City of Saint Paul's
2022 Stormwater Permit Annual Report

Minnesota Pollution Control Agency
National Pollutant Discharge Elimination System
Permit No. MN 0061263
May 2022

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 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 2022.

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.

2022 Activities

Public Education and Outreach activities continued utilizing 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. The Sewer Utility partnered with CRWD on the design of a water quality educational message that was installed on the back of St. Paul no parking signs. These signs will be used throughout the year for various maintenance activities and will promote keeping receiving waters clean. The Sewer Utility participated in Waterfest promoting our stormwater management programs as well as fielding any questions raised by the public. A TMDL factsheet has become part of our water quality education programs in effort to educate the public on impaired waters within St. Paul. It is available to the public on the City's website. 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.

2022 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 held its public meeting at Waterfest on June 4th, 2022 at Lake Phalen Park. Our stormwater management and annual reports were available for review in addition to the distribution of factsheets and flyers containing stormwater messaging. This provided the public with the opportunity to inquire and provide feedback on our stormwater management programs and activities. In addition to the public meeting, 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.

2022 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.

The Sewer Utility maintains a contact list summarizing all the MS4 contacts of adjacent municipalities and agencies. This aids in investigations, notifications, and response activities in multi-jurisdictional illicit discharges.

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 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, and a handout is provided. The ROW inspectors enforce these requirements in the field, respond to complaints and coordinate with DSI to address issues originating on private property.

In 2022, DSI sent out 62 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 how the 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 2022 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.
- Various Sewer Utility personnel attend the Sewer Collection System Operators Conference conducted by the Minnesota Pollution Control Agency on 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.

2022 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 2022, 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	170
Upper Lake	8
Crosby Lake	9
Fairview North Pond	2
Lake Como	19
Loeb Lake	1
Lake Phalen	18
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.

2022 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.
- The Department of Public works partnered with Bolton & Menk to create IDDE training videos for the public and City staff. The public video was added to the Sewer Utility's website to increase awareness and detection of illicit discharges. The City staff IDDE video is anticipated to be incorporated into annual trainings.

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.

2022 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 2022 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.

2022 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 2022, City Departments reviewed 100 site plan applications, and issued final approval and permitting on 61 of them. 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 2022, DSI inspectors conducted 458 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 MUNICIPAL CONTROL PROGRAM

Description

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

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

Assessment Process for Annual Reporting

- 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.

2022 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 2022, 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.

2022 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 2022, 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 in 2021 further revision is needed to address stormwater management requirements.

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.

2022 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 2018, the City updated its Local Surface Water Management Plan. As a part of this planning effort, various ordinances were 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.

2022 Activities

- ***Public Works Projects***
  - Griggs-Scheffer (Phase II Rebid): Public Works began installation of multiple subsurface infiltration trenches. Anticipated completion in 2023 ($555,000).
  - Prior Ave: Public Works installed an infiltration trench ($156,000).
  - Wheelock Pkwy (Phase V): Public Works began installation of a subsurface infiltration trench. Anticipated completion in 2023 ($225,000).
  - Advanced planning and engineering on 2023 Street Reconstruction projects. (Annapolis Street, Edgcumbe Road, Griggs-Scheffer Phase II, Grand Ave, Kellogg-Third Street Bridge, Robert Street, Minnesota Street, Wabasha St, Wheelock Parkway Phase V).
  - Bush-Desoto Pond: In 2023 Public Works pursued grant opportunities for construction costs (estimated construction cost in 2022: $975,000).
  - Griffith/Point Douglas & Urban Subwatersheds: In 2022 Public Works completed a detailed Hydrologic and Hydraulic Model of the 847 acre Griffith/Point Douglas & Urban Subwatersheds. Included in the scope of work was the development of a P8 water quality model. ($70,000).
- ***Parks and Recreation Projects***
  - Parks and Recreation received 1460 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 installed 0.5 acre of native prairie in Marydale Park to keep water on the land to protect the water quality of Loeb Lake.
  - Parks and Recreation installed a stormwater basin at Westgate Commons Park ($30,000).
  - Parks and Recreation completed parking lot improvements at Como Regional Park that included the installation of multiple BMPs ($187,000).
- ***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.

- Hillcrest Golf Course: Public Works, Parks, RWMWD, began review of the Port Authority plans for comprehensive stormwater facilities to service entire 112 acre public/private redevelopment.
- Parks and Recreation staff advised Capitol Region Watershed District during the development of the Como Lakeshore Management Plan which was adopted in 2022. This plan was developed to guide the long-term maintenance and management of Como Lake's lakeshore areas. These include the shoreline, the vegetative buffer, and active parkland areas. The Lakeshore Plan was an outcome of the Como Lake Management Plan which identified the importance of maintaining healthy lakeshore areas to promote the ecological health of Como Lake.
- Gold Line Transitway: Public Works & Metro Transit preliminary assessment and planning of comprehensive stormwater facilities to service a 10 mile bus rapid transit corridor.
- Trout Brook H&H Model: Public Works and CRWD entered into an agreement to develop Hydrologic and Hydraulic Model of the 8,000 acre Trout Brook Subwatershed. Included in the scope of work is the development of a P8 water quality model.

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, 5 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.

2022 Activities

Riverview District Storm Tunnel System

The Riverview District Storm Tunnel System was originally constructed in the 1950s and 1960s. The 1.5 mile long tunnel system is comprised of cast in place concrete through varying geologic formations (Glacial Till, Decorah Shale, Platteville Limestone, Glenwood Shale and St. Peter Sandstone). In 2022, a multi-phase rehabilitation effort was initiated to address structural deficiencies in the concrete ceiling, walls, and invert of the tunnel system. Phase I of the Riverview District Storm Tunnel System Rehabilitation began in the fall of 2022 with a construction cost of $320,000. Phase II of the Riverview District Storm Tunnel System Rehabilitation is in the design phase with construction to begin the fall of 2023.

2022-2023 Shaft and Tunnel Repair

In 2022-2023, the Sewer Utility embarked on a various locations tunnel rehabilitation project. Improvements were made to the Riverview system and Highland system. Construction timeframe spans 2022-2023, estimated construction cost is $725,000.

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.

Levee System Pump Stations

In 2022, the Sewer Utility, via a consultant engineer, conducted a structural evaluation of three pump station control buildings associated with the levee system. Intent of the evaluation will be used to populate a rehabilitation plan to extend the useful life of the facilities. This evaluation is complete and will be utilized to inform a rehabilitative program.

Storm Sewer Inspection, Cleaning & Rehabilitation

- Kellogg Blvd-Juno Ave Televised Inspection: 81,800 L.F. of Storm Sewer ($164,000)
- Carroll Ave-Irvine Ave Televised Inspection: 104,500 L.F. of Storm Sewer ($179,000)
- Sewer Maintenance Televised Inspection: 1,500 L.F. of Storm Sewer ($9,000)
- Sewer Maintenance Cleaning: 3,200 L.F. of Storm Sewer ($8,000)

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.

2022 Activities

- Catch Basin Maintenance ($299,000)
  - Inspected: 392
  - Cleaned: 1,357
  - Repaired: 90
- Manhole Maintenance ($68,000)
  - Inspected: 242
  - Cleaned: 469
  - Repaired: 66

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.

2022 Activities

Storm Drain Outfalls Inspection

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 2022 the following outfalls were inspected:

Mississippi River: 103
Upper Crosby Lake: 0
Crosby Lake: 0
Crosby Pond: 0

Storm Drain Outfalls Repair

In 2022-2023, the Sewer Utility embarked on an outfall Rehabilitation contract. In total five outfalls are scheduled for repair, including major river outfalls at Pelham, Homer and Riverview. Construction timeframe spans 2022-2023, estimated construction cost is $700,000.

Storm Outfall Assessment

In 2022, a consultant engineer working with the Sewer Utility completed a condition survey of outfalls to the Mississippi River. Geologic condition adjacent to the outfall, structural defects, repair options, etc. are included in the comprehensive report. The report is being used to populate a rehabilitation plan for the outfalls. The condition assessment cost $140,000.

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.

2022 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.

Shepard Ponds

In 2022, the Sewer Utility incorporated the Shepard Ponds within its monitoring program. This was done as a preliminary assessment to a potential retrofit.

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. In 2022, the annual cost for self-performed maintenance of water quality and volume control BMPs was estimated to be $97,000.

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 2022 Operation Report is included within the Appendix.

Snelling-Midway Tree Trench System

In 2022, the Sewer Utility contracted out the cleaning and televising of all tree trenches, sumps, and CDS units located at the Snelling-Midway site ($49,800).

Staff Training

- City staff from multiple departments attended the Minnesota Water Resources Conference.
- City staff obtained certification for Inspection and Maintenance of Permanent Stormwater Treatment Practices.

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.

2022 Activities

- Material removed from stormwater ponds, BMPs and catch basins by Sewer Utility is estimated to be similar to 2021 (850 tons at an expense of $23,000).

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

2022 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 April 13, 2022 thru May 19, 2022. The primary material swept in the spring is debris from winter months. Fall sweeping occurred October 17, 2022 thru November 28, 2022. 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. Due to the diversity of the tree canopy, fall leaf drop occurs over an extended timeframe. 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 implement best management practices where available.

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. No paved streets were chip sealed in 2022. 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. No alleys were chip sealed in 2022.

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.

2022 Street Sweeping Quantities (Cubic Yards)

Season	Spring/Summer	Fall
Totals	5,330	7,410

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.

2022 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 implements anti-ice technologies on 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 2022 will be similar to 2022 quantities.

2022/2023 Ice Control Material Quantities

Regular Salt (tons) 8,650

Treated Salt (tons) 6,696

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 August 30th, November 8th and 9th, 2022, along with SPOT training on September 19th thru September 26th, 2022.

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.) 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

2022 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 draft SWPPPs for 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. 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 August 30th, November 8th and 9th, 2022, along with SPOT training on September 19th thru September 26th, 2022.

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

2022 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. 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 August 30th, November 8th and 9th, 2022, along with SPOT training on September 19th thru September 26th, 2022.

- 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.
- Various Parks personnel maintained their certification with the MPCA's Smart Salting for Sidewalks and Parking Lots.

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, biofiltration, stormwater reuse, evapotranspiration, minimizing and disconnecting impervious surfaces.

Assessment Process for Annual Reporting

- Narrative of progress towards plan development and implementation.

2022 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 2018, the City updated its Local Surface Water Management Plan. As a part of this planning effort, various ordinances were analyzed and revisions proposed. This will assist in future planning to meet the identified Proposed Activities and Implementation Schedule.

In 2022, Parks and Recreation, Public Works, Ramsey-Washington Metro Watershed District, Saint Paul Port Authority, and other partners, continued the development of planning documents and began reviewing plans for the redevelopment of Hillcrest Golf Course that will aid in the installation of water quality improvement projects.

In 2022, the Public Works Department applied for grant funding to retrofit Bush-Desoto Pond for stormwater quality benefits. This retrofit 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. Successful grant application will facilitate implementation of this design.

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.

2022 Activities

Monitoring Program

The City of Saint Paul collaborated with CRWD on the 2022 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 2022, 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 3 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 2022 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 2022 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**.**

2022 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 (2022: Bush-Desoto Pond, Highland Bridge Site).
- Cooperative Monitoring Program.
- Development & Redevelopment Mitigation Program (2022: 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.

Lake Pepin 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 (2022: Bush-Desoto Pond, Highland Bridge Site).
- Cooperative Monitoring Program.
- Development & Redevelopment Mitigation Program (2022: Highland Bridge Site Redevelopment, Hillcrest Golf Course, other Private Site Plans).

Appendix

Minnesota Pollution Control Agency

National Pollutant Discharge Elimination System

Permit No. MN 0061263

May 2023

SAINT PAUL
MINNESOTA

2022 Budget	2022	2023	2024	2025	2026	2027
Storm Sewer Projects						
Stormwater Quality Improvements	$100,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Storm Sewer Tunnel Rehabilitation	$3,400,000	$3,500,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000
	$3,500,000	**$4,500,000**	**$5,000,000**	**$5,000,000**	**$5,000,000**	**$5,000,000**
Storm Sewer Maintenance						
Storm Sewer Cleaning, Inspection & Repair	$360,000	$367,200	$374,544	$382,035	$389,676	$397,469
Pond-Levee Inspection & Maintenance	$224,800	$229,296	$233,882	$238,560	$243,331	$248,197
Catch Basin Inspection, Cleaning & Repair	$299,300	$305,286	$311,392	$317,620	$323,972	$330,451
Manhole Cleaning, Inspection & Repair	$67,844	$69,201	$70,585	$71,997	$73,437	$74,905
BMP Cleaning	$93,604	$95,476	$97,386	$99,333	$101,320	$103,346
Snelling Midway Green Infrastructure District	$115,000	$115,000	$115,000	$115,000	$115,000	$115,000
	$1,045,548	**$1,066,459**	**$1,087,788**	**$1,109,544**	**$1,131,735**	**$1,154,369**
Stormwater Modeling & Monitoring						
Stormwater Modeling	$195,500	$199,410	$203,398	$207,466	$211,615	$215,848
Stormwater Monitoring	$157,510	$160,660	$163,873	$167,151	$170,494	$173,904
	$353,010	**$360,070**	**$367,272**	**$374,617**	**$382,109**	**$389,752**
Street Maintenance						
Street Sweeping	$4,512,523	$4,602,773	$4,694,829	$4,788,726	$4,884,500	$4,982,190
Neighborhood Cleanups	$71,339	$40,000	$40,800	$41,616	$42,448	$43,297
	$4,583,862	**$4,642,773**	**$4,735,629**	**$4,830,342**	**$4,926,948**	**$5,025,487**
Public Education Program						
Storm drain stenciling including door hangers	$49,865	$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	$6,560	$7,000	$7,140	$7,283	$7,428	$7,577
	$81,065	**$81,548**	**$83,179**	**$84,842**	**$86,539**	**$88,270**
Total Budget	**$9,563,485**	**$10,650,850**	**$11,273,867**	**$11,399,345**	**$11,527,332**	**$11,657,878**

*2% used for annual inflation where projected amounts unknown

City of Saint Paul

Public Education and Outreach Work Plan

NPDES Permit MN0061263

Updated March 2023

2022 Stormwater Mural at Phalen Pavilion Park

1. Multi-lingual program for residents and businesses to increase the level of awareness about stormwater runoff impacts to receiving waters. This activity must utilize a variety of communication tools and methods to reach target audiences and inform them of strategies to reduce pollutants in stormwater runoff.

   Specific Activities:

   a. **Friends of the Mississippi River Water Quality Education Program:** is implemented annually within Saint Paul. The target audience is groups of volunteers comprised of residents or community members (businesses, neighborhood groups, organizations). Major components of the program include: storm drain stenciling, distribution of door hangers, litter clean-up events, educational programs and workshops.

      Various stormwater runoff impact topics are presented through the Program including: pet waste disposal, leaves/grass impacts, litter/trash impacts, proper disposal of hazardous wastes, proper application of fertilizers, car washing techniques, salt application, etc.

      2018 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: engaged 1,113 volunteers and completed 1,976 volunteer hours on water quality improvement activities including: stenciling 2,224 storm drains, distributing 5,738 door hangers, coordinating 2 litter clean-up outings, 31 classroom educational presentations, 2 community education workshops, and 1 storm drain mural project.

      2019 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: engaged 1,259 volunteers and completed 2,426 volunteer hours on water quality improvement activities including: stenciling 2,521 storm drains, distributing 7,686 door hangers, coordinating 3 litter clean-up outings, 29 classroom educational presentations, 2 community education workshops, and 1 storm drain mural project.

      2020 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: engaged 125 volunteers to carry out 337 volunteer hours on water quality improvement activities that included: stenciling 1,013 storm drains, distributing 1,199 door hangers, coordinating 1 litter clean-up outing, 12 classroom presentations, 1 special event (Children's Water Festival virtually), and 1 storm drain mural project. FMR incorporated a TMDL fact sheet into their educational programs and at public events.

      2021 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: engaged 643 volunteers to carry out 1,168 volunteer

hours on water quality improvement activities that included: stenciling 1,368 storm drains, distributing 2,220 door hangers, coordinating 12 litter clean-up outings, 11 classroom presentations, 7 field trips, 670 virtual engagements with online curriculum, and 1 storm drain mural project. Updated the door hanger that is distributed during stenciling events.

2022 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: engaged 666 volunteers to carry out 918 volunteer hours on water quality improvement activities including: stenciling 1,265 storm drains, distributing door hangers, coordinating 4 litter clean-up outings, 7 educational programs, 2 community education workshops, and 1 storm drain mural project. FMR also incorporated TMDL fact sheets into their educational programs and at public events.

2023 Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program seeks to: engage 750 volunteers to carry out 1,500 volunteer hours on water quality improvement activities including: stenciling 2,200 storm drains, distributing 3,500 door hangers, coordinating 2-3 litter clean-up outings, 5-10 educational programs, 2 community education workshops, and 1 storm drain mural project. FMR also plans to incorporate TMDL fact sheets into their educational programs and at public events.

Responsible Municipal Staff: Stormwater Permit Coordinator

b. **Adopt-a-Drain Program:** is implemented annually within Saint Paul. The target audience are individual property occupants within Saint Paul. Major components of the program include: marketing of the Program, distribution of door hangers, distribution of welcome packets/signs, and collection of data.

   Various stormwater runoff impact topics are presented through the Program including: pet waste disposal, leaves/grass impacts, litter/trash impacts, proper disposal of hazardous wastes, salt application, etc.

   2018 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: distributed 9,600 door hangers, encouraged adoption of 561 storm drains, delivered signs and welcome packets, and continued management of the Adopt-a-Drain website.

   2019 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior with an emphasis in the Battle Creek subwatershed. To accomplish these goals, the Program: distributed 2,400 door hangers, encouraged adoption of 851 storm

drains, delivered signs and welcome packets, and continued management of the Adopt-a-Drain website.

2020 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in the Summit-University neighborhoods. To accomplish these goals, the Program: mailed 5,999 postcards, encouraged adoption of 565 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website.

2021 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in the Woodlawn-Jefferson, Wheelock Pkwy and Jefferson-W. Seventh neighborhoods. To accomplish these goals, the Program: delivered 2,000 door hangers, encouraged adoption of 375 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website. Updated the door hanger that is distributed in targeted promotion areas.

2022 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in St. Paul. To accomplish these goals, the Program: mailed postcards, encouraged adoption of 319 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website.

2023 Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in various neighborhoods. To accomplish these goals, the Program seeks to: distribute door hangers, encourage adoption of storm drains, deliver signs and welcome packets, and continue management of the Adopt-a-Drain website.

