycling
MNR053BRV	318 Water St W	Twin City Refuse & Recycling Inc	No	Twin City Refuse Recycling & Transfer
MNR053BRW	2370 Highway 36 E	TA Schifsky Sons Inc	No	TA Schifsky Sons Inc
MNR053BSQ	268 Water St W	J & L Wire Cloth Co Inc	No	J&L Wire Cloth Co Inc
MNR053BSY	780 Barge Channel Rd	GERDAU - St Paul Raw Materials	No	Gerdau Ameristeel
MNR053BWL	1359 Red Rock Rd	Barton Enterprises Inc / Commercial Asphalt Co	No	Tiller Corporation
MNR053C2P	1000 Shop Rd	St. Paul Yard	No	CP
MNR053C2X	1305 Pierce Butler Rte	Pierce Recycling and Transfer Facility	No	Veit
MNR053C35	106 Arlington Ave E	Action Auto Parts of St Paul, Inc.	No	Action Auto Parts of St Paul, Inc.
MNR053C3X	403 Fillmore Ave E	Americraft Carton, Inc	No	Americraft Carton Inc
MNR053C5K	2229 Childs Rd	Westway Feed Products LLC	No	BWC Terminals LLC
MNR053C5X	508 Cleveland Ave N	Minnesota Commercial Railway Co	No	Minnesota Commercial Railway Company
MNR053C77	2160 Pigs Eye Lake Rd	Hoffman Pigs Eye Maintenance Facility	No	Union Pacific Railroad Company
MNR053C79	500 Block Of Eaton St	Eaton Maintenance Facility	No	Union Pacific Railroad Company

List of Industrial Stormwater Permit Holders

Obtained from MPCA Industrial Stormwater Permit database on 11/30/2020

Site Permit #	Site Address	Facility Name	Does MPCA consider Site No Exposure	Owner Name
MNR053C7Q	2165 Pigs Eye Lake Rd	Environmental Wood Supply	No	City Of Saint Paul Parks And Recreation
MNR053C7S	76 Kellogg Blvd W	District Energy St Paul/St Paul Cogeneration L	No	District Energy Saint Paul Inc
MNR053C8P	858 Transfer Rd	Lubrication Technoloiges Inc	No	Lube-Tech & Partners LLC
MNR053CBY	206 Airport Rd	Army Aviation Support - Holman Field	No	Minnesota Army National Guard, Minnesota Department of Military Affairs
MNR053CJ3	2209 Childs Rd	Flint Hills Resources Pine Bend LLC - St Paul	No	Flint Hills Resources Pine Bend, LLC - St. Paul
MNR053CNY	515 Cleveland Ave N	Metro Transit - Overhaul Base	No	Metro Transit
MNR053CP7	820 L Orient St	Metro Transit - East Metro Garage	No	Metro Transit
MNR053CQY	2576 Doswell Ave	Metro Metals Corp	No	Metro Metals Corp
MNR053CSG	1303 Red Rock Rd	AMG Resources Corp.	No	AMG Resources Corp.
MNR053CSY	228 Sycamore St W	Atlas U Pull	No	ATLAS UPULL LLC
MNR053CV2	270 Airport Rd	St. Paul Flight Center	No	St Paul Flight Center
MNR053D66	90 Fish Hatchery Rd	Dayton's Bluff Yard	No	BNSF Railway Co
MNR053DJC	2313 Wycliff St	Precision Coatings Inc	No	Precision Coatings, Inc.
MNR053DNV	711 Eaton St	Best Jets International	No	Best Jets International
MNR053DW2	1 Ridder Cir	First Transit, Inc. #55872	No	First Transit, Inc.
MNR053DYX	80 Arlington Ave East Suite B & C	First Student, Inc. #11762A	No	First Student Inc
MNR053F2D	340 Broadway St	Metro Transit - Green Line Operation and Maintenance	No	Metro Transit
MNR053F6B	637 Barge Channel Rd	Ingredient Transport	No	Ingredient Transport
MNRNE359L	2020 7th St W	Custom Rock Formliner	Yes	customer rock
MNRNE37SH	5000 Township Pkwy Ste A	Med-Tech Center	Yes	MedTech Center
MNRNE37ZB	1319 Pierce Butler Rte	Twin City Metalfab, Inc.	Yes	Twin City Metal Fab Inc
MNRNE37ZP	223 Plato Blvd E	Tursso Companies, Inc	Yes	Tursso Companies, Inc
MNRNE3845	410 Fillmore Ave E	3M - Building 76	Yes	3M company
MNRNE385Q	2020 Energy Park Dr	Larkin Industries, Inc.	Yes	Larkin Industries Inc
MNRNE38FV	300 Atwater St	Northern Screw Machine Co., Inc	Yes	Northern Screw Machine Co., Inc
MNRNE38HB	3560 Hoffman Rd E	ANDREWS KNITTING MILLS BUILDING LIMITEDPARTNERSHIP	Yes	Andrews Knitting Mills Inc
MNRNE38HM	314 Eva St	USPS St. Paul Vehicle Maintenance Facility	Yes	United States Postal Service
MNRNE38Q5	1835 Energy Park Dr	minnesota wire	Yes	Minnesota Wire
MNRNE38YF	878 Stryker Ave	Palindrome	Yes	Palindrome, Inc.
MNRNE3929	355 State St	Viking Drill & Tool Inc	Yes	Viking Drill & Tool Inc
MNRNE399W	1966 Benson Ave	Amidon Graphics	Yes	Paul S Amidon & Associates Inc
MNRNE39HN	1457 Iglehart Ave	Loes Enterprises Inc	Yes	Loes Enterprises
MNRNE39LD	155 Randolph Ave	Former High Bridge Coal Generating Facility	Yes	Northern States Power Company d/b/a Xcel Energy
MNRNE39RP	888 Minnehaha Ave E	3M - IMP, Saint Paul Building 27	Yes	3M company
MNRNE39RR	42 Water St W	Kindeva Drug Delivery L.P.	Yes	Kindeva Drug Delivery LP