Responsible Municipal Staff: Stormwater Permit Coordinator

c. **Watershed Partners and Clean Water Minnesota:** is a collaborative outreach project and coalition providing resources to member organizations to aid in water quality education. The City of Saint Paul is member of this organization, and annually contributes financial resources to the coalition. The target audience is residents and community stakeholders of the member organizations including watershed districts, cities, counties, higher education, etc.

Various stormwater runoff impact topics are presented through the Program including: lawn care techniques, urban agriculture, native planting/restoration, environmental health, etc. Additionally, the organization sponsors the clean water exhibits at the Minnesota State Fair.

Annual Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program seeks to: create monthly blog posts with timely and

consistent messages to encourage behaviors that improve water quality, generate photographs that feature local residents taking action to protect lakes and rivers, enhance a metro wide Adopt-a-Drain online registration system, conduct monthly meetings with partner activities and presentations, and develop and implement clean water exhibits at the Minnesota State Fair.

Responsible Municipal Staff: Stormwater Permit Coordinator

d. **No-Parking Sign Water Quality Message:** In 2022 a Water Quality message was included in the printing of temporary No-Parking Signs. The temporary No-Parking Signs are used citywide to prevent parking during programmed street sweeping, snow removal and street repair activities. The message advocates for keeping storm drains clear to prevent localized flooding and to promote knowledge of impacts to water quality in the Mississippi River.

Annual Measurable Goals of the No-Parking Sign Water Quality Message include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior.

Responsible Municipal Staff: Stormwater Permit Coordinator

2. Educate the public, businesses, and commercial applicators on the proper application of pesticides, herbicides, and fertilizers and the benefits of retaining grass clippings and leaf litter on lawn surfaces.

Specific Activities:

a. **Friends of the Mississippi River Water Quality Education Program:** is implemented annually within Saint Paul. The target audience is groups of volunteers comprised of residents or community members (businesses, neighborhood groups, organizations). Major components of the program include: storm drain stenciling, distribution of door hangers, litter clean-up events, educational programs and workshops.

Various stormwater runoff impact topics are presented through the Program including: pet waste disposal, leaves/grass impacts, litter/trash impacts, proper disposal of hazardous wastes, proper application of fertilizers, car washing techniques, salt application, etc.

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Responsible Municipal Staff: Stormwater Permit Coordinator

b. **Adopt-a-Drain Program:** is implemented annually within Saint Paul. The target audience are individual property occupants within Saint Paul. Major components of the program include: marketing of the Program, distribution of door hangers, distribution of welcome packets/signs, and collection of data.

Various stormwater runoff impact topics are presented through the Program including: pet waste disposal, leaves/grass impacts, litter/trash impacts, proper disposal of hazardous wastes, salt application, etc.

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2019 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior with an emphasis in the Battle Creek subwatershed. To accomplish these goals, the Program: distributed 2,400 door hangers, encouraged adoption of 851 storm drains, delivered signs and welcome packets, and continued management of the Adopt-a-Drain website.

2020 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in the Summit-University neighborhoods. To accomplish these goals, the Program: mailed 5,999 postcards, encouraged adoption of 565 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website.

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2022 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in St. Paul. To accomplish these goals, the Program: mailed postcards, encouraged adoption of 319 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website.

2023 Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in various neighborhoods. To accomplish these goals, the Program seeks to:

distribute door hangers, encourage adoption of storm drains, deliver signs and welcome packets, and continue management of the Adopt-a-Drain website.

Responsible Municipal Staff: Stormwater Permit Coordinator

c. **Watershed Partners and Clean Water Minnesota:** is a collaborative outreach project and coalition providing resources to member organizations to aid in water quality education. The City of Saint Paul is member of this organization, and annually contributes financial resources to the coalition. The target audience is residents and community stakeholders of the member organizations including watershed districts, cities, counties, higher education, etc.

   Various stormwater runoff impact topics are presented through the Program including: lawn care techniques, urban agriculture, native planting/restoration, environmental health, etc. Additionally, the organization sponsors the clean water exhibits at the Minnesota State Fair.

   Annual Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program seeks to: create monthly blog posts with timely and consistent messages to encourage behaviors that improve water quality, generate photographs that feature local residents taking action to protect lakes and rivers, enhance a metro wide Adopt-a-Drain online registration system, conduct monthly meetings with partner activities and presentations, and develop and implement clean water exhibits at the Minnesota State Fair.

   Responsible Municipal Staff: Stormwater Permit Coordinator

d. **No-Parking Sign Water Quality Message:** In 2022 a Water Quality message was included in the printing of temporary No-Parking Signs. The temporary No-Parking Signs are used citywide to prevent parking during programmed street sweeping, snow removal and street repair activities. The message advocates for keeping storm drains clear to prevent localized flooding and to promote knowledge of impacts to water quality in the Mississippi River.

   Annual Measurable Goals of the No-Parking Sign Water Quality Message include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior.

   Responsible Municipal Staff: Stormwater Permit Coordinator

e. **Pesticide and Fertilizer Applicator Licensing**: The Department of Safety and Inspections maintains a City Ordinance (Chapter 377) and Licensing system for pesticide and fertilizer applicators.

   Responsible Municipal Staff: Water Resources Coordinator

3. Educate the public on proper pet waste disposal.

   Specific Activities:

   a. **Friends of the Mississippi River Water Quality Education Program:** is implemented annually within Saint Paul. The target audience is groups of volunteers comprised of residents or community members (businesses, neighborhood groups, organizations). Major components of the program include: storm drain stenciling, distribution of door hangers, litter clean-up events, educational programs and workshops.

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      2020 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: engaged 125 volunteers to carry out 337 volunteer hours on water quality improvement activities that included: stenciling 1,013 storm drains, distributing 1,199 door hangers, coordinating 1 litter clean-up outing, 12 classroom presentations, 1 special event (Children's Water Festival virtually), and 1 storm drain mural project. FMR incorporated a TMDL fact sheet into their educational programs and at public events.

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Responsible Municipal Staff: Stormwater Permit Coordinator

b. **Adopt-a-Drain Program:** is implemented annually within Saint Paul. The target audience are individual property occupants within Saint Paul. Major components of the program include: marketing of the Program, distribution of door hangers, distribution of welcome packets/signs, and collection of data.

Various stormwater runoff impact topics are presented through the Program including: pet waste disposal, leaves/grass impacts, litter/trash impacts, proper disposal of hazardous wastes, salt application, etc.

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2020 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in the Summit-University neighborhoods. To accomplish these goals, the Program: mailed 5,999 postcards, encouraged adoption of 565 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website.

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2022 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in St. Paul. To accomplish these goals, the Program: mailed postcards, encouraged adoption of 319 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website.

2023 Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in various neighborhoods. To accomplish these goals, the Program seeks to: distribute door hangers, encourage adoption of storm drains, deliver signs and welcome packets, and continue management of the Adopt-a-Drain website.

Responsible Municipal Staff: Stormwater Permit Coordinator

c. **Watershed Partners and Clean Water Minnesota:** is a collaborative outreach project and coalition providing resources to member organizations to aid in water quality education. The City of Saint Paul is member of this organization, and annually contributes financial resources to the coalition. The target audience is residents and community stakeholders of the member organizations including watershed districts, cities, counties, higher education, etc.

   Various stormwater runoff impact topics are presented through the Program including: lawn care techniques, urban agriculture, native planting/restoration, environmental health, etc. Additionally, the organization sponsors the clean water exhibits at the Minnesota State Fair.

   2018 Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program seeks to: create monthly blog posts with timely and consistent messages to encourage behaviors that improve water quality, generate photographs that feature local residents taking action to protect lakes and rivers, enhance a metro wide Adopt-a-Drain online registration system, conduct monthly

meetings with partner activities and presentations, and develop and implement clean water exhibits at the Minnesota State Fair.

Responsible Municipal Staff: Stormwater Permit Coordinator

d. **No-Parking Sign Water Quality Message:** In 2022 a Water Quality message was included in the printing of temporary No-Parking Signs. The temporary No-Parking Signs are used citywide to prevent parking during programmed street sweeping, snow removal and street repair activities. The message advocates for keeping storm drains clear to prevent localized flooding and to promote knowledge of impacts to water quality in the Mississippi River.

   Annual Measurable Goals of the No-Parking Sign Water Quality Message include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior.

   Responsible Municipal Staff: Stormwater Permit Coordinator

4. Educate the public and commercial applicators on the proper management and application of de-icing and anti-icing compounds for winter maintenance.

   Specific Activities:

   a. **Friends of the Mississippi River Water Quality Education Program:** is implemented annually within Saint Paul. The target audience is groups of volunteers comprised of residents or community members (businesses, neighborhood groups, organizations). Major components of the program include: storm drain stenciling, distribution of door hangers, litter clean-up events, educational programs and workshops.

      Various stormwater runoff impact topics are presented through the Program including: pet waste disposal, leaves/grass impacts, litter/trash impacts, proper disposal of hazardous wastes, proper application of fertilizers, car washing techniques, salt application, etc.

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2,521 storm drains, distributing 7,686 door hangers, coordinating 3 litter clean-up outings, 29 classroom educational presentations, 2 community education workshops, and 1 storm drain mural project.

2020 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: engaged 125 volunteers to carry out 337 volunteer hours on water quality improvement activities that included: stenciling 1,013 storm drains, distributing 1,199 door hangers, coordinating 1 litter clean-up outing, 12 classroom presentations, 1 special event (Children's Water Festival virtually), and 1 storm drain mural project. FMR incorporated a TMDL fact sheet into their educational programs and at public events.

2021 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: engaged 643 volunteers to carry out 1,168 volunteer hours on water quality improvement activities that included: stenciling 1,368 storm drains, distributing 2,220 door hangers, coordinating 12 litter clean-up outings, 11 classroom presentations, 7 field trips, 670 virtual engagements with online curriculum, and 1 storm drain mural project. Updated the door hanger that is distributed during stenciling events.

2022 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: engaged 666 volunteers to carry out 918 volunteer hours on water quality improvement activities including: stenciling 1,265 storm drains, distributing door hangers, coordinating 4 litter clean-up outings, 7 educational programs, 2 community education workshops, and 1 storm drain mural project. FMR also incorporated TMDL fact sheets into their educational programs and at public events.

2023 Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program seeks to: engage 750 volunteers to carry out 1,500 volunteer hours on water quality improvement activities including: stenciling 2,200 storm drains, distributing 3,500 door hangers, coordinating 2-3 litter clean-up outings, 5-10 educational programs, 2 community education workshops, and 1 storm drain mural project. FMR also plans to incorporate TMDL fact sheets into their educational programs and at public events.

Responsible Municipal Staff: Stormwater Permit Coordinator

b. **Adopt-a-Drain Program:** is implemented annually within Saint Paul. The target audience are individual property occupants within Saint Paul. Major components of the program include: marketing of the Program, distribution of door hangers, distribution of welcome packets/signs, and collection of data.

Various stormwater runoff impact topics are presented through the Program including: pet waste disposal, leaves/grass impacts, litter/trash impacts, proper disposal of hazardous wastes, salt application, etc.

2018 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program: distributed 9,600 door hangers, encouraged adoption of 561 storm drains, delivered signs and welcome packets, and continued management of the Adopt-a-Drain website.

2019 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior with an emphasis in the Battle Creek subwatershed. To accomplish these goals, the Program: distributed 2,400 door hangers, encouraged adoption of 851 storm drains, delivered signs and welcome packets, and continued management of the Adopt-a-Drain website.

2020 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in the Summit-University neighborhoods. To accomplish these goals, the Program: mailed 5,999 postcards, encouraged adoption of 565 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website.

2021 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in the Woodlawn-Jefferson, Wheelock Pkwy and Jefferson-W. Seventh neighborhoods. To accomplish these goals, the Program: delivered 2,000 door hangers, encouraged adoption of 375 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website. Updated the door hanger that is distributed in targeted promotion areas.

2022 Measurable Goals of the Program included: increased awareness, increased understanding, acquired skills, and/or desired changes in St. Paul. To accomplish these goals, the Program: mailed postcards, encouraged adoption of 319 storm drains, delivered signs and welcome packets, and continued managing the Adopt-a-Drain website.

2023 Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior focusing in various neighborhoods. To accomplish these goals, the Program seeks to: distribute door hangers, encourage adoption of storm drains, deliver signs and welcome packets, and continue management of the Adopt-a-Drain website.

Responsible Municipal Staff: Stormwater Permit Coordinator

c. **Watershed Partners and Clean Water Minnesota:** is a collaborative outreach project and coalition providing resources to member organizations to aid in water quality education. The City of Saint Paul is member of this organization, and annually contributes financial resources to the coalition. The target audience is residents and community stakeholders of the member organizations including watershed districts, cities, counties, higher education, etc.

   Various stormwater runoff impact topics are presented through the Program including: lawn care techniques, urban agriculture, native planting/restoration, environmental health, etc. Additionally, the organization sponsors the clean water exhibits at the Minnesota State Fair.

   Annual Measurable Goals of the Program include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program seeks to: create monthly blog posts with timely and consistent messages to encourage behaviors that improve water quality, generate photographs that feature local residents taking action to protect lakes and rivers, enhance a metro wide Adopt-a-Drain online registration system, conduct monthly meetings with partner activities and presentations, and develop and implement clean water exhibits at the Minnesota State Fair.

   Responsible Municipal Staff: Stormwater Permit Coordinator

d. **No-Parking Sign Water Quality Message:** In 2022 a Water Quality message was included in the printing of temporary No-Parking Signs. The temporary No-Parking Signs are used citywide to prevent parking during programmed street sweeping, snow removal and street repair activities. The message advocates for keeping storm drains clear to prevent localized flooding and to promote knowledge of impacts to water quality in the Mississippi River.

   Annual Measurable Goals of the No-Parking Sign Water Quality Message include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior.

   Responsible Municipal Staff: Stormwater Permit Coordinator

5. Educate developers and contractors on construction site and post-construction stormwater management BMP design, construction, and maintenance methods.

   Specific Activities:

   a. **Utility Coordination Meeting:** is held annually to present information related to various utility and street improvement projects occurring within the City limits. The target audience for this meeting is contractors, city staff, and utility companies.

Various stormwater runoff impact topics are presented at this Meeting including illicit discharges and erosion and sediment control measures. Also made available at this meeting is a document detailing Erosion and Sediment Control for Utility Projects in the Right-of-Way.

Annual Measurable Goals of the meeting include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the meeting seeks to: inform contractors and utility companies of erosion and sediment control requirements the City has in place.

Responsible Municipal Staff: Right-of-Way Engineer, Water Resource Coordinator

b. **Chapter 52- Stormwater Runoff Ordinance:** is enforced for development projects occurring in the City. The target audience for this Ordinance is developers and city staff.

Various stormwater runoff impact topics are presented within this Ordinance including: temporary erosion and sediment control devices and maintenance, permanent stormwater BMPs, rate control, etc. The Ordinance is applied by the City's Site Plan Committee at the time a development seeks City approvals. The Site Plan Committee uses the review as a forum to educate about temporary and permanent stormwater controls.

Annual Measurable Goals of the Ordinance include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Ordinance seeks to: inform contractors, developers, and city staffs of various Stormwater Runoff requirements the City has in place.

Responsible Municipal Staff: Sewer Utility Regulatory & Records Engineer, Water Resource Coordinator

6. Educate the public about impaired waters within the jurisdiction and the TMDLs developed to address the impairments.

Specific Activities:

a. **Friends of the Mississippi River Water Quality Education Program:** in 2020 a TMDL Fact Sheet was prepared summarizing TMDLs, causes, locations, solutions. The Fact Sheet is available on the City's website and is promoted at various public events by Water Quality Education consultants.

Annual measurable goals of the fact sheet include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior.

b. **Watershed Partners and Clean Water Minnesota:** is a collaborative outreach project and coalition providing resources to member organizations to aid in water

quality education. The City of Saint Paul is member of this organization, and annually contributes financial resources to the coalition. The target audience is residents and community stakeholders of the member organizations including watershed districts, cities, counties, higher education, etc.

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Responsible Municipal Staff: Stormwater Permit Coordinator

Sign up to

Adopt a Storm Drain!

Keep your neighborhood clean and protect the Mississippi River.
Sign up today!

ADOPT A STORM DRAIN
A project of Hamline University

adopt-a-drain.org

Join with neighbors to protect local waterways!

Sign up online. Individuals, community organizations, and businesses can sign up to adopt a storm drain at adopt-a-drain.org.

Keep your storm drain clear. Use a broom or rake to sweep leaves, trash, and other debris off the drain surface year round.

Track your impact. Enter the estimated total of debris you collect into your online account so we can track results.

Lead by example. Let others know about your commitment. Tell them how they can help prevent water pollution.

Sweep up! Rake up! Pick up!

ADOPT A STORM DRAIN

SAINT PAUL MINNESOTA

CAPITOL REGION WATERSHED DISTRICT

A project of Hamline University, the City of Saint Paul, and Capitol Region Watershed District.

STORM DRAINS

KEEP 'EM CLEAN

Desagües pluviales: Manténgalos limpios
Tej Kwj Hoob Dej Nag: Saib Xyuas Kom Tej Ntawd Huv Si

KEEP THESE OUT OF STORM DRAINS

PET WASTE

Desechos de mascotas
Tej quav tsiaj yug hauv tsev

LEAVES, GRASS & TRASH

Hojas, pasto y basura
Tej nplooj, tej nyom thib tej nplooj kaj tsib qhuav

HAZARDOUS WASTE

Residuos peligrosos
Tej khoom vuab tsuab phom sij

Mantenga estos artículos fuera de los desagües pluviales
Saib xyuas tej khoom no kom txhob nyob rau ntawm tej kwj hoob dej

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.

Mantenga limpios los desagües pluviales. Estos desagües son parte del sistema de alcantarillado pluvial de la ciudad, que transporta la lluvia y el deshielo de su vecindario hacia nuestros lagos y ríos.
Saib xyuas tej kwj hoob dej nag kom huv si. Tej kwj hoob no yog ib feem tso tej dej qias neeg ntawm Lub Nroog, uas yuav tso tej dej nag thiab tej dej xab naus yaj tawm hauv koj ib cheeb tsam mus rau hauv tej pas dej thiab tej niam dej ntws.

WHAT YOU CAN DO

Lo que usted puede hacer
Yam koj tuaj yeem ua tau

1. **Keep leaves and grass clippings out of the street.**
Mantenga las hojas y los recortes de césped fuera de las calles.
Saib xyuas kom txhob muaj tej nplooj ntoos thiab tej nyom txheej tuaj rau ntawm tej kev tsheb.

2. **Keep fertilizer off paved surfaces and sweep up excess or spills.**
Mantenga el fertilizante fuera de las superficies pavimentadas y limpie el exceso o los derrames.
Saib xyuas tej chiv tawm mus ntawm txoj kev pua, thiab cheb tej khoom tshaj los si txheej tawm mus.

3. **Don't litter. Pick up pet waste.**
No tire basura. Recoja los desechos de las mascotas.
Txhob muab pov ua lwj ua liam. Sau tej quav tsiaj tu hauv tsev kom du lug.

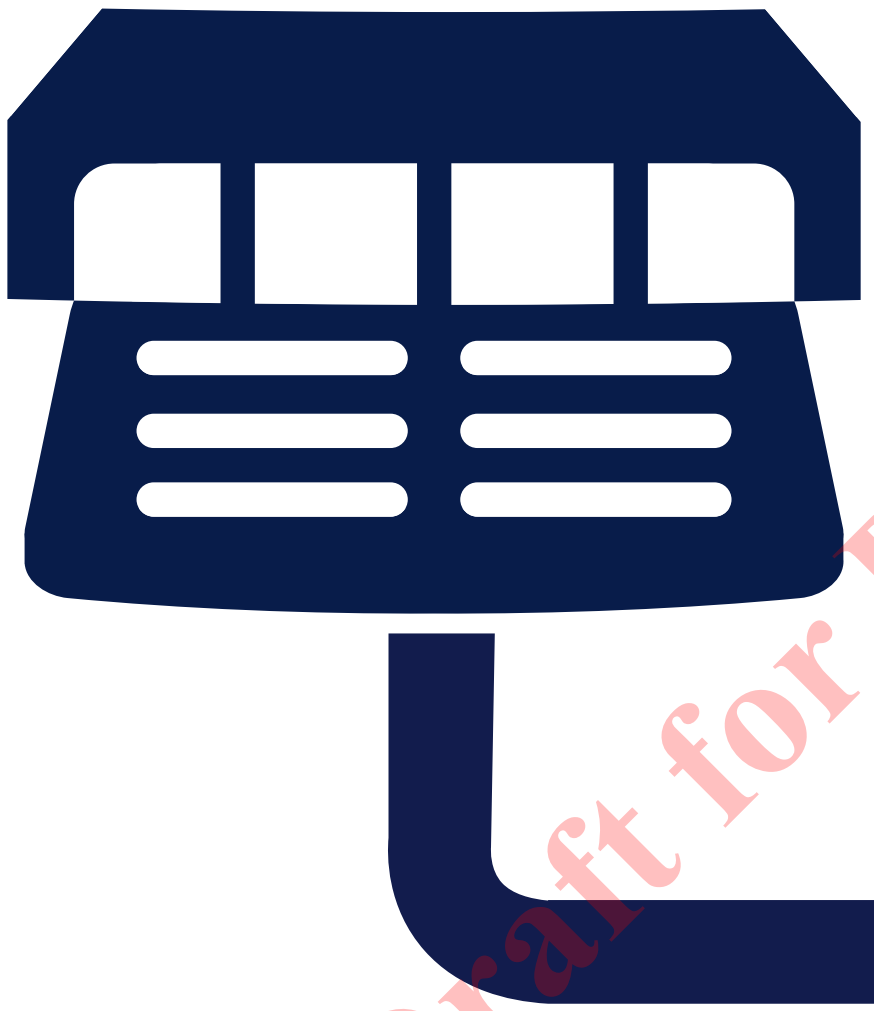
4. **If you need to wash anything outside, do it in the grass — not the driveway or street.**
Si usted necesita lavar algo afuera, hágalo en el césped, no en el camino de entrada o en la calle.
Yog koj xav ntxuav tej chaw sab nrauv, ntxuav tej ntawd rau ntawm lub tiaj nyom xwb – txhob ntxuav mus rau ntawm txoj kev tsav tsheb mus los los si txoj kev tsheb.

5. **Immediately clean up any oil leaks or spills from vehicles.**
Limpie inmediatamente cualquier fuga o derrame de aceite de los vehículos.
Tu tej roj xau los sis tej roj txheej tawm ntawm tsheb los kom huv si.

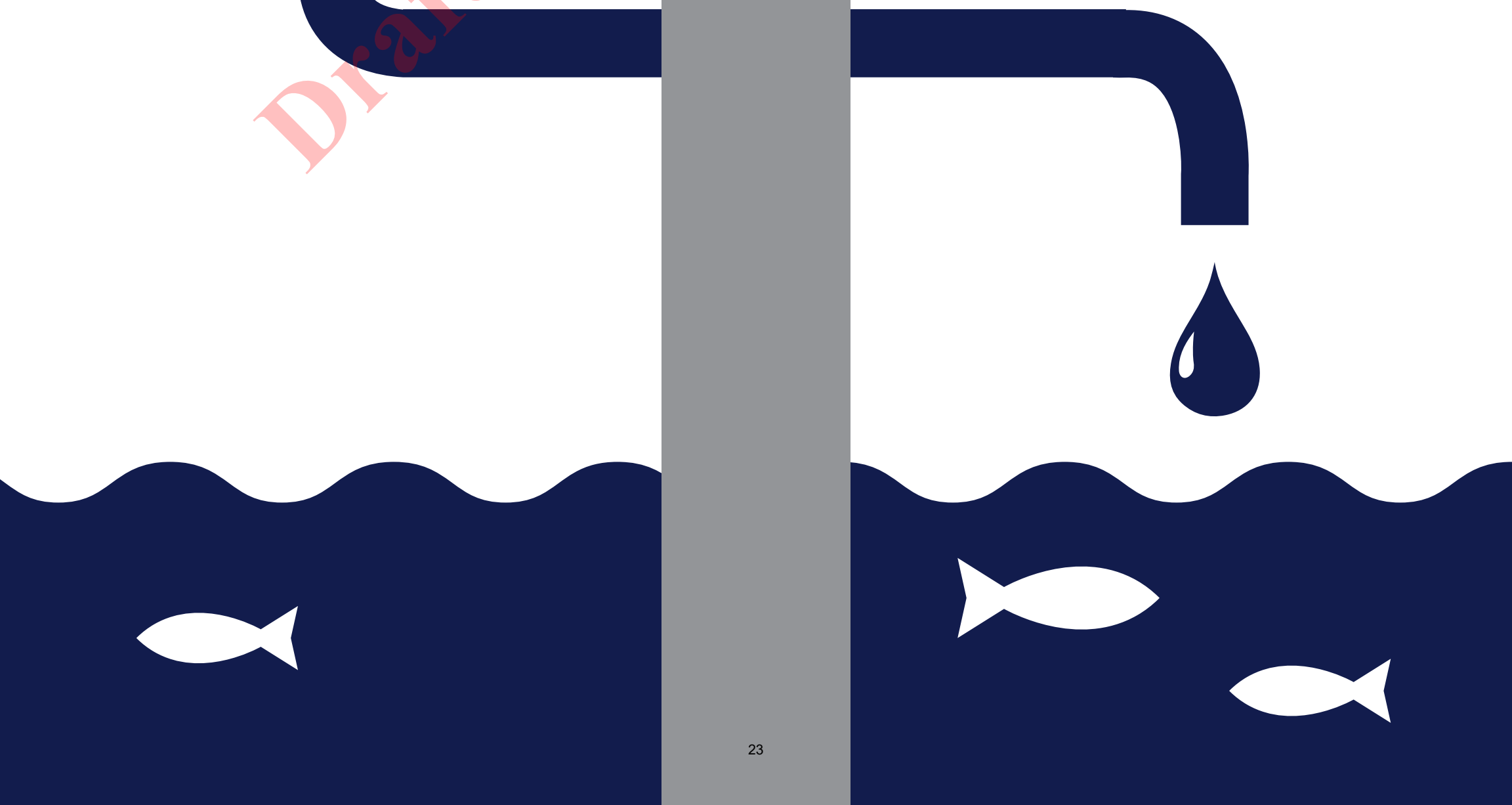
6. **Properly dispose of paint and other household hazardous waste.**
Deseche adecuadamente la pintura y otros desechos domésticos peligrosos.
Muab tej kob npleev tsos xim thiab lwm yam khoom phom sij hauv tsev coj mus pov tseg kom raug zoo.

7. **Shovel snow. Lightly apply salt on sidewalks and driveways only if necessary.**
Quite la nieve con una pala. Aplique sal ligeramente en las aceras y entradas de vehículos solo si es necesario.
Daus tej xab naus tawm. Tso ntsev rau ob sab kev taug thiab kev tsheb nkaus xwb yog tsim nyog.

Keep storm drains clear.



It prevents flooding and protects the Mississippi River.



Metro Watershed Partners

2022 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 2022 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 2022, members contributed $190,000 to support monthly meetings, exhibit checkout, administrative functions, state fair outreach, 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 2022, our steering committee members were:

Abby Moore, Mississippi Watershed Management Organization
Angie Hong, Washington Conservation District
Emily Johnson, Hennepin County
Jen Dullum, Young Environmental Consulting Group, LLC
Kris Meyer, Freshwater
Kristin Seaman, City of Woodbury
Lauren Letsche, City of Columbia Heights
Nick Voss, Vadnais Lake Area Watershed Management Organization
Stephanie Hatzenbihler, City of Rochester
Tracy Fredin, Hamline University, Center for Global Environmental Education

Clean Water MN

2022 Outreach Projects Report

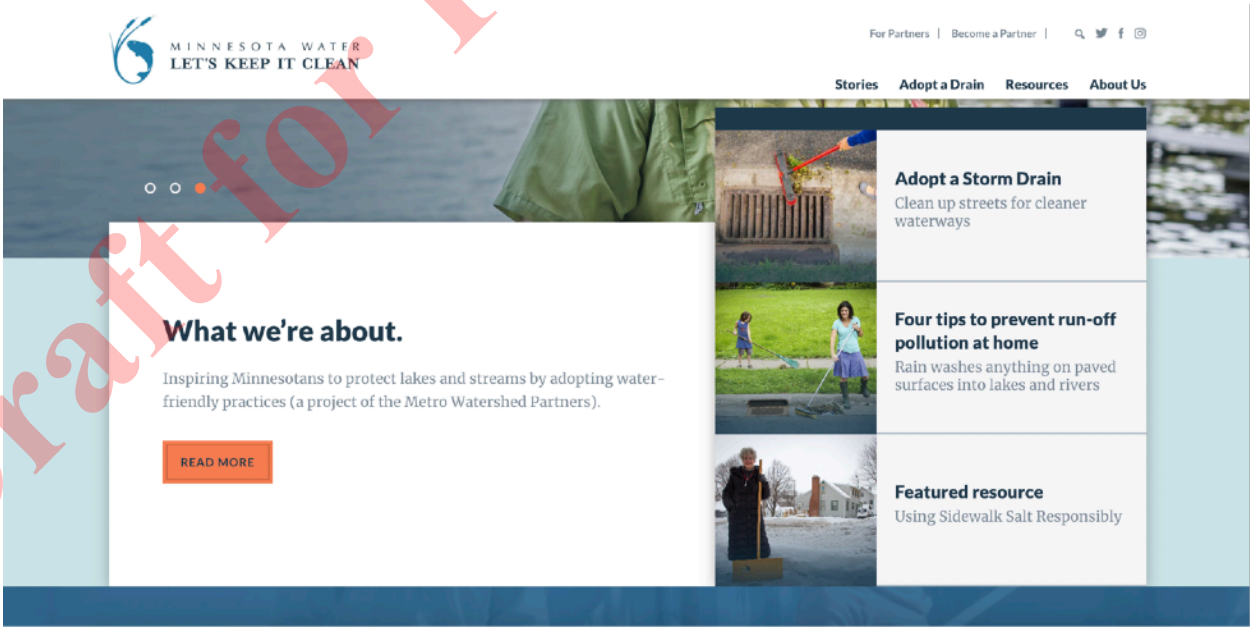
Clean Water MN is the collaborative outreach project of the Metro Watershed Partners. Working together, we provide resources, training, and support to partners as they work to inspire homeowners in the Twin Cities metro area to keep water clean and healthy.

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, and newsletters. Along with each story we create a suite of professional photographs, accessible to partners online for use in their own stories and publications.

The cleanwatermn.org website also features informational pages, calls to action, information about the partnership, educational resources, and a list of our partners.

As the social media landscape has evolved, the needs of the Metro Watershed Partners have shifted as well. Platforms are now prioritizing native video and image content and deprioritizing links to external content. This has led to a reevaluation of the Clean Water MN website and whether it still meets the needs of the Watershed Partners.

To understand this better, we conducted a survey of our members about their communication and outreach needs and ways that the Watershed Partners can address them. We received responses from 23 of our member organizations (40%). Our survey found that while members still value the Clean Water MN site for its quality articles and use the information in many ways, there is a strong interest in robust image and video sharing. We are planning to adjust our Clean Water MN functionality to address this in 2023.



Clean Water MN Website Analytics

In 2022 one new blog story was published in January, featuring information on water softening and the link to chloride pollution in water. Throughout the year, previous blog posts and resource pages continued to gain traction. Below you'll find a table of the top 10 most viewed pages on Clean Water MN this year.

Remember to visit cleanwatermn.org/partners to find resources that are available under your Watershed Partners membership. The Adopt-a-Drain Resources page (cleanwatermn.org/partners/adopt-a-drain-resources) includes links to the Adopt-a-Drain marketing materials Google Drive and the Clean Water MN photo gallery. The password for this page is CleanWater.

Access the Clean Water MN photo gallery directly here.

Page Title	URL	Total page views	Unique page views
Home Page	cleanwatermn.org	3,542	2,581
About Us	cleanwatermn.org/about-us	885	729
Using Sidewalk Salt Responsibly	cleanwatermn.org/using-sidewalk-salt-responsibly	833	787
Resources	cleanwatermn.org/resources	661	456
January 2022 Blog Post: Water Softening	cleanwatermn.org/take-a-better-approach-to-water-softening	428	361
Blog	cleanwatermn.org/blog	380	256
July 2021 Blog Post: Clean Lakes for Safe Swimming	cleanwatermn.org/clean-lakes-safe-swimming	354	320
"Is my lake safe?" Info Page	cleanwatermn.org/is-my-lake-safe	280	273
September 2017 Blog Post: Organic Lawn Care	cleanwatermn.org/organic-lawn-care	274	273
Adopt-a-Drain Resources for Partners	cleanwatermn.org/partners/adopt-a-drain-resources	226	152
TOTAL (all pages)		**11,358**	**9,350**

Adopt-a-Drain News and Accomplishments in 2022

Adopt-a-Drain continues to expand throughout greater Minnesota, with the cities of Duluth and Buffalo, and Chisago County joining the program this year.

Statewide this year, 1,569 new participants signed up and over 3,000 additional storm drains were adopted. We reached a big milestone in the program—more than 10,000 Minnesotans have adopted storm drains—in August, and by the end of the year were close to 20,000 total adopted drains.

125,000 lbs of debris were cleaned up by Adopt-a-Drain participants in 2022, and 3,367 members reported their work, either online or by postcard, for a reporting rate of 32.4%.

Month	New participants	Drains adopted	Debris collected (lbs)	Time spent (hrs)
January	24	32	7,524.1	246.4
February	35	274	6,602.8	267.8
March	146	308	5,264.0	202.9
April	159	347	12,437.4	244.0
May	123	307	10,452.6	214.1
June	96	203	7,927.4	210.1
July	97	190	5,362.5	145.8
August	319	474	4,981.4	132.7
September	333	510	5,012.7	131.7
October	142	241	15,112.1	345.8
November	65	149	37,509.2	890.1
December	30	47	6,750.3	332.3
TOTALS	**1,569**	**3,082**	**124,936.4**	**3,363.7**

Adopt-a-Drain National Program Survey

This year we researched the state of adopt a drain programs throughout the United States. We found 170 active programs at the city, watershed, county, and state levels. More than half of those programs (86) are part of Hamline's Adopt-a-Drain network, showing just how far-reaching the work of the Watershed Partners is. Adopt-a-Drain programs are now in 6 states (MN, WA, MA, VT, NJ, LA) and the number of new cities continues to grow.

We also looked at the success of the adopt a drain programs around the country by comparing the number of drains adopted with that city's population. We're happy to report that cities within the Watershed Partners often ranked at the top by that metric. The full report is available here.

Top 5 US programs by number of storm drains adopted per 1,000 people
Cities that are Metro Watershed Partners members are highlighted in blue.

Small communities of under 10,000 people:

Rank	City and Watershed	Pop.	Adopted Drains	Adopted drains per 1,000 people
1	New London, MN	1,252	36	28.8
2	Lake Crystal, MN	2,539	44	17.3
3	Lauderdale, MN *Rice Creek Watershed*	2,271	36	15.9
4	Spicer, MN	1,112	12	10.8
5	Circle Pines, MN *Rice Creek Watershed*	5,025	38	7.6

Medium-sized communities of between 10,000-100,000 people:

1	Columbia Heights, MN *Rice Creek & MWMO*	21,973	301	13.7
2	Berkeley Heights, NJ	13,292	163	12.3
3	Shoreview, MN *RWMWD & Rice Creek*	26,921	289	10.7
4	White Bear Lake, MN *RWMWD, Rice Creek & VLAWMO*	24,883	264	10.6
5	St. Louis Park, MN *Bassett Creek & Minnehaha Creek*	50,010	486	9.7

Large communities of over 100,000 people:

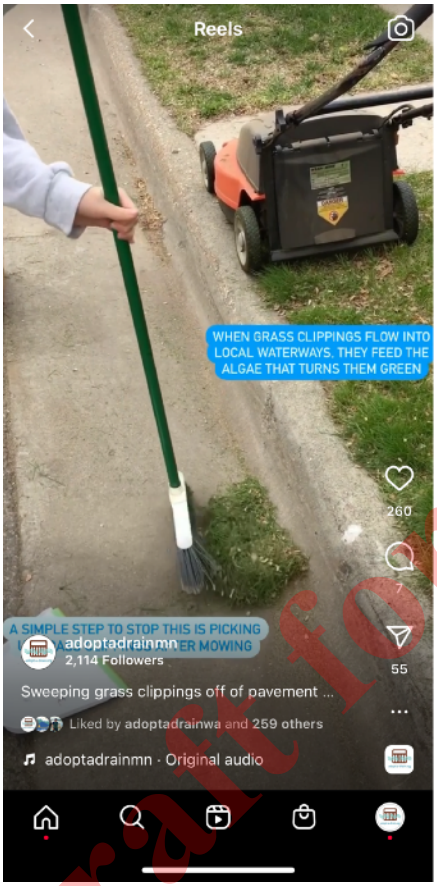
1	Minneapolis, MN *Bassett Creek, Minnehaha Creek, MWMO, Shingle Creek & West Mississippi*	429,954	6,197	14.5
2	St. Paul, MN *Capitol Region, Lower Mississippi River, RWMWD & Rice Creek*	311,52	3,481	11.3

Adopt-a-Drain Social Media Promotion in 2022

In 2022 the Adopt-a-Drain Social Media team focused on posting high-quality and consistent content across all of our social media platforms. We implemented strategic tactics to gain followers, increase engagement and reach a large audience on all of our Adopt-a-Drain social media accounts. During the year, we gained 169 new Instagram followers, 159 new Facebook followers, and 44 new Twitter followers. At the beginning of 2023, we have 2,060 Instagram followers, 1,376 Facebook followers, and 407 Twitter followers.