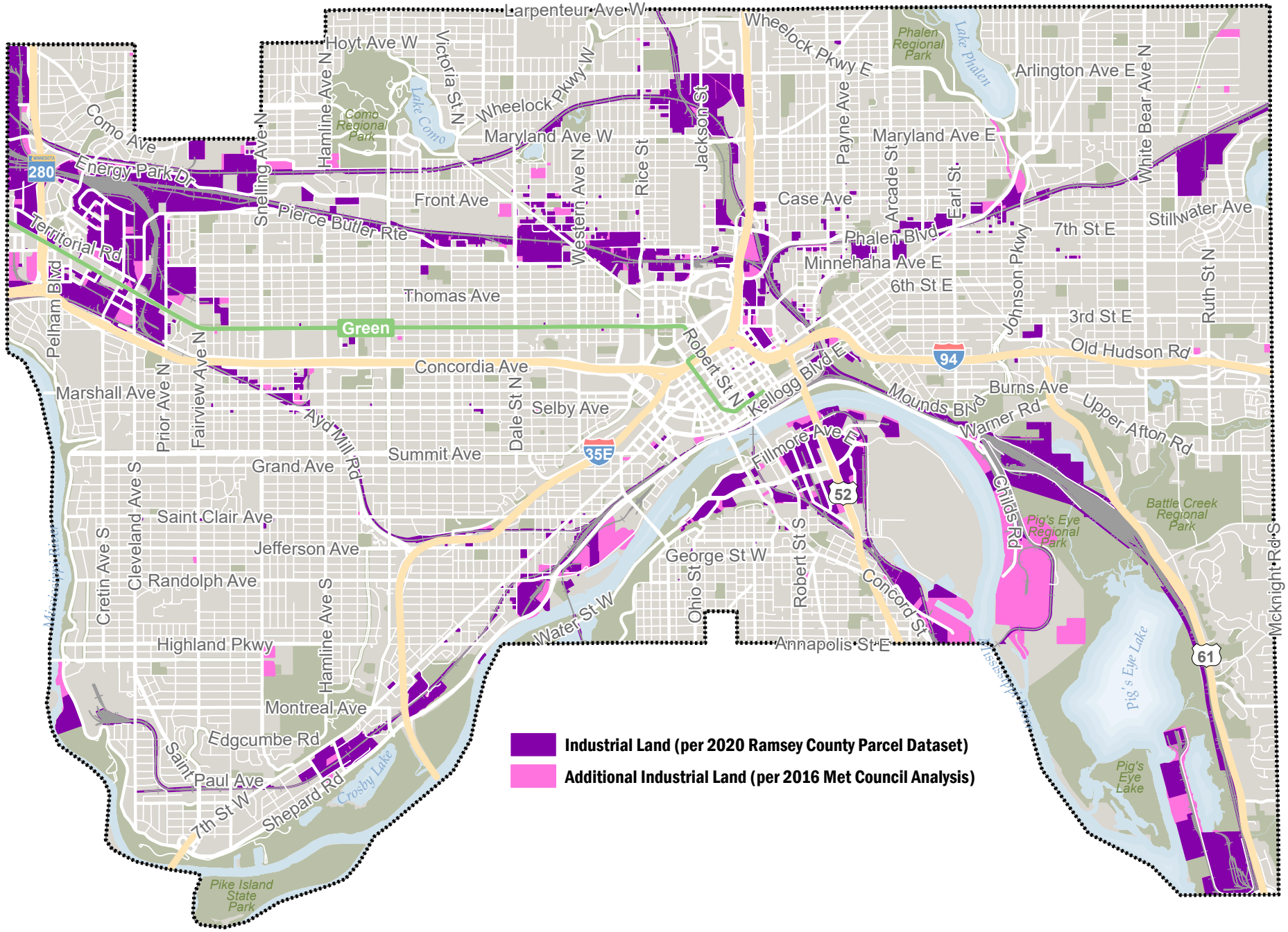
List of Industrial Stormwater Permit Holders

Obtained from MPCA Industrial Stormwater Permit database on 11/30/2020

Site Permit #	Site Address	Facility Name	Does MPCA consider Site No Exposure	Owner Name
MNRNE39WL	1927 Case Ave E	3M - Saint Paul Distribution Center	Yes	Ras Properties LLC
MNRNE39Y8	431 Griggs St N	Rayven Inc.	Yes	Rayven Inc
MNRNE3BHP	1605 Iglehart Ave	Co-operative Plating Co	Yes	Co-operative Plating Co
MNRNE3BLL	1220 Energy Park Dr	Demmer Investments IV, Inc. dba Quality Tool	Yes	Demmer Investments IV dba Quality Tool
MNRNE3BT2	650 Pelham Blvd Ste 100	NOVUS @ LLC	Yes	Colliers International
MNRNE3CDW	1050 Westgate Dr	Impressions Inc.	Yes	Impressions Inc.
MNRNE3CHV	139 Eva St	Rexam BCNA	Yes	Rexam Beverage Can Co
MNRNE3CT7	1280 Energy Park Dr	GLS Companies	Yes	GLS Companies
MNRNE3CWV	432 Front Ave	AAA Metal Finishing, Inc.	Yes	AAA Metal Finishing, Inc.
MNRNE3CYW	181 Florida St	Aero Systems Engineering, Inc.-Florida Street	Yes	Apex Holdings LLC
MNRNE3D2B	2575 University Ave W Ste 180	Synovis Life Technologies Inc	Yes	Synovis Life Technologies
MNRNE3DQF	860 Vandalia St	Tech Dump - Vandalia	Yes	Tech Dump
MNRNE3DVY	550 Wheeler St N	Huot Manufacturing	Yes	Bondhus Corporation, Bondhus LLC
MNRNE3DX4	845 Minnehaha Ave E	The Vomela Companies	Yes	The Vomela Companies
MNRNE3DY6	124 Eva Street	Pier Foundry & Pattern Shop, Inc.	Yes	Pier Foundry & Pattern Shop
MNRNE3DYH	1225 Old Highway 8 NW	Cardiovascular Systems INC.	Yes	CSI
MNRNE3F2F	645 Olive St	Ideal Printers Inc	Yes	Ideal Printers Inc
MNRNE3F4C	821 Vandalia St	AGGRESSIVE INDUSTRIES INC	Yes	Aggressive Industries Inc
MNRNE3F6J	930 Duluth St	Ray Anderson & Sons/ Anderson's Dumpster Box Service/	Yes	Ray Anderson & Sons

Industrial Land Use in Saint Paul

February 24th, 2020



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Date: 2/24/2020 9:24 AM Document Path: K:\GIS\Data and Research Requests\2020\2020-02-24 Industrial Land Use for Patrick Murphy\4 - GIS\2020-02-24 Industrial Land Use.aprx