In April, we created a social media campaign that encouraged people to sign up to adopt a storm drain and to help us reach our goal of 10,000 drain adopters in Minnesota. The post reached 20,288 people and had 3,285 engagements. During this campaign period, 238 new participants signed up to adopt drains.

This year we focused on creating short videos (known as reels) for social media. The videos brought a lot of engagement and reached a lot of people. On Instagram there were 87,034 views. The reels below reached the most people, each receiving between 12,000-15,000 views.

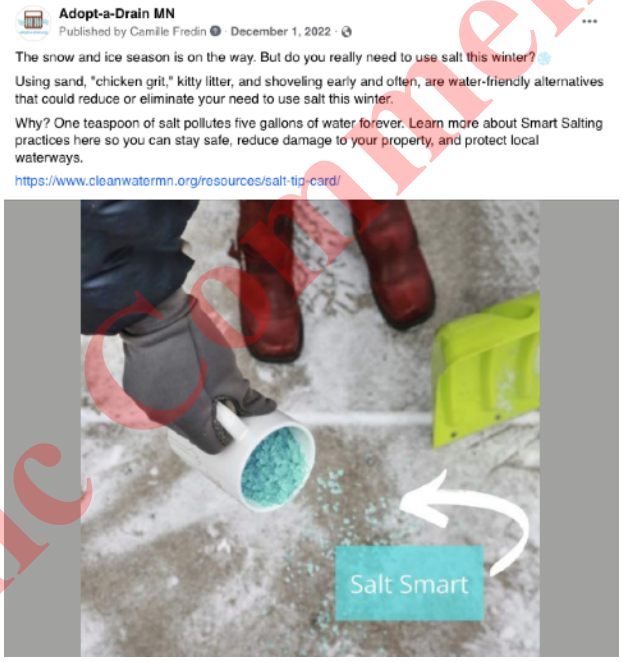


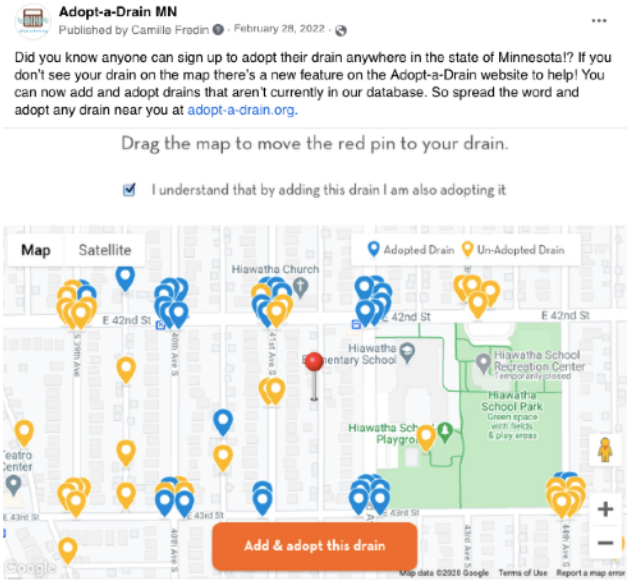
In 2023 we are going to continue to focus on posting high-quality and consistent content as we strive to educate and engage our current audience and simultaneously continue to reach new audiences.

Adopt-a-Drain Social Media Impressions in 2022

Adopt-a-Drain's social media reached a large number of people this year. On Facebook our posts reached a total of 112,594 people. Organically 92,294 people were reached and 20,300 people were reached with non-organic, paid promotions. View the total impressions across the three platforms in the chart below, as well as some of the Facebook posts with the highest number of impressions this year.

	Instagram	Facebook	Twitter
January	19,940	13,550	14,700
February	11,517	8,850	5,530
March	23,088	9,077	9,215
April	20,320	29,698	8,110
May	8,801	6,632	5,955
June	20,111	4,761	3,539
July	8,193	8,241	6,873
August	8,552	6,751	4,704
September	10,245	7,108	2,529
October	7,021	6,255	2,881
November	6,315	6,101	2,550
December	5,906	5,570	2,100
Total:	**150,009**	**112,594**	**68,686**





Adopt-a-Drain Special Promotional Events

Earth Day Campaign

In the month of April through mid-May we ran an animated social media ad that encouraged Minnesota residents to sign up to help us reach our goal of 10,000 drain adopters. During this same period, we promoted a refer-a-friend campaign to our current adopters. Everyone who signed up and anyone who referred a friend to the program received an Adopt-a-Drain tote bag. During this campaign, 238 new participants signed up.

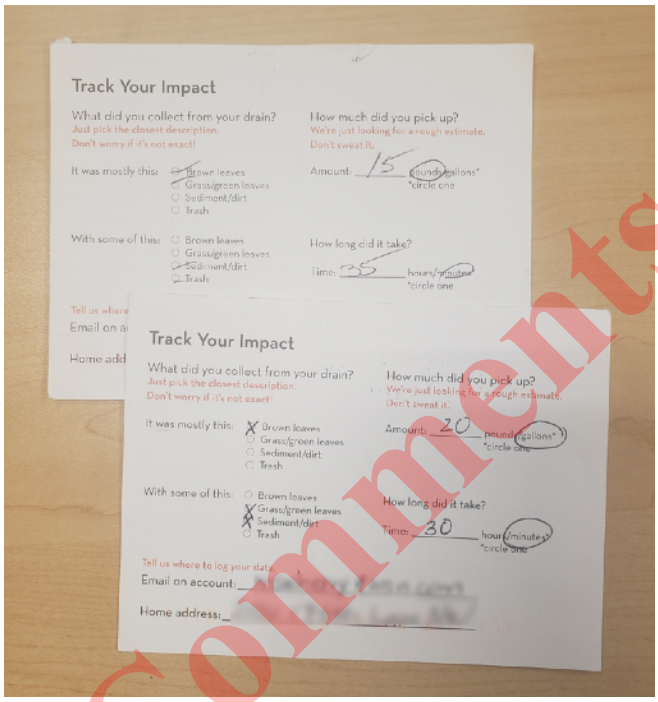
Minnesota Twins Game

On Sunday, May 15th, we held an appreciation event for Adopt-a-Drain participants. Over 300 members of the program came to the game, buying reduced rate tickets in our section in the home run porch. We were able to participate in a pre-game parade around the field and free Adopt-a-Drain hats were provided to everyone in our section. Watershed Partner members and teachers who had participated in the Adopt-a-Drain K12 program that year were provided free tickets to the game.

End of year reporting postcards

Throughout the year, Adopt-a-Drain participants are encouraged to stay engaged and report their work via timely newsletter reminders and automated email reminders that send on a schedule chosen by the participant (monthly, quarterly, or twice per year).

In November, we sent a postcard to all participants who had not yet reported their work online, and received an additional 663 responses by the end of December. As a result of this outreach, the reporting rate increased from 26% to 32%.

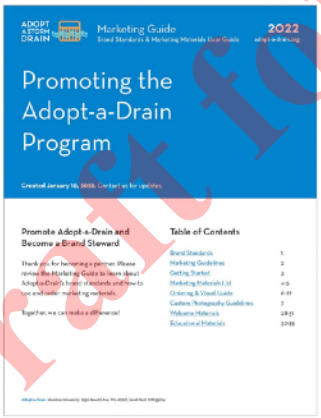


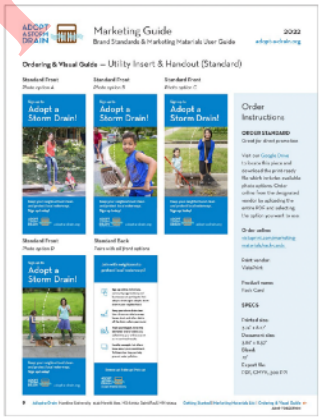
Adopt-a-Drain Brand Standards and Marketing Materials User Guide

Remember to check out the guide we've developed to help partners promote Adopt-a-Drain in their communities. Access the most up-to-date guide at: https://ms4.adopt-a-drain.org/marketing-guide

In this guide, you will find concise guidelines for using the Adopt-a-Drain brand, as well as a visual resource that guides you through accessing and utilizing the most up-to-date print and digital resources to promote the Adopt-a-Drain program in your community. We continue to refine and update print and digital assets, so take a minute to peruse this guide to find out about promotional resources you might not know about. For example, you can now download design files that will allow you to order Adopt-a-Drain merchandise such as hats, water bottles and tote bags directly from the vendor.

A quick view of a few pages from our marketing Guide





Access and download the standard marketing materials in the Google Drive.

Education and Outreach at the Minnesota State Fair

The State Fair in 2022 was closer to normal attendance levels than in 2021, seeing over 1.8 million total visitors over the 12 days. The Eco Experience building saw an estimated 205,000 visitors, more than twice the attendance in 2021. The Adopt-a-Drain exhibit was also very busy; we took 3,519 photos of visitors in the Adopt-a-Drain photo booth. 55% of visitors shared a digital copy of their photo via email or text, in addition to receiving a free print.

On the fifth day of the fair, Monday August 29th, we passed a huge milestone in the program: 10,000 Minnesotans have signed up to adopt storm drains! All photos featured a “Celebrating 10,000 Adopters” decal to celebrate this accomplishment.

Over the twelve days of the fair, 461 Minnesotans in 81 different cities signed up to adopt storm drains. 404 of these new participants signed up on a kiosk at the Eco Experience building and received an informational packet and a small yard sign that reads “We protect Minnesota lakes, rivers, and wetlands.” Our staff and volunteers also had the opportunity to chat with current participants in the program, answer their questions, and in a few cases, help them sign up to adopt additional storm drains!

Thanks to your help, our fair exhibit was a great success!

State Fair 2022 Summary Stats

Day	Photos taken	Sign ups
Thursday 8/25	307	28
Friday 8/26	367	31
Saturday 8/27	282	44
Sunday 8/28	297	50
Monday 8/29	344	42
Tuesday 8/30	251	31
Wednesday 8/31	190	28
Thursday 9/1	232	32
Friday 9/2	257	39
Saturday 9/3	340	53
Sunday 9/4	401	51
Monday 9/5	251	32
TOTAL	**3519**	**461**

Education and Outreach at the Minnesota State Fair

Those who signed up for Adopt-a-Drain at the State Fair came from all around Minnesota. The map below shows the distribution of signups in the greater Twin Cities area, but there were also drains adopted in: Duluth, Moorhead, Grand Rapids, Rochester, St. Cloud, Mankato and more.

Drains adopted at the State Fair by city

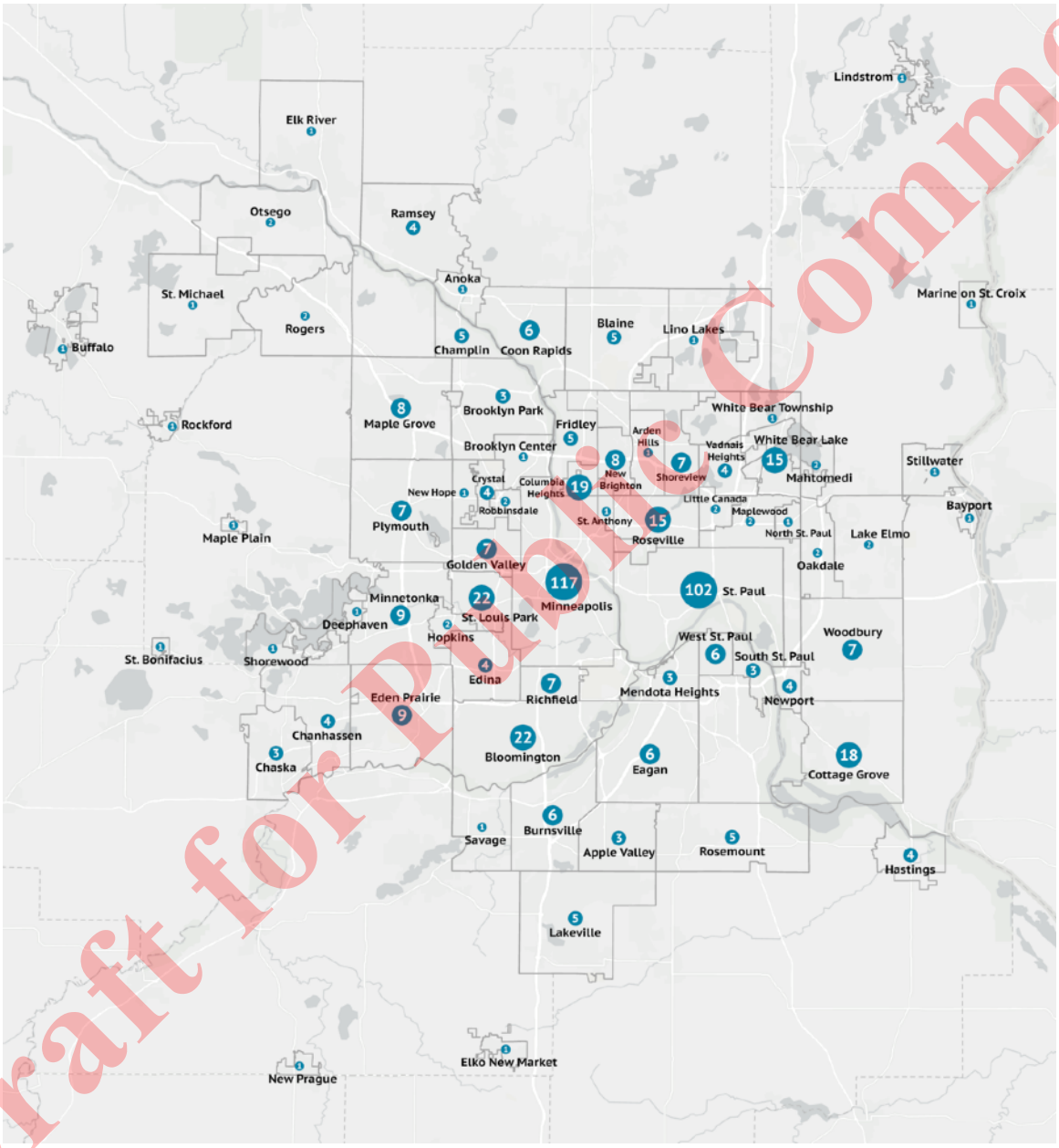


Exhibit Checkouts

The Watershed Partners offer free exhibit checkouts for partners and volunteer groups. Some have a general watershed and non-point source pollution focus, including Tables 2 and 3 (pictured below) and the Eutrophication exhibit-in-a-box. We also offer an Adopt-a-Drain tabletop exhibit and beanbag toss game. In 2022, our exhibits were used for at least 10 community events in the Twin Cities area. In addition to exhibits, you may request free Adopt-a-Drain handouts for your event, and swag items (hats, water bottles, tote bags, etc) are available for purchase.

View more info about exhibit checkouts at cleanwatermn.org/partners/exhibit-check-out/

TABLE 2: "What is your Watershed Address?"

A map of the Minneapolis/St. Paul metropolitan area and Minnesota State with puzzle pieces to lift and reveal the name of the watershed in which one lives. Graphic panels give more information and depict the larger watersheds of the entire United States. The three panels fit on a 6-foot table.

Photo 1 (above): Completely assembled.

Photo 2 (above): Minnesota State Watershed Map Puzzle.

TABLE 3: "Your Street Flows to the River"

Exemplifies how everyday activities in our own yards and driveways can impact the entire watershed. Many people are unaware that the water that flows into the storm drains in their street goes directly to the lakes and rivers of their community and carries with it the pollutants that cause the lakes and streams to become fouled. Fits on a 6-foot table.

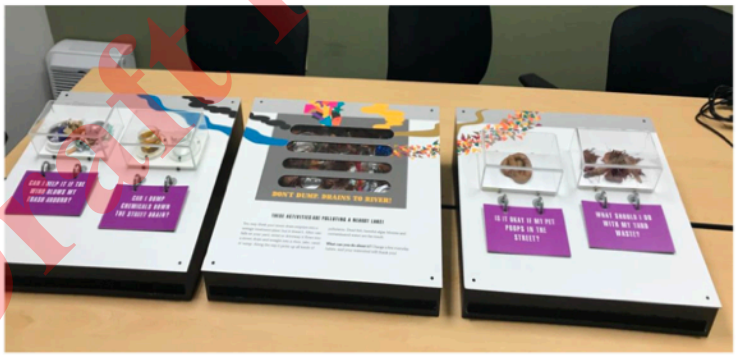


Photo 1 (left): Completely assembled. The left and right side panels focus on trash, chemicals, pet waste and yard waste getting into the storm drain.

2022 Accomplishments of the Metro Watershed Partners

Watershed Partners on Mobilize

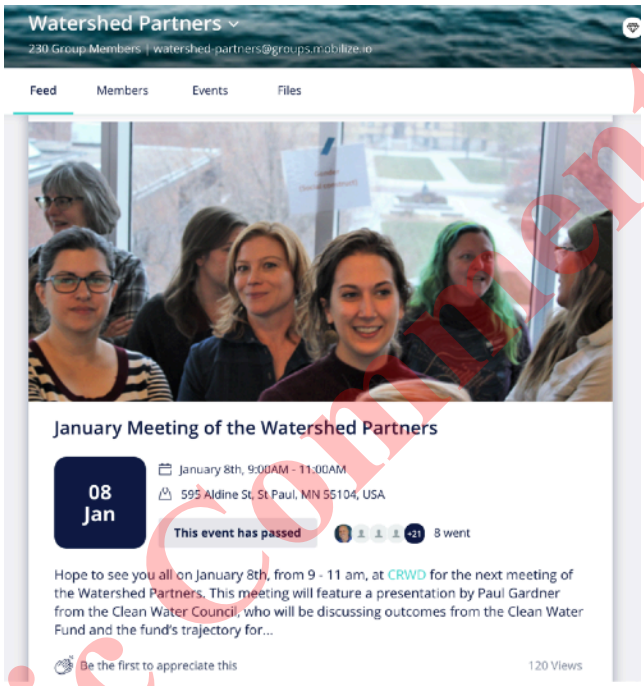
The Metro Watershed Partners listserv is a forum for watershed educators and other industry professionals throughout the state to share information and resources.

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

The listserv can be found at: https://watershedpartners.mobilize.io

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

This is a private forum and anyone who would like to be added to the Mobilize group must send an email request to azawistoski01@hamline.edu



In 2022, the Metro Watershed Partners listserv provided 286 user-members with an effective tool to promote watershed education, share information about professional programs, and exchange information with other watershed educators, legislators, and government agencies.