This document was prepared by the Saint Paul Planning and Economic Development Department and is intended to be used for reference and illustrative purposes only. This drawing is not a legally recorded plan, survey, official tax map or engineering schematic and is not intended to be used as such. Data sources: Ramsey County Parcey Polygon GIS Dataset, 2020, with query: UseType1 IN ('T E Misc Co D 4', 'Industrial') Or UseType2 IN ('Industrial') Or ExemptUse1 IN ('T E Misc Co D 4') Or LandUseCodeDescription IN ('FLEX INDUSTRIAL CENTER', 'FOOD&DRINK PROCESS PLANT & STGE', 'FOUNDERY & HEAVY MFG PLANT', 'IND WAREHOUSE', 'INDUSTRIAL MINIMUM IMPROVEMENT', 'INDUSTRIAL', 'VACANT LAND', 'MINI STORAGE/ WAREHOUSE', 'MANUFACTURING & ASSEMBLY LIGHT', 'OTHER INDUSTRIAL STRUCTURE', 'PUB UTIL PER PROP OTHER THAN RR', 'RAILROAD REAL PROP NOT USED OPERATOS', 'RESEARCH AND DEVELOPMENT FACILITY', 'UTILITY PROP. VACANT LAND', 'RAILROAD REAL PROP USED IN OPERATION', 'TRUCK TERMINAL') and Met Council Land Use GIS data via MN Geospatial Commons, Dscrpt2016 = '%Industrial and Utility%', and St. Paul Enterprise GIS Base Layer Data, 2020.

12. City-wide Loading Assessment

12.1. 2020 Pollutant Loading Calculations

Monitoring of major outfalls within the City of Saint Paul was completed by Capitol Region Watershed District (CRWD) in 2020. Annual and seasonal pollutant loads were estimated for each subwatershed within the City for the loading parameters identified in the City's MS4 permit which include chloride (Cl), total kjeldahl nitrogen (TKN), total phosphorus (TP), nitrate plus nitrite (NO3 +NO2), total suspended solids (TSS), and volatile suspended solids (VSS). The subwatersheds within the City are included in **Table 12-1** below.

Monitoring data collected by CRWD from the following subwatersheds was utilized for this assessment: East Kittsondale, St. Anthony Park, Trout Brook, Phalen Creek, and Hidden Falls. Monitoring of each subwatershed was completed at or near the outfall. The stations were configured to collect continuous flow measurements, and water quality, in accordance with the City's MS4 Permit.

Table 12-1 Watershed Inventory

Watershed	Area [acre]	Runoff Coefficient [.]	Rainfall Station
Battle Creek	1106	0.54	Wilder
Beaver Lake	192	0.33	Wilder
Belt Line	3014	0.55	Wilder
Crosby	1679	0.45	Hampden Park Co-op
Davern	1302	0.55	Hampden Park Co-op
Downtown	550	0.75	Engine House 18
East Kittsondale	1872	0.62	Engine House 18
Fish Creek	46	0.52	Wilder
Goodrich/Western	424	0.63	Engine House 18
Griffith/Pt. Douglas	460	0.61	Wilder
Hidden Falls	313	0.55	Hampden Park Co-op
Highwood	1123	0.50	Wilder
Lake Como	1294	0.47	Hampden Park Co-op
Lake Phalen	1013	0.42	Wilder
Mississippi River Blvd.	2391	0.58	Hampden Park Co-op
MRWMO	135	0.70	Hampden Park Co-op
Phalen Creek	1405	0.62	Wilder
Pigs Eye	3001	0.40	Wilder
Riverview	1017	0.57	Wilder
St. Anthony Hill	2651	0.64	Engine House 18
St. Anthony Park	2481	0.68	Hampden Park Co-op
Trout Brook	3963	0.62	Wilder
Urban	327	0.57	Wilder
West Kittsondale	1042	0.67	Hampden Park Co-op
West Seventh	451	0.60	Fire House 18

Monitored Subwatershed

Annual and seasonal city-wide flow-weighted averages were calculated for each of the loading pollutants from the monitored outfall data. TKN, TP, TSS and VSS loads were generated by CRWD in the WISKI data management program. This allowed for the extraction of baseflow and the associated load from the event load for those parameters. Cl and NO_2+NO_3 loads were calculated for the event-based volume (baseflow volume extracted), although the base flow loading for those parameters was not extracted. The following formula was used to calculate the annual/seasonal flow weighted mean concentrations (**Table 12-2**):

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

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

*As described above, the flow-weighted mean concentration for TKN, TP, TSS, and VSS, was calculated from loads generated in the WISKI program, which extracted baseflow loading (not reflected in the formula above)

Table 12-2: City-wide Annual and Seasonal Flow-weighted Mean Concentrations

Parameter	Cl	TKN	TP	NO_2+NO_3	TSS	VSS
Units	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]	[mg/L]
Annual	88.2	2.5	0.46	0.46	193.8	63.8
Q1 (Jan-Mar)	411.1	4.9	0.64	0.79	171.1	48.7
Q2 (Apr-Jun)	31.3	2.4	0.43	0.42	215.2	73.5
Q3 (Jul-Sep)	19.3	1.7	0.42	0.40	191.2	61.6
Q4 (Oct-Dec)	31.1	1.4	0.47	0.33	122.6	44.6

Based on these calculated flow-weighted mean concentrations, the Simple Method was used to calculate each subwatershed's pollutant loading. Loads for the four monitored subwatersheds were generated using actual monitored loads. The Simple Method is show below:

$$L = 2.72\left(\frac{PP_jR_v}{12}\right)(CA)$$

L = pollutant loading for the year/season [lb]
P = rainfall depth for the year/season [in]
P_j = correction factor for storms that produce no runoff [.]
R_v = runoff coefficient [.]
C = flow-weighted mean concentration [mg/L]
A = area of the watershed [acre]

Values used in loading calculations:
R_v and A = Table 1
C = Table 2
P = Table 3
P_j = 0.85

The annual/seasonal precipitation totals for four different rainfall monitoring locations in St. Paul are provided in **Section 3** the **Table 3-1**. Each subwatershed was assigned precipitation data from the nearest precipitation monitoring site (see **Table 12-1** for assignments). The rainfall data was used as an input to the Simple Method for load calculations, as described above. Rain data outside the seasonal monitoring period was supplemented with data from the University of Minnesota – St. Paul.