Networking and Sharing Resources

The Watershed Partners hold monthly meetings that give members an opportunity to network, share information, generate ideas, and form partnerships. These meetings feature presentations by experts in the fields of education, legislation, marketing, and watershed management.

In 2022, The Watershed Partners held 7 meetings on Zoom with an average of 35 members attending each meeting. With the easing of Covid restrictions, we were thrilled to be able to once again come together in December for our annual year-end potluck. We also gathered for a field trip to St. Anthony Falls Laboratory and the Water Works Park.

These meetings are a valued part of the Watershed Partners program that facilitates watershed education in Minnesota. We will continue offering these monthly gatherings in the future, both virtually and in person.

2022 Watershed Partner Meetings - Topics and Presenters.

Links to the meeting recordings are provided when available.

Month	Topic	Presenters	Attendance
February	Adopt-a-Drain admin interface tutorial; Legislative update	Jenni Abere, Hamline Center for Global Environmental Education; Trevor Russell, Friends of the Mississippi River	29
March	Salt legislation; Anoka County Community Adopt-a-Drain Challenge	Aaron Klemz, MN Center for Environmental Advocacy; Laruen Letsche, City of Columbia Heights	16
April	Seattle's Community Liaisons program	Francesca Ty Abellera, City of Seattle, WA	25
May	Hennepin County Plastic-free challenge	Amy Maas, Hennepin County Department of Environment and Energy	85
June	Field trip to St Anthony Falls Laboratory and Water Works Park	Andy Erickson, and Jeff Marr, Associate Director at St. Anthony Falls Laboratory; Kate Lamers, Minneapolis Park and Recreation Board	18
September	Smart Salting New Initiatives	Kris Bennett, Hamline Center for Global Environmental Education; Stephanie Hatzenbihler, City of Rochester, MN	36
October	Art of Influential Communication	Greg Wukasch, San Antonio Water System	33
November	Engaging Diverse Communities	Danny Lee, Hennepin County Engagement Services; Regine Kennedy, 106 Group	40
December	Year-End Potluck, with short presentations on: Watershed Partners year in review; Communications survey results; Outdoor Media Summit report; Musical Collaboration	Tracy Fredin and Ann Zawistoski, Hamline Center for Global Environmental Education; Angie Hong, Washington Conservation District; Nick Voss, VLAWMO	26

2022 Financial Report

In response to our fundraising requests, partners contributed $190,000 to the Watershed Partners in support of meetings, state fair outreach, administration, exhibit development (including maintenance and checkout), Adopt-a-Drain, and 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 2022

Andover
Anoka Conservation District
Bassett Creek WMC
Blaine
Bloomington
Brown's Creek Watershed District
Cannon River Watershed Partnership
Capitol Region Watershed District
Carver County
Circle Pines
Columbia Heights
Comfort Lake-Forest Lake Watershed District
Coon Creek Watershed District
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 Watershed District
Minnetonka
Mississippi NRRA
Mississippi WMO
Mound
New Brighton
Nine Mile Creek Watershed District
Pioneer-Sarah Creek WC
Prior Lake
Ramsey-Washington Metro Watershed District
Rice Creek Watershed District
Riley Purgatory Bluff Creek Watershed District
Rochester
Rosemount
Roseville
Saint Louis Park
Saint Paul
Shingle Creek WMC
Shoreview
South Washington Watershed District
Vadnais Lake Area WMO
Vermillion River Watershed JPO
Washington Conservation District
Wayzata
West Mississippi WMC
White Bear Lake
White Bear Township
Woodbury

Watershed Partners 2022 Accounting

	IN-KIND	CASH	TOTAL
REVENUE			
2021 Funds rollover		$26,472.00	$26,472.00
2022 Membership		$189,799.99	$189,799.99
Total revenue		$216,271.99	$216,271.99
EXPENSE			
1. Watershed Partners Coordination			
Principle Investigator	$2,500.00	$8,481.43	$10,981.43
Program Coordinator	$12,000.00	$15,000.00	$27,000.00
Steering Committee	$32,400.00		$32,400.00
Mobilize annual membership	$4,500.00	$588.00	$5,088.00
Technology maintenance	$1,400.00	$1,000.00	$2,400.00
Meeting expenses		$500.00	$500.00
Postage and printing		$200.00	$200.00
Subtotal	$52,800.00	$25,769.43	$78,569.43
2. Watershed Exhibit Implementation			
New exhibit creation		$250.00	$250.00
Exhibit coordination	$4,500.00	$4,728.00	$9,228.00
State fair expenses		$8,901.31	$8,901.31
Storage and check-out	$5,000.00		$5,000.00
Subtotal	$9,500.00	$13,879.31	$23,379.31
3. Clean Water MN			
Campaign coordination	$5,500.00	$20,373.97	$25,873.97
Blog writing and photography		$2,243.75	$2,243.75
Web hosting and maintenance		$1,415.52	$1,010.53
Earth Month Campaign and Event		$3,487.50	$3,487.50
Subtotal	$5,500.00	$27,520.74	$33,020.74
4. Adopt-a-Drain			
Site license		$30,000.00	$30,000.00
Program coordination		$34,111.50	$34,111.50
Program implementation		$10,071.11	$10,071.11
Social media and communications		$19,808.00	$19,808.00
Promo merch		$8,019.07	$8,019.07
End of year mailing		$4,420.54	$4,420.54
Website work and graphic design		$9,810.00	$9,810.00
Subtotal		$116,240.22	$116,240.22
TOTAL	**$67,800.00**	**$183,409.70**	**$251,209.70**
ADMINISTRATION FEE		**$18,340.97**	**$18,340.97**
TOTAL (INCL. ADMIN)	**$67,800.00**	**$201,750.67**	**$269,550.67**

ADOPT A STORM DRAIN

2022 ANNUAL REPORT
Saint Paul

We're Making a Difference!

164 participants 2022

319 drains adopted 2022

1,986 participants TOTAL

3,463 drains adopted TOTAL

Drain Cleaning & Collection Data

520 Saint Paul participants reported cleanings, which represents 26.2% of all Saint Paul participants.

Saint Paul participants collected 28,832.8 lbs of debris from their adopted storm drains in 2022.

Debris Type	Amount (lbs)
Brown leaves	16,222.5
Grass and green leaves	1,743.2
Sediment and dirt	9,360.5
Trash	1,475.4
Salt	31.2

Month	New participants	Drains adopted	Debris collected (lbs)	Time spent (hrs)
January*	5	9	1,706.2	25.3
February	3	4	1,541.7	90.6
March	20	45	1,492.7	43.6
April	21	44	4,177.8	40.7
May	6	29	1,883.7	54.1
June	2	3	1,289.8	24.5
July	2	5	1,360.1	23.3
August	49	79	1,172.9	19.0
September	42	61	844.7	19.2
October	8	15	2,517.7	52.2
November	3	17	9,133.8	180.1
December	3	8	1,711.9	52.5
TOTALS	**164**	**319**	**28,832.8**	**625.1**

**January debris total includes some year-end reports from 2021.*

Watershed and Subwatershed

Drains adopted: Cumulative total

Debris collected: 2022 data only

Watershed	Drains adopted	Debris collected (lbs)	Time spent (hours)
Capitol Region	2,853	25,039.25	490.7
Ramsey-Washington Metro	459	1,915.9	67.4
Lower Mississippi River	121	796.45	29.3
Rice Creek	30	1,081.2	15.6

Subwatershed	Drains adopted	Debris collected (lbs)	Time spent (hours)
Mississippi River (CRWD)	452	6,887.0	93.1
St. Anthony Park	358	3,864.9	57.1
Como Lake	343	2,933.7	85.5
East Kittsondale	336	5,334.8	52.5
Trout Brook	328	1,145.1	57.1
St. Anthony Hill	317	2,010.6	65.0
West Kittsondale	192	1,283.3	21.5
St. Paul Beltline	168	841.8	41.4
Davern St	161	962.4	15.9
Lake Phalen	157	567.8	15.8
City of St. Paul-Mississippi River	121	796.5	29.3
Crosby Lake	95	466.1	10.1
Phalen Creek	95	272.2	12.5
Goodrich-Western	77	648.3	17.0
Battle Creek	63	224.3	6.1
Downtown Subwatershed	61	117.6	14.7
West Seventh	44	160.8	3.5
Mississippi River Bottomlands	30	51.1	0.5
Urban Subwatershed towards the Mississippi River	28	20.8	0.8
Beaver Lake	20	0.8	0.2
Blufflands	15	243.1	3.6
Fish Creek	1		
Hidden Falls	1		

Mailings and Signs

Sample welcome packet pictured below, including: waterbody-specific yard sign, welcome card with safety tips and instructions, and a customized welcome letter.

Packets and signs sent in 2022.

Watershed	Packets Mailed
Mississippi River	74
Como Lake	7
Lake Phalen	2
TOTAL	**83**

* *Some participants opt out of receiving a yard sign, so the number of packets sent is lower than the total number of new signups this year. In addition, 65 St. Paul residents signed up at the State Fair this year and received their packet and "We protect Minnesota lakes and rivers" yard sign there.*

Minnesota Data

1,569 participants 2022

3,082 drains adopted 2022

10,391 participants TOTAL

19,316 drains adopted TOTAL

3,367 Minnesota participants reported cleanings this year, which represents 32.4% of all participants in the state.

Minnesota participants collected 124,936.4 lbs of debris from their adopted storm drains in 2022.

Debris Type	Amount (lbs)
Brown leaves	78,962.9
Grass/green leaves	4,877.4
Sediment/dirt	36,929.3
Trash	3,775.9
Salt	390.9

Month	New participants	Drains adopted	Debris collected (lbs)	Time spent (hrs)
January	24	32	7,524.1	246.4
February	35	274	6,602.8	267.8
March	146	308	5,264.0	202.9
April	159	347	12,437.4	244.0
May	123	307	10,452.6	214.1
June	96	203	7,927.4	210.1
July	97	190	5,362.5	145.8
August	319	474	4,981.4	132.7
September	333	510	5,012.7	131.7
October	142	241	15,112.1	345.8
November	65	149	37,509.2	890.1
December	30	47	6,750.3	332.3
TOTALS	**1,569**	**3,082**	**124,936.4**	**3,363.7**

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
www.fmr.org
info@fmr.org

Final Report March 1, 2022 - December 30th, 2022

Friends of the Mississippi River (FMR) engages people to protect, restore and enhance the Mississippi River and its watershed in the Twin Cities region. We strive to create positive changes that improve water quality, provide habitat for wildlife, develop education and recreation opportunities, and inspire widespread commitment to this natural wonder that flows through our community. We work to produce replicable models for community engagement and regularly measure and refine our goals and benchmarks to ensure that we are achieving tangible improvements in the river's health and vitality and demonstrating a benefit to our community.

The water quality education project is designed to meet the following three objectives:

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 using storm drain stenciling, litter cleanups and outings, and/or habitat restoration as key components to the programs.
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.

As of December 30th, 2022 we have served:

- 666 volunteers through storm drain stenciling kits, outings, and our water quality classroom/youth group education programs
- Conducted outreach, led, and facilitated 37 water quality educational events (including stenciling, classroom outings, etc.)
- 26 stenciling outings and DIY stenciling kit pick-ups in Saint Paul; engaging 442 volunteers and stenciling 1,265 storm drains.
- Conducted outreach, led, and facilitated two rain barrel quality workshops at Neighborhood House.
- Led 4 large-scale trash pick-up events at Trout Brook Nature Sanctuary, Lilydale Regional Park, Mounds Park and Cemetery, and Crosby Farm in St. Paul

Storm Drain Stenciling Outings, No-Contact Stenciling Pick Up & Trash Pick Ups:

Storm Drain Stenciling: In 2022, the stenciling kits have continued to be a primary and most popular mode of engagement due to the pandemic. Small groups and schools have utilized this option to check out a stenciling kit for up to two weeks. These kits will include all the materials to stencil storm drains, maps, and background information on pollution and why it is essential to keep storm drains clean. FMR coordinates availability and maintains materials in stenciling kits. We have made it a more accessible location by bringing the kits to local sites, such as during

Waterfest at Lake Phalen, for people to pick up. We also continue to offer in-person outings led by an FMR staff member. We have worked with schools, corporate groups, and community members.

Here are some links to images from events:

Hmong College Prep Academy
https://www.flickr.com/photos/friendsmissriv/albums

Great River School
https://flic.kr/s/aHBqjzTuqa

3M Cleanup Group, Trout Brook Nature Sanctuary

Litter pick-up events: FMR has coordinated large-scale litter pick-up events at Trout Brook Sanctuary and hosted additional clean-ups in the fall at Lilydale Regional Park and Crosby Farm. We have also promoted several initiatives to encourage people to pick up trash on their own and integrate this into stenciling events. In coordination with public works, parks, or other agencies/organizations, FMR will ensure that gloves, bags, and trash collection services are

provided. FMR gives an orientation about the river and water quality at the events. The independent litter pick-ups have been successful, and volunteers have reached out to self-report some of their efforts.

See a link to the independent litter pick-up initiative we continue to promote as an option for community science and water protection here: Plastic Pollution Initiative, which we continue to integrate into school-based programming.

Here are some links to images from events:
https://www.flickr.com/photos/friendsmissriv/52260780176/in/photostream/

https://www.flickr.com/photos/friendsmissriv/albums/72177720298005099

Graci Horne, Lake Phalen

Storm Drain Mural Project:
Storm drain murals have successfully generated attention for water quality, and we believe there will be a similar success in the future. In 2022, we partnered with Lower Phalen Creek Project to

ensure that the mural is culturally relevant and meaningful to communities on the Eastside and reflects the importance of Dakota land and important Dakota sites in this area.

We worked with Lower Phalen Creek Project to develop the concept for the mural and choose a location for it. Lower Phalen Creek Project connected us with Graci Horne, a local Dakota artist. Over the summer, we collected community input on the mural's design at Lower Phalen Creek Project's Pollinator Festival and youth programming around the city, including our Water Knowledge Network event led by youth. Graci collected this input and devised a design based on the water cycle.

We installed the mural at the Phalen Park Picnic Pavilion in the parking lot overlooking the water. Staff from Lower Phalen Creek Project helped paint the mural, as well as FMR staff, Graci, and a few community volunteers. One of our community volunteers was our storm drain stenciling intern, Marcellus, from 2021, who was very excited to return to work on this project.

Here is a link to photos from our mural installation:
https://www.flickr.com/photos/friendsmissriv/albums/72177720303367434

And a link to an article on our website about this year's mural, including an interview with the artist: https://fmr.org/updates/stewardship-education/heal-earth-fmrs-2022-mural-water-quality

Rain Barrel Workshop, Neighborhood House

"Make & Take Rain Barrel" Workshops: These were two hands-on workshops. Each workshop included an introduction to the Mississippi River Watershed, non-point source pollution, and ways to prevent runoff pollution from entering the storm sewer system. A significant component of this workshop is the opportunity for participants to purchase and assemble rain barrels with assistance from FMR staff and supplies donated and discounted by the Coca-Cola Company and the rain barrel depot.

We distributed 60 rain barrels in 2022 to 58 individuals or households. People were very excited to share photos of their installed barrels. Some people even painted their rain barrels! This year, we returned to in-person workshops at the Neighborhood House in St. Paul rather than virtual workshops. We enjoyed connecting with people in person and walking through the steps to build the rain barrels together.

Here are some links to images from events:
Rain barrel workshops 2022.

After the event, people shared images of their rain barrels in their homes:

- Rich and Sarah's painted rain barrel
- Cody's installed rain barrel
- Paul's painted rain barrel
- Winston's painted rain barrel

Youth Programs - Classroom and K-12 Education Outreach and Engagement:
Qualified FMR staff offer 30- to 90-min education experiences to school and community groups before, after or independent of scheduled service outings. Due to COVID-19, we have slowly resumed in-person experiences with school groups, fewer online classroom visits, and more groups able to do outdoor clean-ups and storm drain stenciling in 2022.

We continue to adapt our programming delivery based on local and state safety guidelines. These experiences provide opportunities to explore water quality and related topics in greater depth through age-appropriate hands-on activities, demonstrations, and discussions.

Due to the hiring of two new staff (our Youth Coordinator and Program Associate), our classroom sessions were delayed and focused on staff training in the spring. We spent a lot of time onboarding new staff to learn the curriculum and could not reach as many in-classroom visits in the Spring. We could not conduct as many classroom visits as planned in the spring, but we could still engage with many youth groups outdoors and in classrooms in the summer and the fall.

We continue to offer lessons and activities varying by grade level for teachers to access free online. All our work ties back to understanding the concept of watersheds and the relationship between human activity, land use, and water quality. We are planning to continue expand on our classroom lessons in 2023 now that we have our new staff on board. Our new Youth Coordinator, katya weseley, and Program Associate, Sam Armacost, coordinating stenciling staff, attended a teacher training institute with Hamline University and engaged in 3 days of outreach activities with educators on July 18 - 20th, 2022. As a result, they were able to reach many new educator contacts in St. Paul, and they are planning to do more water quality education and stenciling with schools this fall.

In the fall, we continued to stencil with youth groups, and we began to return to more classrooms for in-person water quality education. We have developed a draft of our new K-12 Cultural Landscapes curriculum with our new Youth Coordinator, katya, as we move back to more in-person classrooms this fall. katya piloted a new lesson in two St. Paul classrooms at Como High School.

The new lesson developed focused on environmental justice and wild rice. Students got an opportunity to understand how dependent wild rice is on clean water and the history of wild rice in the Twin Cities area watershed. Students learned how wild rice is harvested and how water protection in our urban setting connects to Indigenous sovereignty. We also explored some of the local histories of wild rice, which grew on lakes and rivers in St. Paul long before industrialization and colonization disrupted our ecosystem. We connected the discussion to local efforts to daylight the creek with Lower Phalen Creek Project (LPCP). Staff from LPCP shared in the discussion that Lake Phalen was an area where wild rice grew in the past. The youth could taste wild rice and other seasonal Minnesota foods. We also described how the foods we eat, and more sustainable food systems directly relate to water conservation and maintaining a healthier watershed.

katya is also building new relationships with schools as well as re-activating prior connections. They began conversations with schools such as Expo Elementary, which is hoping to engage in our water quality education programming in the Spring of 2023. They have ten classrooms that we seek to develop some programming for in 2023. They are interested in visiting the river, potentially conducting a trash cleanup or water quality sampling, and learning more about how they can protect and restore the watershed. Another St. Paul school our program director, Laura Mann Hill began conversations with again was Laura Jeffrey Academy, a middle school that had worked with FMR before the pandemic. Other schools, such as Great River and Open World Learning, continued to partner with us throughout the pandemic and were excited that we had begun offering more in-school programs once again.