The annual and seasonal pollutant loads for each of the City's subwatersheds are presented in **Tables 12-3 – 12-7**. Loads for the five monitored sites are actual totals calculated for each station. Those sites are highlighted blue.

Table 12-3. Annual Pollutant Loadings (lbs)

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	442193	8240	1635	1799	571865	200970
Beaver Lake	48931	912	181	199	63280	22238
Belt Line	1280187	23855	4734	5209	1655598	581825
Crosby	571221	10644	2112	2324	738730	259611
Davern	541396	10088	2002	2203	700159	246056
Downtown	312436	5822	1155	1271	404056	141997
East Kittsondale	407848	8586	1374	1505	444016	173126
Fish Creek	17710	330	65	72	22904	8049
Goodrich/Western	202322	3770	748	823	261652	91952
Griffith/Pt. Douglas	207755	3871	768	845	268678	94421
Hidden Falls	130151	2425	481	530	168318	59152
Highwood	415731	7747	1537	1692	537644	188944
Lake Como	459805	8568	1700	1871	594641	208974
Lake Phalen	328569	6123	1215	1337	424921	149329
Mississippi River Blvd.	1048452	19537	3877	4266	1355908	476506
MRWMO	71445	1331	264	291	92396	32471
Phalen Creek	644958	12018	2385	2624	834090	293123
Pigs Eye	888769	16561	3287	3617	1149399	403932
Riverview	429199	7998	1587	1747	555061	195064
St. Anthony Hill	1285068	23946	4752	5229	1661911	584044
St. Anthony Park	619683	8495	1559	2354	590036	210466
Trout Brook	355203	7813	1993	1540	675781	219525
Urban	138002	2572	510	562	178471	62720
West Kittsondale	527817	9835	1952	2148	682598	239885
West Seventh	204958	3819	758	834	265061	93150

Monitored Locations

Table 12-4: Q1 (Jan-Mar) Pollutant Loading (lbs)

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	193944	2311	302	374	80706	22994
Beaver Lake	20575	245	32	40	8562	2439
Belt Line	538312	6415	840	1037	224007	63821
Crosby	245353	2924	383	473	102098	29088
Davern	232542	2771	363	448	96767	27570
Downtown	133953	1596	209	258	55742	15881
East Kittsondale	361825	3427	431	436	72035	32670
Fish Creek	7768	93	12	15	3232	921
Goodrich/Western	86743	1034	135	167	36096	10284
Griffith/Pt. Douglas	91120	1086	142	176	37918	10803
Hidden Falls	55903	666	87	108	23263	6628
Highwood	182338	2173	284	351	75876	21618
Lake Como	197497	2354	308	380	82184	23415
Lake Phalen	138161	1647	215	266	57493	16380
Mississippi River Blvd.	450335	5367	702	867	187397	53391
MRWMO	30687	366	48	59	12770	3638
Phalen Creek	282876	3371	441	545	117713	33537
Pigs Eye	389811	4646	608	751	162211	46215
Riverview	188245	2243	294	363	78334	22318
St. Anthony Hill	550957	6566	859	1061	229269	65320
St. Anthony Park	508001	3947	555	959	148243	40555
Trout Brook	159507	2492	280	220	35454	10534
Urban	60527	721	94	117	25187	7176
West Kittsondale	226710	2702	354	437	94340	26878
West Seventh	87873	1047	137	169	36566	10418
Monitored Locations						

Table 12-5: Q2 (Apr-Jun) Pollutant Loading (lbs)

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	44782	3475	609	595	308340	105284
Beaver Lake	4751	369	65	63	32711	11169
Belt Line	124296	9645	1691	1652	855830	292226
Crosby	49371	3831	672	656	339942	116074
Davern	46794	3631	636	622	322193	110014
Downtown	26955	2092	367	358	185595	63372
East Kittsondale	20551	2336	384	425	149261	63163
Fish Creek	1794	139	24	24	12349	4217
Goodrich/Western	17455	1354	237	232	120184	41037
Griffith/Pt. Douglas	21040	1633	286	280	144867	49465
Hidden Falls	1276	83	17	14	11351	2033
Highwood	42102	3267	573	560	289889	98983
Lake Como	39742	3084	541	528	273637	93434
Lake Phalen	31901	2475	434	424	219655	75002
Mississippi River Blvd.	90619	7032	1233	1204	623950	213050
MRWMO	5669	440	77	75	39030	13327
Phalen Creek	65316	5068	888	868	449728	153561
Pigs Eye	90007	6984	1224	1196	619737	211611
Riverview	37880	2939	515	503	260818	89057
St. Anthony Hill	110867	8603	1508	1473	763364	260653
St. Anthony Park	22647	1309	228	290	130690	58129
Trout Brook	98678	2279	611	494	254158	95978
Urban	13976	1084	190	186	96229	32858
West Kittsondale	41878	3250	570	557	288346	98457
West Seventh	17682	1372	241	235	121750	41572
Monitored Locations						

Table 12-6: Q3 (Jul-Sep) Pollutant Loading

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	19799	1786	429	405	195819	63079
Beaver Lake	2100	189	46	43	20774	6692
Belt Line	54955	4958	1191	1124	543516	175081
Crosby	20432	1843	443	418	202077	65094
Davern	19365	1747	420	396	191526	61696
Downtown	11155	1006	242	228	110326	35539
East Kittsondale	13897	2298	416	487	186182	64271
Fish Creek	793	72	17	16	7843	2526
Goodrich/Western	7224	652	157	148	71443	23014
Griffith/Pt. Douglas	9302	839	202	190	92001	29636
Hidden Falls	1307	136	27	33	14797	3074
Highwood	18614	1679	404	381	184101	59304
Lake Como	16447	1484	357	336	162662	52398
Lake Phalen	14104	1272	306	289	139497	44936
Mississippi River Blvd.	37502	3383	813	767	370903	119478
MRWMO	2482	224	54	51	24544	7906
Phalen Creek	5925	1365	319	266	172293	137370
Pigs Eye	39795	3590	863	814	393579	126783
Riverview	15676	1414	340	321	155042	49943
St. Anthony Hill	45881	4139	995	939	453777	146174
St. Anthony Park	29336	2520	467	660	227756	83092
Trout Brook	62810	2548	860	615	340515	96956
Urban	6179	557	134	126	61112	19686
West Kittsondale	18333	1654	397	375	181321	58408
West Seventh	7318	660	159	150	72374	23314
Monitored Locations						