Laura Jeffrey Student/Crosby Farm Volunteer

Finally, during the pandemic, our Environmental Stewardship Institute (ESI) was very engaged in our water quality education program in 2022. ESI led a trash clean up at Mounds Park and Cemetery in April as their first major community event. Over the summer, they engaged in various activities at St. Paul Parks. ESI's summer intensive program and school-year youth advisory council are extensions of our career pathways program for high school-aged youth. In October, the ESI Council reached out to youth environmentalists and students in the metro area and organized a Water Knowledge Network Event, including a storm drain stenciling at Como Lake.

Environmental Stewardship Institute, Como Lake Stenciling & Water Quality Event

The youth started the event with a water quality discussion that flowed from the adverse effects of water pollutants like road salt, excess leaves, and grass clippings to the stewardship initiatives led by Capitol Region Watershed District (CRWD)and Como residents around Como Lake, like raking leaves and clearing the area around storm drains. We used funds from the City of St. Paul and CRWD to support this event. This event was a youth-led initiative for high school students.

We are excited to see how ESI can further FMR's water quality education programming and develop the next generation of water stewardship in St. Paul.

Photos of Environmental Stewardship Institute:
https://flic.kr/s/aHBqjAaGfC

Article:
https://fmr.org/updates/stewardship-education/activating-youth-leadership-through-water-stewardship-programming

Educational Video: We wanted to make our educational presentation available to educators as a preview to their outings with FMR as well as supporting the many people who choose to take advantage of the stenciling kits and therefore will not have the opportunity to meet with FMR staff in person. The new staff member and stenciling coordinator Sam Armacost worked with Laura Mann Hill, Stewardship & Education Director, and videographer and editor Mike Durenberger to develop a script and shoot a video downtown this spring and summer in St. Paul

near Harriet Island. The stenciling program itself is promoted throughout our diverse outreach channels. The video will be showcased and used for our outreach and engagement efforts, including an upcoming Mississippi Messages and our monthly electronic newsletter (distribution of ~12,000).

Teacher/Group Leader Feedback or Reflections:
We collected oral and written data and a survey to gather feedback from our participants.

Statistics from Water Knowledge Network youth participants:

Question #1 The event increased my interest in supporting the health of the environment and watershed.
81% Agree **18.2%** Strongly Agree

Question #2 By participating in the event I gained a deeper understanding of the water systems in the metro area and the impact of run-off pollutants.
45.5% Agree **54.5%** Strongly Agree

Question #3 After participating in the event, I will change my personal actions and behavior to protect the river and improve water quality.
90.9% Agree **9.1%** Strongly Agree

Personal anecdotes from Water Knowledge Network youth participants

When asked to give an example of how they might protect the river and improve water quality:

"Being more conscious about how, even in the smallest quantity, can majorly affect the watershed around me. Being more resourceful about the quantity of salt used to melt snow is one way of how I will protect the natural water bodies around me."

"I think "unofficially adopting" a storm drain near me would help improve water quality in my neighborhood. Removing any leaves, soil, sediment or pollution ever so often."

"I will purchase the legit wild rice at the coop that is harvested in similar ways that native Americans have done for centuries. I believe this will support the folks selling it and the waters that grow this rice."

Personal anecdotes from Storm Drain Stenciling group leaders:

"It was very engaging. It connected them to the community where our school is located. I would do this every year with our students."

“So, Nana, why is there a fish on the stencil? Well, grandson, the yukky stuff that we find in the storm drains goes into the fish's mouth and their tummy. "Oh, that's gross". Yes, that is why you should tell all your friends, your parents, and people you know about protecting our river.”

“We always have a great time when FMR comes out to our school! It is a joy to bring my high school students outside for a unique activity and simultaneously do good things for the river.”

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.

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

_____

Kathy Lantry, Public Works Director

Next Review: November 1, 2021

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.

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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

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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:_____

Spill Kit Instructions

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

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

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

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

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

Phone Numbers
Environmental Services – (651) 632-5111
MN Duty Officer – (651) 649-5451

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

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

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

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

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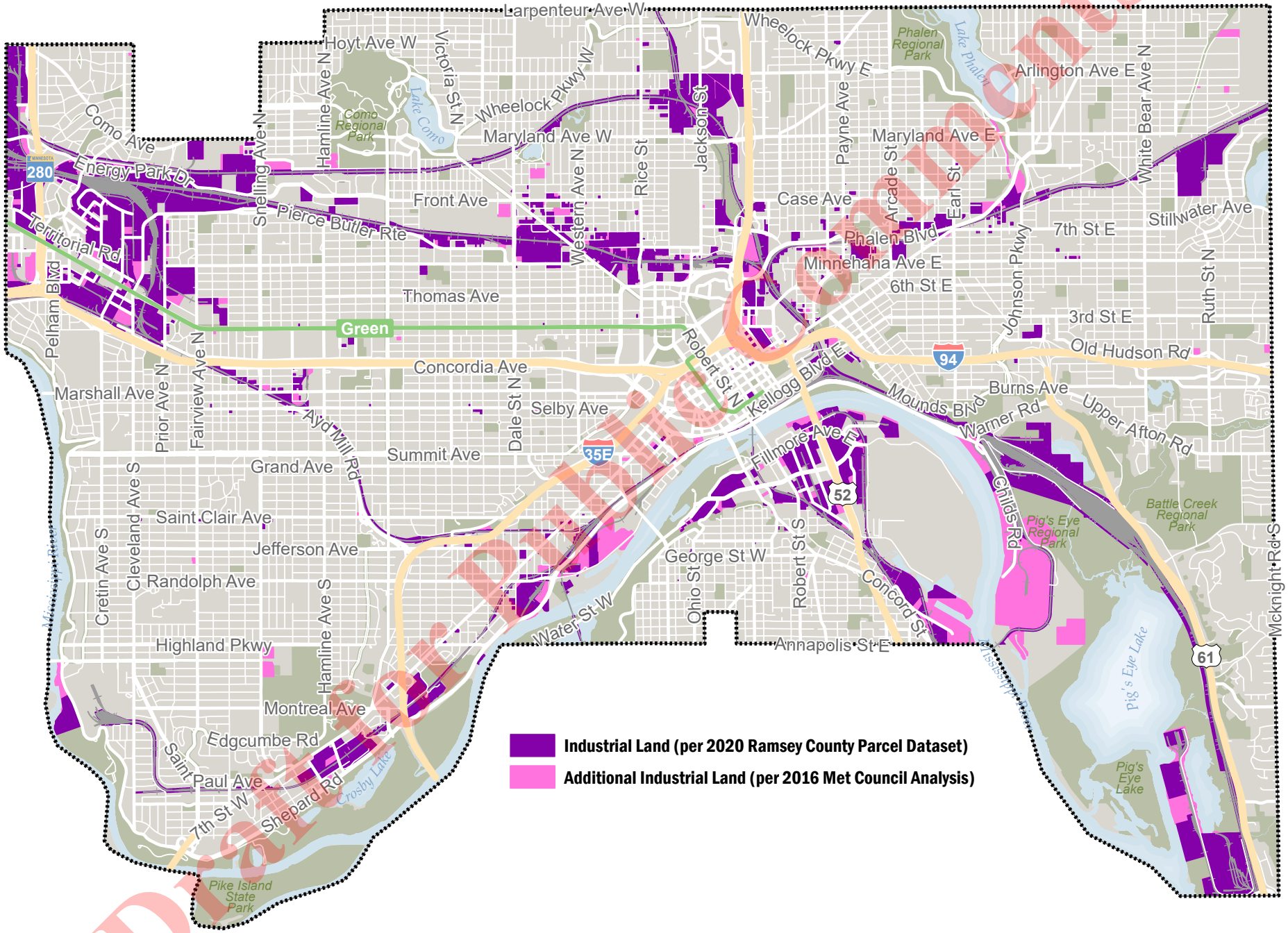
Industrial Land Use in Saint Paul

February 24th, 2020



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 MINI STORAGE 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.

0 0.5 1 2 Miles

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

2022 Discharges Addressed

Date	Discharge	Action
January 2022	Discovery of draintile discharging sewage to Fish Creek embankment at 1464 Point Douglas.	Public Works notified the MPCA and Sent to DSI to address and enforce.
March 2022	Complaint from CRWD re styrofoam beads released from 432 Victoria St.	Sent to DSI to address and enforce.
March 2022	Complaint from Ramsey County re dry weather flow from 1642 Burns.	Sent to ROW to address and enforce. Suspected snowmelt.
March 2022	Complaint from CRWD re transformer oil spill in Roseville (Gottfried Pit).	Xcel deployed booms in downstream sewer system and monitored. No oil/sheen detected throughout golf course and Como outfalls.
March 2022	Complaint from Ramsey County re sediment discharge from 85 Livingston.	Sent to DSI to address and enforce.
April 2022	Complaint from Ramsey County re oil discharge from 670 Snelling.	Sent to DSI to address and enforce.
May 2022	Complaint received re concrete washout near 1322 Van Buren	Sent to ROW to address and enforce.
May 2022	Complaint from Ramsey County re dry weather flow from Wheelock & Edgerton.	Sent to ROW to address and enforce.
June 2022	Complaint from MPCA re fuel spill at 3090 Rice Street.	Replied to MPCA that this site is in Little Canada.
July 2022	Complaint from Ramsey County Public Health re historical activities at the CP Rail Site	Routed to DSI to investigate, no active discharge observed.
July 2022	Sediment erosion from private property construction project at 1696 Ashland	Sent to DSI to address and enforce.
August 2022	Complaint from Ramsey County re sediment on Robbins beneath Hwy 280.	Determined to be related to Hwy 280 slope paving, routed to MnDOT to address.
August 2022	Complaint from Ramsey County re dumping in alley behind 1011 Rice Street	Routed to Street Maintenance for trash pick-up
August 2022	Complaint from CRWD re flourescent bulbs in Willow Reserve (originating from 1261 Arundel)	Sewer Maint notified Duty Officer, MPCA to clean-up and address
September 2022	Complaint from MPCA concrete washout at the Ford Site	Sent to DSI to address and enforce.
September 2022	Grease dumped into alley from 635 Snelling.	Sent to DSI and ROW to address and enforce.

BRAUN INTERTEC
The Science You Build On.

SAINT PAUL

CITY OF ST. PAUL ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) FIELD GUIDE SUMMARY

December 2, 2020

BRAUN INTERTEC
The Science You Build On.

City SWPPP Responsibilities

- Public education and outreach,
- Public participation/involvement,
- Illicit discharge detection and elimination,
- Construction site runoff control,
- Post-construction runoff control,
- Pollution prevention/good housekeeping for municipal operations, and
- Monitoring.

City Code

- The City of St. Paul has a Code of Ordinances (Title VI, Building and Housing), and Chapter 51 (Allowable Discharges to the Storm Sewer System) defines pollutants to the City storm system and allows enforcement of illicit connections or discharges.

City of St. Paul Enforcement and Elimination of Illicit Discharges

Type of property	Responsible
Private property	Department of Safety and Inspections (DSI)
Within City Right-Of-Way	Department of Public Works Right-Of-Way Division and Police Department
City park property	Department of Parks and Recreation

Examples of illicit non-stormwater discharges

- Sanitary sewer spills
- Sanitary wastewater illegally connected to or dumped into the storm sewer system
- Truck washing
- Discharges from residential laundry or carpet washwaters
- Effluent from septic tanks
- Pavement saw cutting slurry discharges
- Construction debris or sediment run-off
- Auto and household toxics such as used motor oil
- Liquid fertilizers and pesticides
- Spills from roadways
- Paint waste

Example photos of illicit discharges

Discharge of Oil

BRAUN INTERTEC
The Science You Build On.

Example photos of illicit discharges

Discharge of Paint

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The Science You Build On.

Example photos of illicit discharges

Discharge of Drilling Mud

8

BRAUN INTERTEC
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Example photos of illicit discharges

Discharge of Glycol

9

BRAUN INTERTEC
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Example photos of illicit discharges

Sanitary Discharge, Private Storm Drain

10

BRAUN INTERTEC
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Example photos of illicit discharges

Tack Emulsion, Seal Coating

11

Example photos of illicit discharges

Sanitary Discharge, Urban Outfall

12

Example photos of illicit discharges

Sanitary Discharge to Storm Drain from RV [13]

Examples of prohibited non-stormwater discharges

- Combined sewer overflow
- Noncontact cooling water
- Sewage
- Wash water
- Scrubber water
- Spills
- Oil
- Hazardous substances
- Fill
- Commercial equipment/vehicle cleaning, and
- Maintenance wastewaters

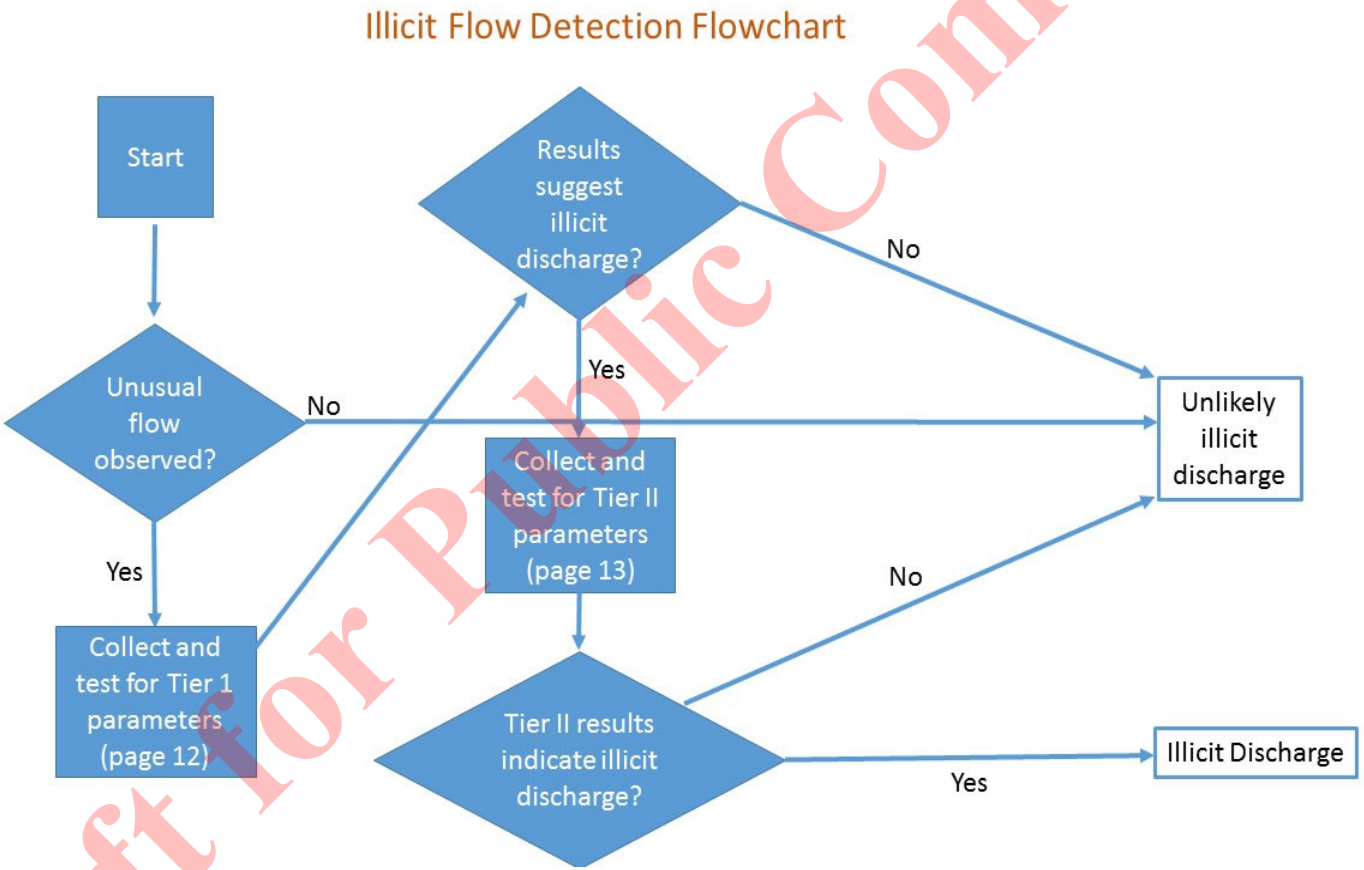
Examples of allowable non-stormwater discharges

- Non-stormwater that is authorized by an MPCA NPDES point source permit;
- Fire-fighting activities and fire suppression systems;
- Water line flushing or other potable water sources;
- Landscape irrigation or lawn watering;
- Diverted stream flows;
- Groundwater;
- Foundation or footing drains;

Examples of allowable non-stormwater discharges (cont.)

- Air conditioning condensation;
- Springs;
- Non-commercial washing of vehicles;
- Natural riparian habitat and wetland flows;
- Street wash water discharges;
- Activities undertaken by the city, or by written authority of the city, deemed necessary to protect public health, welfare, or safety; and
- Any other water source not containing a pollutant.

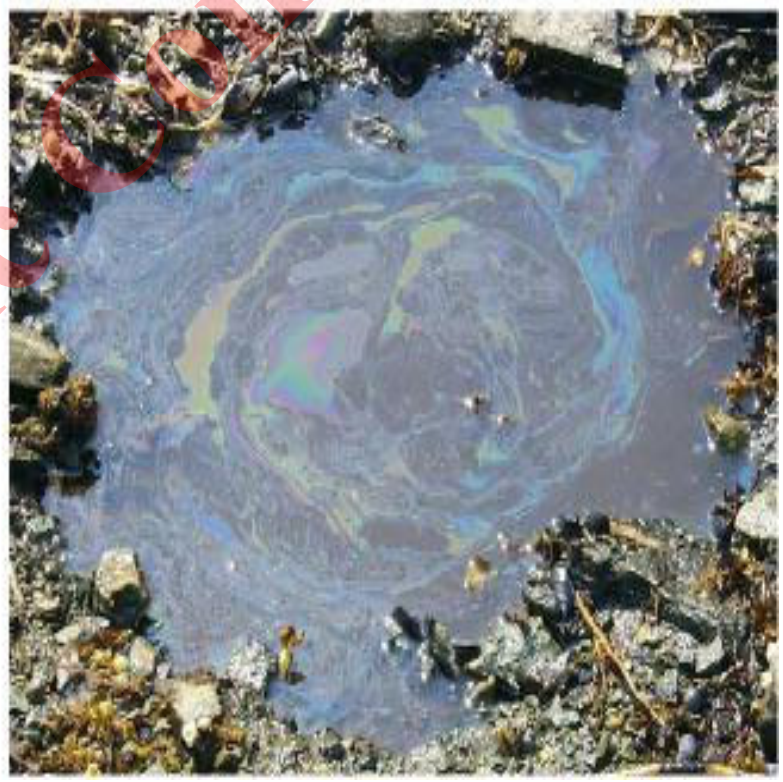
Illicit discharge investigations



Physical Indicators

- Flow
- Color
- Odor
- Turbidity
- Sewage, Sheens & Surface Scum

Natural Sheen vs. Synthetic Sheen



Foam and Suds Examples

Low Severity, Naturally Occurring Suds

High Severity Suds

BRAUN INTERTEC
The Science You Build On.

Biological Indicators

Fish Kill

BRAUN INTERTEC
The Science You Build On.

Biological Indicators

Algae Bloom

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The Science You Build On.

Biological Indicators

Iron Bacteria on Bulkhead

Chemical Indicators

- Water temperature
- Tier I chemical parameters
- Tier II chemical parameters

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Tier I Chemical Parameters

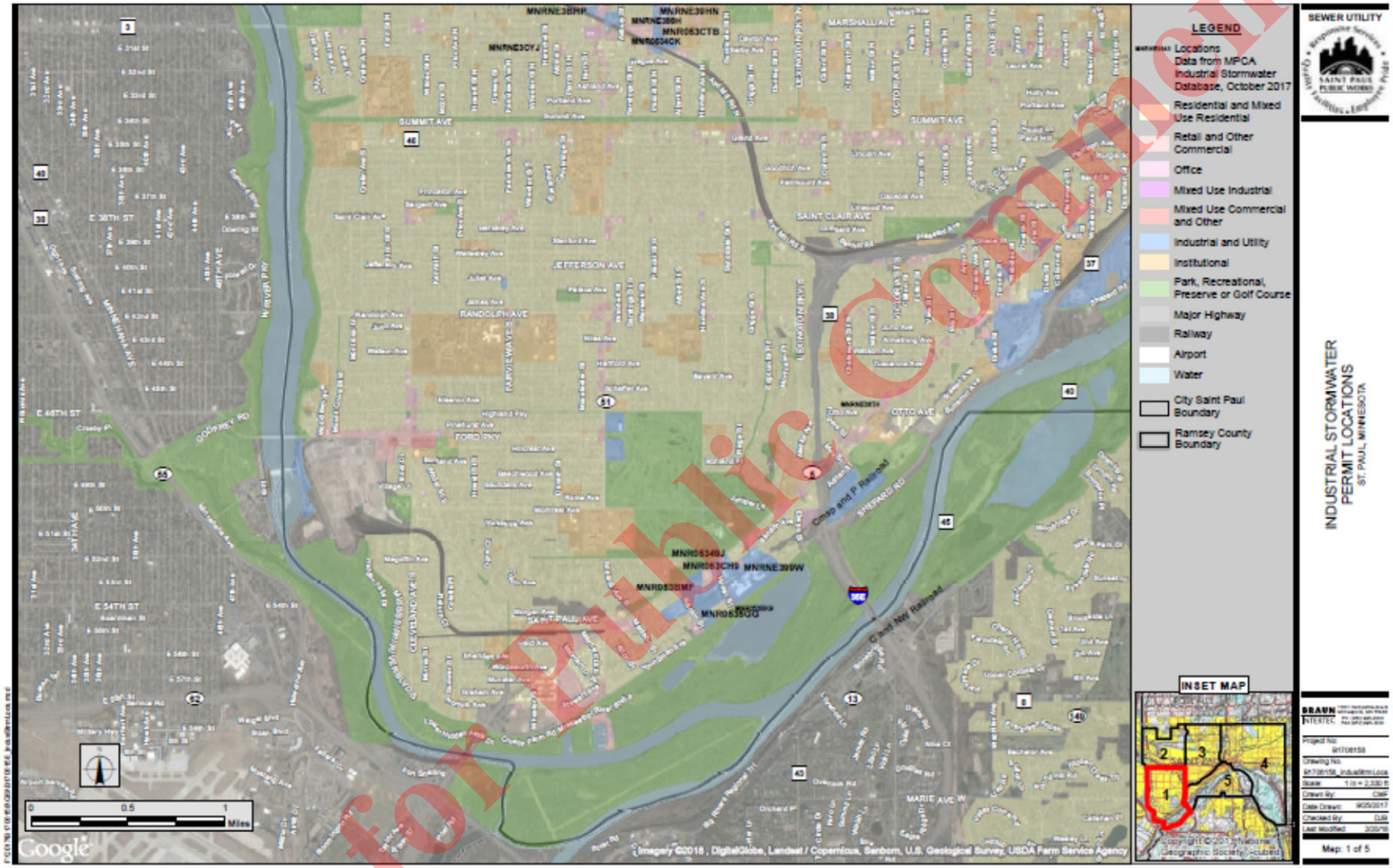
- Ammonia
- Boron
- Potassium
- Fluoride
- GRO, DRO, VOCs
- pH
- Temperature

Tier II Chemical Parameters

- Bacteria (fecal coliform)
- Dissolved oxygen
- Conductivity
- Iron bacteria
- RCRA metals
- Surfactants
- Hardness

IDDE Maps of Industrial Sites in St. Paul

- Maps showing sites that have permitted Industrial Stormwater permits
- Table listing sorted by address



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
MNR0538ZJ	795 Barge Channel Rd	St Paul Alter River Terminal	No	Alter Trucking and Terminal Corporation
MNR0538Z2	801 Barge Channel Rd	Alter Metal Recycling - St. Paul	No	Alter Metal Recycling
MNR0538B4B	644 Bayfield St	MAC - STP Downtown Airport	No	Metropolitan Airports Commission
MNR0538BZ	701 Barge Channel Rd	Hawkins - Terminal 2	No	Hawkins Inc
MNR0538B94	1125 Childs Rd	Hawkins - Terminal I	No	Hawkins Inc
MNR0538B96	309 Como Ave	Advanced Disposal Services - Vasko Solid Waste	No	Advanced Disposal Services
MNR0538B97	198 Minnehaha Ave E	Apex Auto Salvage	No	Apex Auto Salvage
MNR0538DW	1425 Red Rock Rd	Hawkins Water Treatment Group - Red Rock	No	Hawkins Inc
MNR0538F3	1701 Pierce Butler Rte	Midway Hub	No	BNSF Railway Co
MNR0538JL	875 Prior Ave N	E-Z Recycling	No	E-Z Recycling
MNR0538K9	1999 Shepard Rd Ste A	Johnson Brothers Liquor Co	No	Johnson Brothers Liquor Company
MNR0538KC	1031 Childs Rd	Northern Metal Recycling - Dock	No	Northern Metals Recycling
MNR0538KF	521 Barge Channel Rd	Northern Metal Recycling - St Paul	No	Northern Metals Recycling
MNR0538RV	318 Water St W	Twin City Refuse & Recycling Inc	No	Twin City Refuse Recycling & Transfer
MNR0538RW	2370 Highway 36 E	TA Schifsky Sons Inc	No	TA Schifsky Sons Inc
MNR0538SQ	268 Water St W	J & L Wire Cloth Co Inc	No	J&L Wire Cloth Co Inc
MNR0538SY	780 Barge Channel Rd	GERDAU - St Paul Raw Materials	No	Gerdau Ameristeel
MNR0538WL	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

BRAUN INTERTEC
The Science You Build On.

Summary

- City is required and has made commitment to minimize IDDE
- If you suspect IDDE, notify your supervisor
- Use logic and IDDE protocols to investigate potential IDDEs
- Be safe!

Street Engineering & Construction Annual Division Meeting

- Who regulates stormwater in Saint Paul?
  - Environmental Protection Agency
    - (Grants authority to State of MN, but does conduct program audits)
  - MN Pollution Control Agency
    - 2018 Municipal Separate Storm Sewer System (MS4) Permit
    - 2018 Construction Stormwater Permit
    - Various Industrial Permits
  - Watershed Districts
    - Capitol Region Watershed District
    - Ramsey-Washington Metro Watershed District
  - City of Saint Paul
    - Public Works
    - Department of Safety & Inspections

Street Engineering & Construction Annual Division Meeting

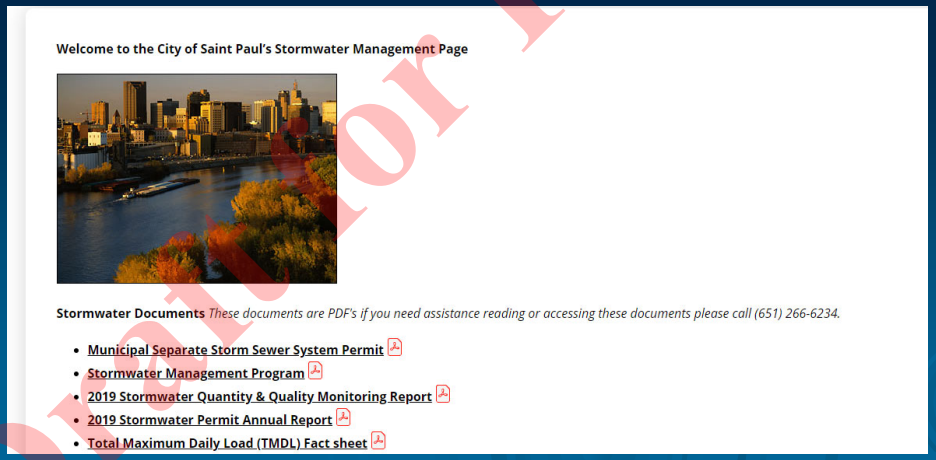
- Illicit Discharge Detection and Elimination (IDDE)
  - What is an illicit discharge?
    - Anything entering the storm sewer system that is not comprised entirely of stormwater
    - There are a few exceptions (uncontaminated groundwater, springs, residential car washing, fire suppression, etc.)
  - What the City is obligated to do:
    - Have a program to prevent, identify, enforce and respond to illicit discharges
      - City Code: Chapter 51 Allowable Discharges to the Storm Sewer System
      - Enforcement Response Procedures (ROW and Construction Divisions)
      - MnDOT Specification 1717: Air, Land and Water Protection
      - Project SWPPPs

Street Engineering & Construction Annual Division Meeting

- Erosion & Sediment Control
  - Required by various Permits (MS4, Construction Stormwater, Watershed, etc.)
  - Intended to protect downstream water resources
  - Intended to protect the functionality of new and existing Stormwater BMPs

Street Engineering & Construction Annual Division Meeting

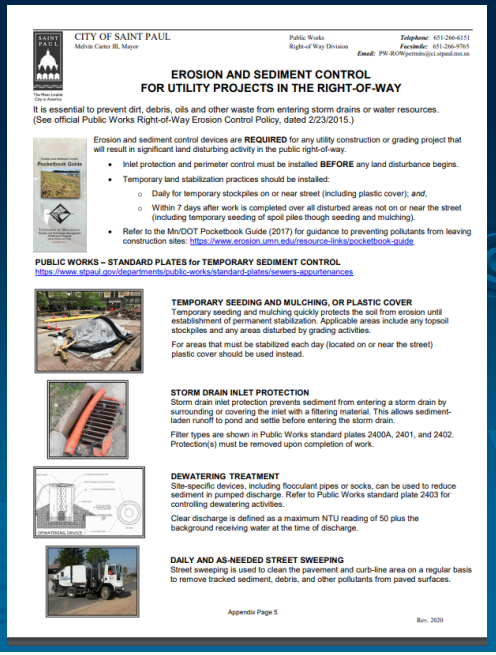
- Resources:
  - City's MS4 Permit Program: https://www.stpaul.gov/departments/public-works/sewer-utility-division/stormwater
  - Sewer Standard Plates (including temporary sediment control): https://www.stpaul.gov/departments/public-works/standard-plates/sewers-appurtenances-2000-series
  - MPCA Stormwater Manual: https://stormwater.pca.state.mn.us/index.php/Main_Page
  - UMN Erosion and Stormwater Management Certification Program: https://www.erosion.umn.edu/
  - Pat Murphy: 651-266-6254



Welcome to the City of Saint Paul's Stormwater Management Page

Stormwater Documents *These documents are PDF's if you need assistance reading or accessing these documents please call (651) 266-6234.*

- Municipal Separate Storm Sewer System Permit
- Stormwater Management Program
- 2019 Stormwater Quantity & Quality Monitoring Report
- 2019 Stormwater Permit Annual Report
- Total Maximum Daily Load (TMDL) Fact sheet



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

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:
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- 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
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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.

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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.

Appendix Page 5

Rev. 2020

Controlling Right-of-Way Impacts to Waters

Utility Coordination Meeting

SAINT PAUL
MINNESOTA

STPAUL.GOV

Water Quality Ordinance

Chapter 51.
Allowable Discharges to the Storm Sewer System

This Ordinance shall be in full force and effect thirty days (30 days) from and after its passage, approval, and publication.

At a meeting of the City Council on 2/13/2013, this Ordinance was Passed.

Yea: 7 Councilmember Bostrom, Councilmember Brendmoen, Councilmember Carter III, City Council President Lantry, Councilmember Stark, Councilmember Thune, and Councilmember Tolbert

Nay: 0

Vote Attested by Council Secretary Trudy Moloney **Date** 2/13/2013

Approved by the Mayor Chris Coleman **Date** 2/20/2013

Focus of Local Control

- Keep pollution out of the storm sewer system
  - Curb and gutter
  - Catch basins
  - Pipes
- Broadly prohibits "non-stormwater"
- Specific requirement of Clean Water Act

Sec. 51.03: Non-stormwater discharges

- 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

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

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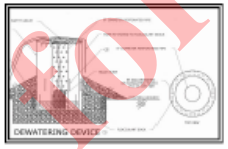

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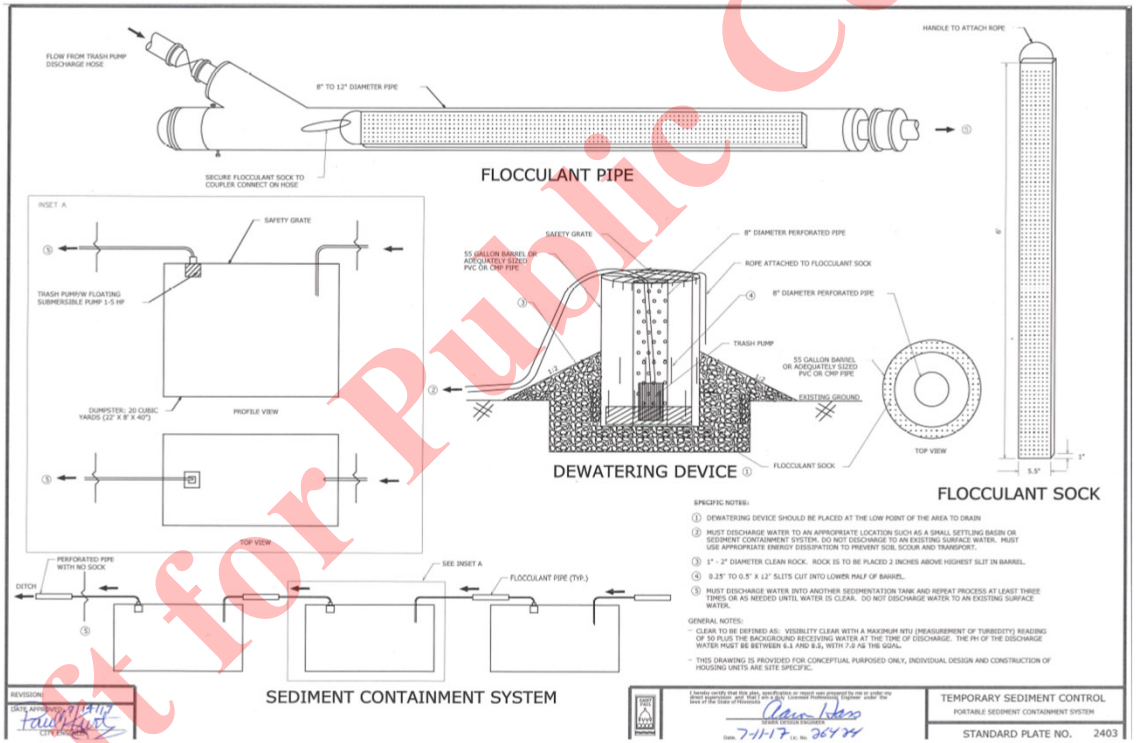
Rev. 2020

Plate 2403



DEPARTMENT OF PUBLIC WORKS

CITY OF SAINT PAUL

Eriks Ludins, ROW Manager

899 North Dale Street
Saint Paul, MN 55103-1512.
ROW Division - Permits
Facsimile 651-266-9765
Telephone 651-266-6151 *www.stpaul.gov*
Email: pw-rowpermits@ci.stpaul.mn.us

Right-of-Way CITY PLAN REVIEW Submittal Form
(this is NOT a PERMIT Application)

1) Submit this Application Form & Engineer Grade 'D' Drawings in PDF format to PW-ROWpermits@ci.stpaul.mn.us
2) Each page of Excavation Plans Shall Be Signed by a Minnesota Certified Civil Engineer.
3) When Approved, an Approval Letter and if needed, a Review List with Conditions will be emailed to the Applicant.
4) Following PLAN Approval, you may request a ROW PERMIT. Refer to the PLAN NUMBER assigned when requesting a permit.

(please print & check items affected) **Do Not** Combine **Excavations & Obstructions** on the same application, **Submit Separately**

PLAN TYPE: ☐ Excavation (Buried Work) or ☐ Obstruction (Aerial, Pulling in Existing Ducts)

Applicants Nam

Email Address:

Company Name

Billing Address:

Company Job/II

ALL APPLICANTS MUST BE REGISTERED WITH THE ROW DIVISION PRIOR TO PLAN or PERMIT APPROVAL

DESCRIPTION OF WORK: Construction of fiber via directional bore along Energy Park from Lexington Pkwy N westerly 4896'

Describe Project: Bore 500' of Duct & Fiber On X St-Y St to Z St, or Place 1000' of Aerial Cable in alley N of M St-N St to O St, or Install (3) poles on A St, or Pull 100' of Fiber in existing conduit ACR State St-Fillmore to Plato for Service at 10 River Park Plaza.
(What work is being done, Linear Ft or Qty, and Where is it being done)

LOCATION:
Address Energy Park Drive **From Street** Lexington Pkwy N **To Street** Snelling Ave
or Cross St _____ **or Corner (NWC, SWC, etc)** _____

EXCAVATION INFORMATION (Mark all that apply):
Excavation Linear Length (ft) in ROW 4,896
Installation: Poles ☐ Conduit ☑ Fiber ☑ Metallic Cable ☐ MH/Hand Holes ☑ Small Cell on New Pole ☐
Placement Method: Directional Bore ☑ Open Trench ☐ Saw Cut ☐ Dig ☐

OBSTRUCTION INFORMATION (Mark all that apply):
Obstruction Linear Length (ft) in ROW _____
Pull thru Existing Ducts ☐ Aerial Placement: New ☐ or Over-Lash ☐

FORECAST CONSTRUCTION SCHEDULE: Start Date: 10/02/2020 Complete Date: 06/30/2021

By signing this application, I (the applicant/company) hereby acknowledge that I must adhere to all provisions of City of Saint Paul Ordinance Numbers 116, 135 and any other applicable ordinances. The applicant shall also comply with the regulations of all other governmental agencies for the protection of the public.