Table 12-7: Q4 (Oct-Dec) Pollutant Loading (lbs)

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	14617	672	220	156	57680	21002
Beaver Lake	1551	71	23	17	6119	2228
Belt Line	40571	1864	610	433	160098	58293
Crosby	19758	908	297	211	77965	28388
Davern	18726	860	282	200	73894	26906
Downtown	10787	496	162	115	42566	15499
East Kittsondale	577	15	4	7	963	254
Fish Creek	585	27	9	6	2310	841
Goodrich/Western	6985	321	105	74	27564	10036
Griffith/Pt. Douglas	6868	316	103	73	27100	9867
Hidden Falls	1307	136	27	33	14797	3074
Highwood	13742	631	207	147	54229	19745
Lake Como	15904	731	239	170	62758	22851
Lake Phalen	10900	900	191	231	69455	26343
Mississippi River Blvd.	36264	1666	545	387	143102	52105
MRWMO	2047	94	31	22	8078	2941
Phalen Creek	7745	961	260	66	45183	25459
Pigs Eye	29379	1350	442	313	115933	42212
Riverview	15159	696	228	162	59818	21780
St. Anthony Hill	44367	2038	667	473	175076	63747
St. Anthony Park	59699	719	309	445	83347	28690
Trout Brook	35957	577	257	222	50408	17698
Urban	4562	210	69	49	18001	6554
West Kittsondale	15123	695	227	161	59677	21729
West Seventh	7076	325	106	75	27923	10167
Monitored Locations						


ILLICIT DISCHARGE TRAINING
PART 1 – BASIC ORIENTATION
CITY OF SAINT PAUL
2019

1


TRAINING PROGRAM
• PART 1 – BASIC ORIENTATION
• PART 2 – FIELD AWARENESS (2020)
• PART 3 – COMPLAINTS, VIOLATIONS AND ENFORCEMENT (TBD)

2

ORIENTATION OVERVIEW

GOAL: UNDERSTAND WAYS THAT LAKES AND RIVER CAN BE POLLUTED

- STORMWATER DISCHARGE
  - WHAT IS IT
  - WHY IS IT IMPORTANT
- CITY'S RESPONSIBILITIES
  - "MS4" PROGRAM
  - CHAPTER 51
- WHAT IS PROHIBITED (ILLICIT DISCHARGE)
  - CODE LANGUAGE
  - EXAMPLES

3

STORMWATER DISCHARGE

- RAIN CREATES RUNOFF
- ALL RUNOFF GOES TO LAKES AND RIVERS VIA SEWER SYSTEM
- STORMWATER IS NOT TREATED AND CARRIES POLLUTANTS
  - LAND USE AND WATER QUALITY ARE LINKED

4

CITY RESPONSIBILITIES

FEDERAL / STATE

- EPA CLEAN WATER ACT / MPCA
- MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

LOCAL CONTROL

- CHAPTER 51
  - ALLOWABLE DISCHARGES TO THE STORM SEWER SYSTEM
  - ADOPTED 2013

5

WHAT IS PROHIBITED

Non-stormwater discharge. Any substance not composed entirely of stormwater.

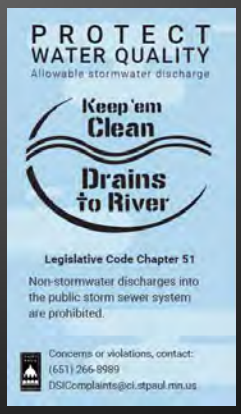
Prohibited discharge. Any introduction of non-stormwater discharge to the city's municipal separate storm sewer system or to surface waters within the city, unless specifically exempted under section 51.03(b) of this chapter.

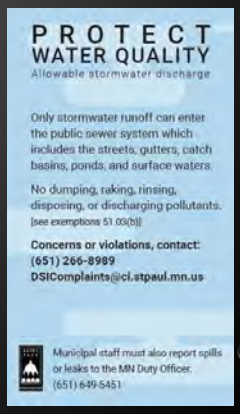
(a) No person shall cause any non-stormwater discharges to enter the city's municipal separate storm sewer system, or to any surface waters within the city, unless specifically exempted under paragraph (b) of this section.

6

WATER QUALITY CARD

- EDUCATIONAL TOOL
- QUICK CODE REFERENCE
- CONTACT/POINT OF ENTRY
- STAFF REPORTING RESPONSIBILITY





7

TYPICAL EXAMPLES

DRY WEATHER FLOW

AKA

DUMPSTER "JUICE"

8

TYPICAL EXAMPLES

RAKING LEAVES INTO THE STREET

IN 2017, NEARLY 70 LEAF LETTERS WERE GENERATED BY DSI

(c) No person shall intentionally dispose of substances including, but not limited to, grass, leaves, dirt, or landscape material into the city's municipal separate storm sewer system or to any surface waters within the city.

9

TYPICAL EXAMPLES

SPILLS AND/OR DISPOSAL

HIDDEN FALLS CREEK AT CITY'S REGIONAL PARK

(c) No person shall intentionally dispose of substances including, but not limited to, grass, leaves, dirt, or landscape material into the city's municipal separate storm sewer system or to any surface waters within the city.

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TYPICAL EXAMPLES

SPILLS AND/OR DISPOSAL

11

TYPICAL EXAMPLES

CROSS-CONNECTIONS OF SANITARY INTO STORM

PROPERTY IN SAINT PAUL, CORRECTED IN 2015

Sec. 51.04. Prohibited MS4 connections.

No person shall construct, use, or maintain any connection to intentionally convey non-stormwater to the city's municipal separate storm sewer system. This prohibition expressly includes, without limitation, connections made in the past regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection. A person is considered to be in violation of this chapter if the person connects a line conveying non-stormwater to the storm sewer system, or allows such a connection to continue.

12

WRAP UP

- BASIC ORIENTATION
  - STORMWATER DISCHARGE
  - CITY'S RESPONSIBILITIES
    - "MS4" PROGRAM
    - CHAPTER 51
  - WHAT IS PROHIBITED (ILLICIT DISCHARGE)
- GOAL: UNDERSTAND WAYS THAT LAKES AND RIVER CAN BE POLLUTED

13

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

TMDL Annual Report Form

Municipal Separate Storm Sewer Systems (MS4) Program

Doc Type: Annual Report

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: 3/1/2021

Permittee: St. Paul

Permit ID: MN0061263

Contact Name: Huong Hoang

Contact Phone: 651-266-6231

Contact email: huong.hoang@ci.stpaul.mn.us

Mailing address: 25 W 4th St, St. Paul, MN 55102

Reporting Year	Data Entry Date	Entered by	Notes
2019	########	St. Paul Sewers	
2020	3/1/2021	St. Paul Sewers	

Required	Required							Optional		Como Lake: Excess Nutrients TMDL	South Metro Mississippi River TMDL (Metro)	Twin Cities Metro Area Chloride TMDL	Ramsey-Washington Metro Watershed District TMDL	Ramsey-Washington Metro Watershed District TMDL	Ramsey-Washington Metro Watershed District TMDL
BMP/Activity	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	South Metro Mississippi River TMDL (Metro) - TSS	Battle Creek; Como Lake; Kasota Ponds North; Kasota Ponds West; Mallard Marsh -	Battle Creek -TSS	Fish Creek - E. coli	Wakefield Lake - Phosphorus
Infiltrator	Complete columns H through K		44.9387	-93.1441	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Lincoln and Oxford		X				
Infiltrator	Complete columns H through K		44.9371	-93.144	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Fairmount and Oxford (North)		X				
Infiltrator	Complete columns H through K		44.9364	-93.144	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Fairmount and Oxford (South)		X				
Infiltrator	Complete columns H through K		44.9377	-93.1415	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Chatsworth and Goodrich		X				
Infiltrator	Complete columns H through K		44.936	-93.1415	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Chatsworth and Osceola		X				
Infiltrator	Complete columns H through K		44.9317	-93.014	Lat-long	Permittee (you)	NA	2006	Londin Lane-Burlington Road Reconstruction		X				
Infiltrator	Complete columns H through K		44.9641	-93.1578	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Hamline and Englewood		X				
Infiltrator	Complete columns H through K		44.9641	-93.1542	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Syndicate and Englewood		X				
Infiltrator	Complete columns H through K		44.9643	-93.1517	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Griggs and Englewood		X				
Infiltrator	Complete columns H through K		44.9661	-93.1542	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Syndicate and Hubbard		X				
Infiltrator	Complete columns H through K		44.9668	-93.1542	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Syndicate and Hewitt		X				
Infiltrator	Complete columns H through K		44.9672	-93.1543	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Syndicate and Taylor		X				
Infiltrator	Complete columns H through K		44.9285	-93.1517	Lat-long	Permittee (you)	NA	2007	Jefferson/Griggs Trench at Palace and Griggs		X				
Infiltrator	Complete columns H through K		44.9283	-93.1503	Lat-long	Permittee (you)	NA	2007	Jefferson/Griggs Trench at Palace and Edgecumbe		X				
Infiltrator	Complete columns H through K		44.9301	-93.1543	Lat-long	Permittee (you)	NA	2007	Jefferson/Griggs Trench at Syndicate and Juliet		X				
Infiltrator	Complete columns H through K		44.9311	-93.1543	Lat-long	Permittee (you)	NA	2007	Jefferson/Griggs Trench at Syndicate and Wellesley		X				
Infiltrator	Complete columns H through K		44.9904	-93.035	Lat-long	Permittee (you)	NA	2007	White Bear/Burns Trench at Christie and Idaho		X				
Infiltrator	Complete columns H through K		44.9467	-93.0303	Lat-long	Permittee (you)	NA	2007	White Bear/Burns Trench at Kennard and Louise				X		
Infiltrator	Complete columns H through K		44.9445	-93.0277	Lat-long	Permittee (you)	NA	2007	White Bear/Burns Trench at Frandsu and Upper Afton				X		
Infiltrator	Complete columns H through K		44.9465	-93.0557	Lat-long	Permittee (you)	NA	2008	Earl/McLean Trench at Mounds and Earl		X				
Infiltrator	Complete columns H through K		44.9461	-93.0533	Lat-long	Permittee (you)	NA	2008	Middle Trench on Mounds (Earl/McLean)		X				
Infiltrator	Complete columns H through K		44.9482	-93.0501	Lat-long	Permittee (you)	NA	2008	Easternmost Trench on Mounds (Earl/McLean)		X				
Infiltrator	Complete columns H through K		44.9473	-93.0543	Lat-long	Permittee (you)	NA	2008	Earl/McLean Trench at Frank and Thorn		X				
Infiltrator	Complete columns H through K		44.9493	-93.0414	Lat-long	Permittee (you)	NA	2008	Earl/McLean Trench at Edna and Burns		X				
Infiltrator	Complete columns H through K		44.9843	-93.0329	Lat-long	Permittee (you)	NA	2008	Ivy/Kennard Trench at Germain and Sherwood		X				
Infiltrator	Complete columns H through K		44.9825	-93.0329	Lat-long	Permittee (you)	NA	2008	Ivy/Kennard Trench at Germain and Cottage		X				
Infiltrator	Complete columns H through K		44.9816	-93.0329	Lat-long	Permittee (you)	NA	2008	Ivy/Kennard Trench at Germain and Ivy		X				
Infiltrator	Complete columns H through K		44.9215	-93.1287	Lat-long	Permittee (you)	NA	2008	Seventh/Bay Trench at Bay and Butternut		X				
Infiltrator	Complete columns H through K		44.9819	-93.1884	Lat-long	Permittee (you)	NA	2009	Knapp/Raymond Trench on Carter		X				
Infiltrator	Complete columns H through K		44.9816	-93.1888	Lat-long	Permittee (you)	NA	2009	Knapp/Raymond Trench in Alley		X				
Infiltrator	Complete columns H through K		44.9797	-93.1877	Lat-long	Permittee (you)	NA	2009	Knapp/Raymond Trench on Knapp		X				
Infiltrator	Complete columns H through K		44.9357	-93.19	Lat-long	Permittee (you)	NA	2009	Coetzy/Goodrich Trench at Sargent and Finn		X				
Infiltrator	Complete columns H through K		44.978	-93.1359	Lat-long	Permittee (you)	NA	2009	Victoria/Arlington Trench at Como Lake Dr and Maryland	X					
Infiltrator	Complete columns H through K		44.9626	-93.0741	Lat-long	Permittee (you)	NA	2009	Payne Trench at Payne and Minnehaha		X				
Infiltrator	Complete columns H through K		44.9552	-93.1289	Lat-long	Permittee (you)	NA	2010	St Albans Trench Aurora to University		X				
Infiltrator	Complete columns H through K		44.9554	-93.1187	Lat-long	Permittee (you)	NA	2010	Arundel Trench Aurora to University		X				
Infiltrator	Complete columns H through K		44.9731	-93.1365	Lat-long	Permittee (you)	NA	2010	Front/Victoria Trench at Victoria and Orchard	X					
Infiltrator	Complete columns H through K		44.9698	-93.1415	Lat-long	Permittee (you)	NA	2010	Front/Victoria Trench at Chatsworth and Front	X					
Infiltrator	Complete columns H through K		44.9688	-93.1416	Lat-long	Permittee (you)	NA	2010	Front/Victoria Trench at Chatsworth and Burgess	X					
Infiltrator	Complete columns H through K		44.9732	-93.1385	Lat-long	Permittee (you)	NA	2010	Infiltration Mandie on Colne Street	X					
Infiltrator	Complete columns H through K		44.9735	-93.1395	Lat-long	Permittee (you)	NA	2010	Infiltration Mandie on Ryde Street	X					
Infiltrator	Complete columns H through K		44.9678	-93.0599	Lat-long	Permittee (you)	NA	2010	Beacon/Bluff Infiltration system at Wells/Duchess		X				
Infiltrator	Complete columns H through K		44.961	-93.1543	Lat-long	Permittee (you)	NA	2011	Blair/Griggs Trench at Syndicate and Blair		X				
Infiltrator	Complete columns H through K		44.96	-93.1517	Lat-long	Permittee (you)	NA	2011	Blair/Griggs Trench at Griggs and Lafond		X				
Infiltrator	Complete columns H through K		44.96	-93.1492	Lat-long	Permittee (you)	NA	2011	Blair/Griggs Trench at Dunlap and Lafond		X				
Infiltrator	Complete columns H through K		44.9624	-93.1492	Lat-long	Permittee (you)	NA	2011	Blair/Griggs Trench at Dunlap and Van Buren		X				
Infiltrator	Complete columns H through K		44.9668	-93.1804	Lat-long	Permittee (you)	NA	2012	Hewitt/Tatum Trench at Tatum and Hewitt		X				
Infiltrator	Complete columns H through K		44.9652	-93.1804	Lat-long	Permittee (you)	NA	2012	Hewitt/Tatum Trench at Tatum and Pennock		X				
Infiltrator	Complete columns H through K		44.9008	-93.1792	Lat-long	Permittee (you)	NA	2012	Madison/Benson Trench at Sue and Wordsworth		X				
Infiltrator	Complete columns H through K		44.9008	-93.178	Lat-long	Permittee (you)	NA	2012	Madison/Benson Trench at Edgecumbe and Wordsworth		X				
Infiltrator	Complete columns H through K		44.9879	-93.0295	Lat-long	Permittee (you)	NA	2012	Hillcrest Knoll Park and Dale Street stormwater improvement at Hillcrest Knoll Park		X				
Infiltrator	Complete columns H through K		44.9694	-93.1985	Lat-long	Permittee (you)	NA	2013	Hampden Park Trench		X				
Infiltrator	Complete columns H through K		44.9761	-93.0929	Lat-long	Permittee (you)	NA	2014	Trout Brook Nature Sanctuary (South of Maryland)		X				
Infiltrator	Complete columns H through K		44.9741	-93.0931	Lat-long	Permittee (you)	NA	2014	Trout Brook Nature Sanctuary (at Magnolia Ave)		X				
Infiltrator	Complete columns H through K		44.9711	-93.0922	Lat-long	Permittee (you)	NA	2014	Trout Brook Nature Sanctuary (at Jenks Ave)		X				
Infiltrator	Complete columns H through K		44.9483	-93.1165	Lat-long	Permittee (you)	NA	2014	Western Ave Trench at Western and Marshall		X				
Infiltrator	Complete columns H through K		44.9124	-93.1678	Lat-long	Permittee (you)	NA	2014	Montreal Ave Trench at Montreal and Snelling		X				
Infiltrator	Complete columns H through K		44.9771	-93.145	Lat-long	Permittee (you)	NA	2015	Como-Chatsworth Filtration Basin (East) at Horton and Churchill	X					
Infiltrator	Complete columns H through K		44.9772	-93.1446	Lat-long	Permittee (you)	NA	2015	Como-Chatsworth Filtration Basin (West) at Como and Churchill	X					
Infiltrator	Complete columns H through K		44.9746727	-93.137728	Lat-long	Permittee (you)	NA	2016	Como-Chatsworth Phase II Trench	X					
Manufactured_device	No ID information needed	NA	44.9579816	-93.0916384	Lat-long	Permittee (you)	NA	2016	University Ave Trench at 12th St		X				
Manufactured_device	No ID information needed	NA	44.976571	-93.190874	Lat-long	Permittee (you)	NA	2016	Raymond Ave Phase III Trench at Priscilla		X				
Manufactured_device	No ID information needed	NA	44.973888	-93.1465827	Lat-long	Permittee (you)	NA	2016	McMurray Field at Lexington and Jessamine	X					
Manufactured_device	No ID information needed	NA	44.9795891	93.1931973	Lat-long	Permittee (you)	NA	2017	Como 2017 Trench at Hillside		X				
Manufactured_device	No ID information needed	NA	44.9756049	-93.1356788	Lat-long	Permittee (you)	NA	2017	Como Park HS at Rose	X					
Manufactured_device	No ID information needed	NA	44.9775139	-93.1354225	Lat-long	Permittee (you)	NA	2017	Wheelock Parkway CDS structure at Victoria	X					
Infiltrator	Complete columns H through K		44.9805571	-93.130087	Lat-long	Permittee (you)	NA	2017	Wheelock Parkway Trench at Alameda	X					
Infiltrator	Complete columns H through K		44.9419077	-93.0202492	Lat-long	Permittee (you)	NA	2017	Battle Creek Trench at Upper Afton				X		
Infiltrator	Complete columns H through K		44.9900725	-93.0479802	Lat-long	Permittee (you)	NA	2017	Idaho-Atlantic at Atlantic		X				
Infiltrator	Complete columns H through K		44.9900539	-93.0473107	Lat-long	Permittee (you)	NA	2017	Idaho-Atlantic at Chamber		X				
Manufactured_device	No ID information needed	NA	44.9537302	-93.04947254	Lat-long	Permittee (you)	NA	2018	Jackson St at 12 St		X				
Manufactured_device	No ID information needed	NA	44.9306828	-93.1959043	Lat-long	Permittee (you)	NA	2018	Woodlawn-Jefferson at Woodlawn		X				
Infiltrator	Complete columns H through K		44.9828368	-93.1962685	Lat-long	Permittee (you)	NA	2018	Como Ave at Luther		X				
Infiltrator	Complete columns H through K		44.9829326	-93.1185004	Lat-long	Permittee (you)	NA	2018	Wheelock Parkway at Arundel		X				
Infiltrator	Complete columns H through K		44.9604272	-93.0461671	Lat-long	Permittee (you)	NA	2018	Margaret St at Sixth		X				
Infiltrator	Complete columns H through K		44.9188322	-93.1349173	Lat-long	Permittee (you)	NA	2018	Stewart Rain Garden at Otto		X				
Swale_or_strip	Complete columns H through K		44.9739	-93.0411	Lat-long	Permittee (you)	NA	2009	Vegetated Swale on Magnolia (Mechanic to Barclay)		X				
Swale_or_strip	Complete columns H through K		44.9703	-93.0525	Lat-long	Permittee (you)	NA	2009	Vegetated Swale on Case (Frank to Duluth)		X				
Manufactured_device	No ID information needed	NA	44.9879	-93.0295	Lat-long	Permittee (you)	NA	2012	Dale Street Stormwater Improvement- Vortech Structure		X				
Manufactured_device	No ID information needed	NA			Lat-long	Permittee (you)	NA	2020	Cherokee Heights Stormwater Management and Ravine Stabilization (2 CDS units)		x				
Infiltrator	Complete columns H through K				Lat-long	Permittee (you)	NA	2020	Fairview Street Project		x				
Infiltrator	Complete columns H through K				Lat-long	Permittee (you)	NA	2020	Wheelock Parkway Street Project		x				
Infiltrator	Complete columns H through K				Lat-long	Permittee (you)	NA	2020	Weyerhauser Development		x				
Filter	Complete columns H through K				Lat-long	Permittee (you)	NA	2020	Summit Bridge		x				

Cumulative Reductions Spreadsheet

Category 1: Summary of quantitative reductions (Annual Pollutant Load Reduction).											Optional	
Permittee	**MS4 ID**	**TMDL project**	Units	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	Calculation method	Notes
St. Paul	**MN0061263**	Como Lake - Phosphorus	pounds reduced	29.56	29.56							
St. Paul	**MN0061263**	South Metro Mississippi River TMDL (Metro) - TSS	pounds reduced	247,689.00	247,704.787							
St. Paul	**MN0061263**	Battle Creek; Como Lake; Kasota Ponds North; Kasota Ponds West; Mallard Marsh - Chloride	pounds reduced	0.00	0							
St. Paul	**MN0061263**	Battle Creek -TSS	pounds reduced	4,497.00	4497							
St. Paul	**MN0061263**	Fish Creek - E. coli	pounds reduced	0.00	0							
St. Paul	**MN0061263**	Wakefield Lake - Phosphorus	pounds reduced	0.00	0							

Category 2: Summary of qualitative reductions (# of BMPs).										Optional
Permittee	**MS4 ID**	**TMDL project**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	Notes
St. Paul	**MN0061263**	Como Lake - Phosphorus	13.00	13						
St. Paul	**MN0061263**	South Metro Mississippi River TMDL (Metro) - TSS	64.00	68						
St. Paul	**MN0061263**	Battle Creek; Como Lake; Kasota Ponds North; Kasota Ponds West;	0.00	0						
St. Paul	**MN0061263**	Battle Creek -TSS	3.00	3						
St. Paul	**MN0061263**	Fish Creek - E. coli	0.00	0						
St. Paul	**MN0061263**	Wakefield Lake - Phosphorus	0.00	0						

Non-implemented activities (BMP Inventory)

Permittee	MS4 ID	BMP description	Status	Reporting year	Notes (Optional)	Place an "X" in a cell if the activity applies to the TMDL shown in the column: Como Lake - Phosphorus	South Metro Mississippi River TMDL (Metro) - TSS	Battle Creek; Como Lake; Kasota Ponds North; Kasota Ponds West; Mallard Marsh - Chloride	Battle Creek - TSS	Fish Creek - E. coli	Wakefield Lake - Phosphorus
St. Paul	**MN0061263**	Fairview Trench	Under construction	2021	Infiltration Trench		X				
St. Paul	**MN0061263**	**Summit Bridge Project**	Under construction	2021	Filtration Basin		X				
St. Paul	**MN0061263**	**Wheelock Phase IV**	Under construction	2021	Infiltration Trench		X				
St. Paul	**MN0061263**	**Tedesco Project**	Under construction	2021	Infiltration Trench		X				
St. Paul	**MN0061263**	**Cherokee Heights**	Under construction	2021	CDS Structures		X				
St. Paul	**MN0061263**	Como Aveune Trail Project	Planned	2022	2 Infiltration Trenches		X				
St. Paul	**MN0061263**	**Johnson Parkway Trail**	Planned	2022	1 Infiltration Trench		X				
St. Paul	**MN0061263**	**Griggs/Scheffer BMPs**	Planned	2022	5 Infiltration Trenches		X				
St. Paul	**MN0061263**	**Bush/Desoto**	Planned	2022	Infiltration Basin		X				
St. Paul	**MN0061263**	**Ford Site**	Planned	2022			X				

Provide an up-dated narrative describing any adaptive management strategies used (including projected dates) for making progress toward achieving each applicable WLA

The City of Saint Paul will be installing 4 infiltration trenches throughout the year in 2021. These infiltration trenches will be combined with multiple pretreatment structures to reduce the loading of TSS into the Mississippi River.
Concurrent with the in-house trenches, the City of Saint Paul will be working with BARR, CRWD, and WSB on the design/installation of a major stormwater management system at the Ford Redevelopment Site. This complex system will include bioinfiltration basins with IESF trenches, subsurface storage tanks with filtration systems, retention ponds, and rate control structures. Calculations on the effectiveness of TSS and Phosphorus removal throughout the site will be determined qualitatively and quantitatively and reported on in the future.
The 2021 year will also include the development of design plans to improve and increase the effectiveness of Bush/Desoto Pond. This design will be based on the feasability study that was completed in 2020.