APPLICANTS SIGNATURE: _____ **DATE:** _____

Outreach

CITY OF SAINT PAUL
Melvin Carter, Mayor

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

Telephone: 651-266-8989

November 18, 2020

WATER QUALITY COMPLAINT

To whom it may concern:

It has come to our attention that persons acting on behalf of . may have improperly conducted activities including discharging unauthorized liquid material into the city's municipal storm sewer system along Energy Park Drive, between Lexington Pkwy N and Snelling Ave.

A complaint was received by the Capital Region Watershed District and forward to city staff on November 3, 2020, regarding allegations of illicit wastewater drainage into the municipal storm sewer generated from nearby utility boring.

Local regulations prohibit non-stormwater discharges to enter the city's municipal storm sewer system (Saint Paul Legislative Code 51.03a). This regulation implements federal Clean Water Act protections.

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

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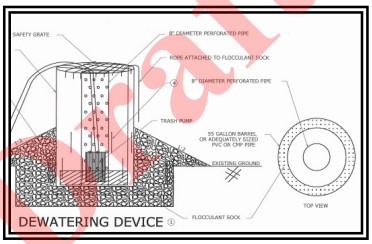

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CITY OF SAINT PAUL
Christopher B. Coleman, Mayor

Public Works
Right-of-Way Division

Telephone: 651-487-7250
Fax: 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:

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

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:

Saint Paul Sewers

CITYWIDE H&H MODELING MAP

Detailed Model Complete 2022 Wheelock Parkway Street Project

Legend

- Intersection Scale Model Complete
- Mixed Scale Model Complete
- Skeleton Scale Model Complete

N W E S

DATA UPDATED 04/2023

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Saint Paul Sewers

CITYWIDE P8 MODELING MAP

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
12.	CROSBY BUSINESS PARK:		STANTEC
13.	CROSBY OUTLET:		STANTEC

Legend

- Subwatershed P8 Model Complete
- Pond P8 Model Done

N W E S

LAKE COMO · TROUT BROOK · LAKE PHALEN · BETLINE · PHALEN CREEK · SAINT ANTHONY PARK · SAINT ANTHONY HILL · WEST KITTSONDALE · URBAN · GRIFFITH · PT. DOUGLAS · BATTLE CREEK · DOWN TOWN · GOODRICH · WESTERN · EAST KITTSONDALE (2014) · WEST SEVENTH · RIVERVIEW · MISSISSIPPI RIVER BLVD. · CROSBY · HIDDEN FALLS · DAVERN · PIGS EYE · HIGHWOOD

Draft Submitted

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DATA UPDATED 04/2023

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Street Construction Stormwater BMP Training

- Why do we do stormwater management?
  - Mimic Natural Hydrology
  - Water Quality
  - Volume Reduction
  - Rate Control
- Our methods:
  - Infiltration
  - Filtration
  - Permeable Pavement
  - Gross Pollutant Removal
  - Water Reuse

Street Construction Stormwater BMP Training

- Why do we do stormwater management?
  - Permit Requirements
    - Municipal Separate Storm Sewer System (MS4) Permit
    - Construction Stormwater Permit
    - Watershed Districts

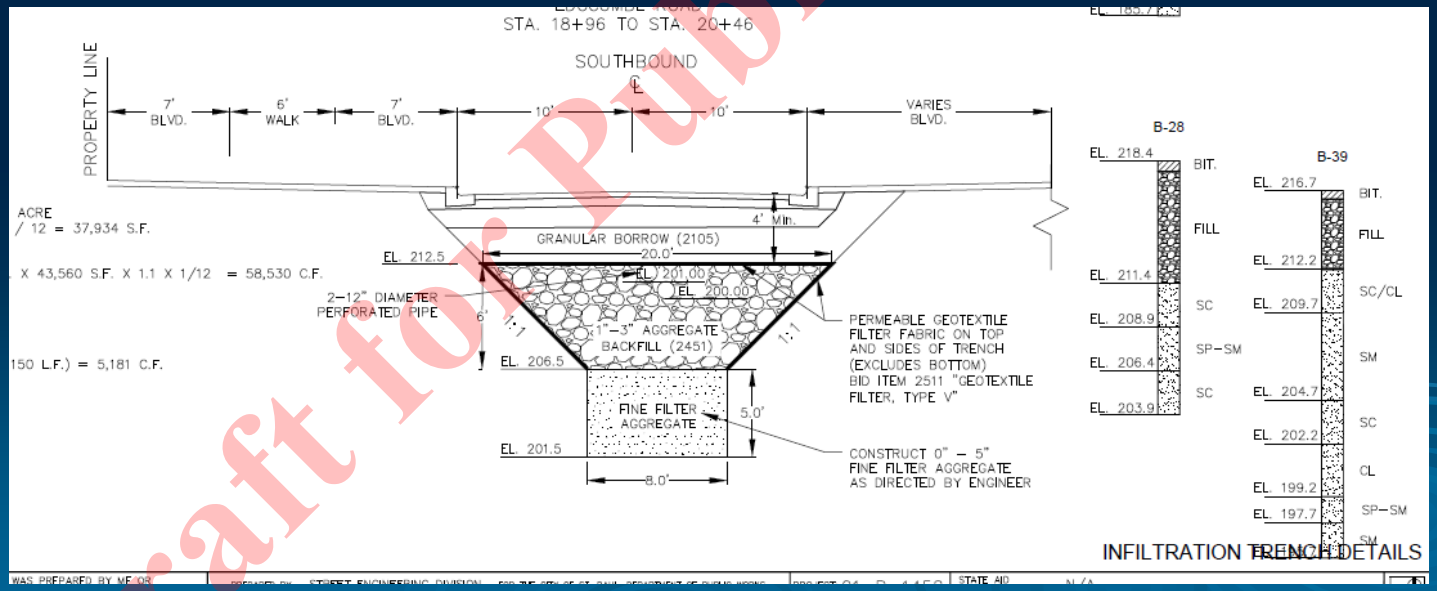
(b) For **linear projects**, a **water quality volume** of one (1) inch times the net increase of **impervious surfaces**, in addition to a reduction in **stormwater** runoff volume from fully reconstructed surfaces, unless precluded by the **stormwater** infiltration prohibitions in Part III.C.5.a.(3). Where this cannot be achieved within the existing right-of-way, a reasonable attempt to obtain additional right-of-way, easement, or other permission to treat the stormwater during the project planning process must be made.

16.7	Permittees must design infiltration systems to provide a water quality volume (calculated as an instantaneous volume) of one (1) inch of runoff, or one (1) inch minus the volume of stormwater treated by another system on the site, from the net increase of impervious surfaces created by the project. [Minn. R. 7090]

(c) **Runoff Volume.** Stormwater runoff shall be retained onsite in the amount equivalent to 1.1 inches of runoff over the new and reconstructed impervious surfaces of the development. The required stormwater runoff volume shall be calculated as follows:

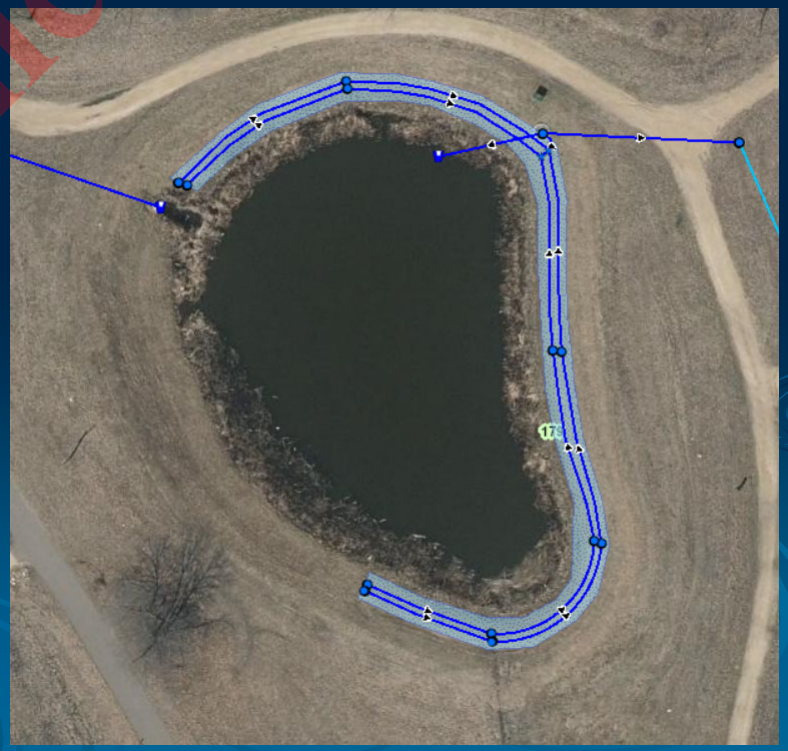
Street Construction Stormwater BMP Training

- How do we address the requirements?
  - Infiltration (where we can)
  - Filtration (when infiltration is not possible)
  - Gross Pollutant Removal



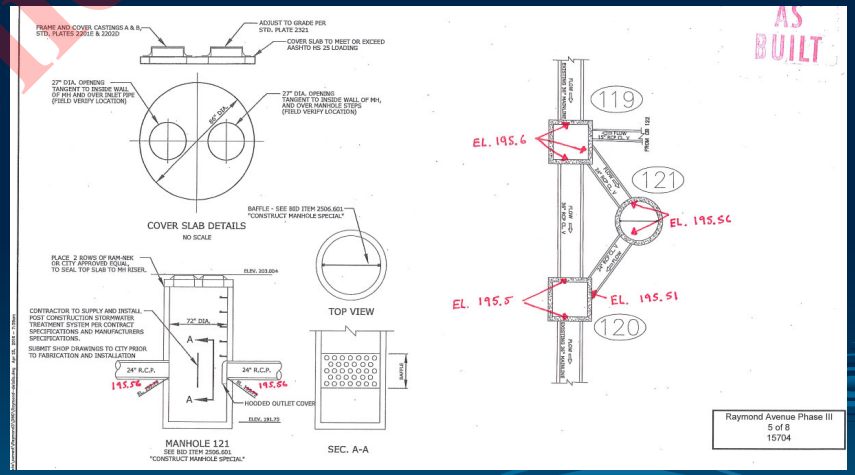
Street Construction Stormwater BMP Training

- How do we address the requirements?
  - Infiltration (where we can)
  - Filtration (when infiltration is not possible)
  - Gross Pollutant Removal



Street Construction Stormwater BMP Training

- How do we address the requirements?
  - Infiltration (where we can)
  - Filtration (when infiltration is not possible)
  - Gross Pollutant Removal



Street Construction Stormwater BMP Training

- How we calculate the water quality volume (credit)?
  - Based on our disturbance, and new/reconstructed impervious surfaces (streets, bike paths, sidewalks, etc.)
  - Case Study
    - Existing Street is 660 ft long, 32 ft wide
    - Proposed Street is 660 ft long, 32 ft wide, with new 5 ft sidewalks
  - How many credits are needed for reconstructed impervious?
    - 660 ft x 32 ft x 1.1in x 1ft/12in = 1,936 cubic feet = 1,936 credits
  - How many credits are needed for the new impervious?
    - 1,320 ft x 5ft x 1.1in x 1ft/12in = 605 cubic feet = 605 credits
  - Total of 2,541 cubic feet (credits)

Street Construction Stormwater BMP Training

- How do we size the infiltration trench to treat 2,541 cubic feet of water?
  - Compute the water storage in the trapezoidal trench
    - Account for the 2-12” perforated pipes
    - Account for dimensions of the trapezoid
    - Account for the void ratio of the correctly sized rock (required to be 40% voids)
  - Results in a trench about 75 ft long
  - There are other complexities with filtration, cost caps, rate control, etc.

TOTAL PROPOSED IMPERVIOUS AREA = 413,820 S.F. = 9.5 ACRE
TOTAL REQUIRED INFILTRATION VOLUME = 413,820 S.F. X 1.1 / 12 = 37,934 S.F.

AREA OF WATER FROM SUBWATERSHED = 1.761 ACRE
VOLUME OF WATER FROM SUBWATERSHED = 1.057 AC. X 43,560 S.F. X 1.1 / 12 = 4,221 C.F.

AREA OF 2–12” PIPES = 1.57 S.F.
TRENCH #1 AREA = 96 S.F.

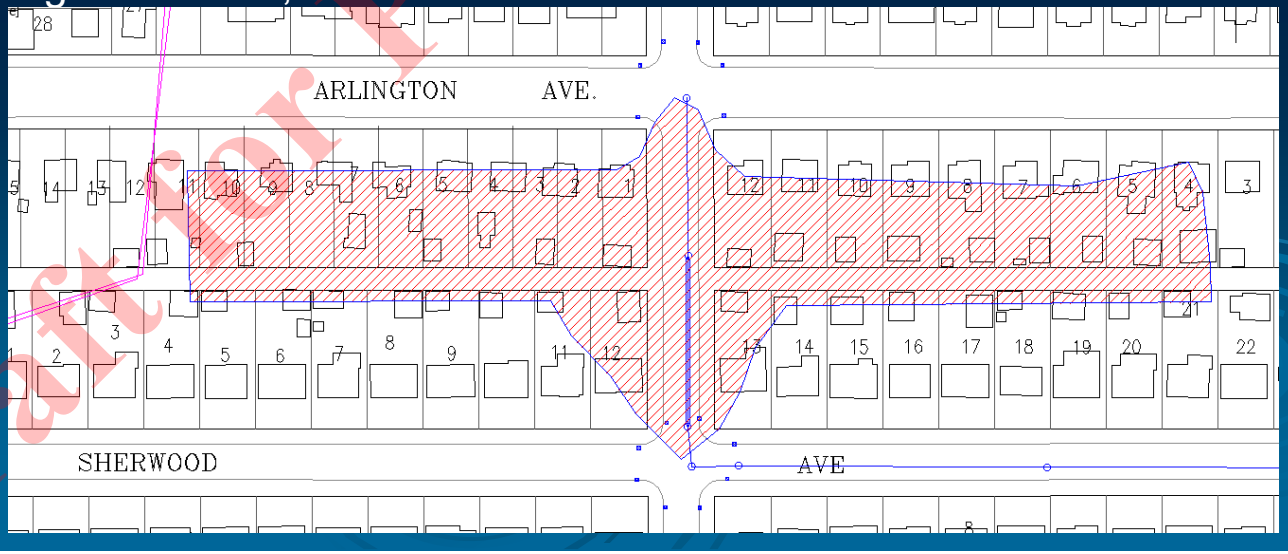
TRENCH #1 AGGREGATE BACKFILL TRENCH CAPACITY =
((96 S.F. – 1.57 S.F.) X 95 L.F. X 40%) + (1.57 X 95 L.F.) = 3,737 C.F.

TRENCH #1 STORAGE = 3,737 C.F.

SEE SHEET 25 FOR PROFILE

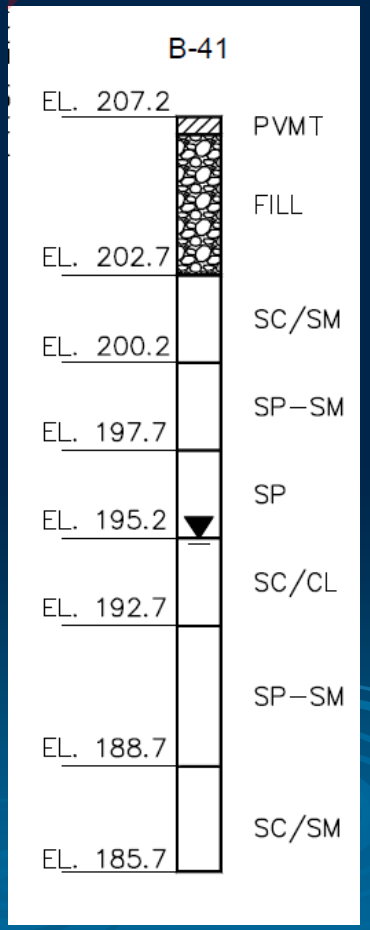
Street Construction Stormwater BMP Training

- How do we get water to the trench?
  - Hydrology
    - Amount of new impervious surface dictates the volume to be treated
    - Corresponding drainage area dictates where the water comes from
      - Sometimes offsite water is used
      - Sometimes drainage from newly reconstructed streets is not treated
    - Balancing act on where utilities are, how to get water to the trench, soils, groundwater, etc.



Street Construction Stormwater BMP Training

- Deeper Dive on Infiltration
  - Look for good soils
  - No groundwater or bedrock
  - No contamination



Street Construction Stormwater BMP Training

- Infiltration System Construction
  - Pretreatment
    - Sumped Catch Basins (7A)
    - Sumped Manholes (Type III Modified)
    - Snouts/Hoods

Street Construction Stormwater BMP Training

- Infiltration System Construction
  - Trench Materials and Specs
    - Soil Correction-Fine Filter Aggregate

Bid item 2451.513 "Fine Filter Aggregate (CV)" shall meet the requirements of MnDOT specifications 3149 fine filter aggregate. Payment shall be by the CUBIC YARD and shall compensation in full for all labor, materials, and equipment necessary.

Street Construction Stormwater BMP Training

- Infiltration System Construction
  - Trench Materials and Specs
    - Geotextile

Bid item 2511.504 "Geotextile Filter Type V (For Infiltration Trench)", shall be construed to mean the installation of geotextile filter fabric conforming to Mn/DOT Standard Specification 3733 Type V between soil layer and the aggregate backfill layer of the in-street infiltration trenches. The geotextile filter fabric shall be wrapped over the top and on each side of the trench. It shall be ensured that the fabric is in intimate contact with the soil and backfill by ensuring that the surface upon which the geotextile fabric is placed is uniform and free of voids or other surface irregularities. Minimum overlapping of geotextile fabric between sections shall be stapled together. Payment shall be by the SQUARE YARD and shall be compensation in full for all costs in purchase, transport and installation.

Street Construction Stormwater BMP Training

- Infiltration System Construction
  - Trench Materials and Specs
    - Washed River Rock

Bid item 2451.505 "Aggregate Backfill (CV)" shall be construed to mean washed river rock for the infiltration trench conforming to MnDOT specifications 3149 modified to following gradation:

Table 2451.3D-1. Aggregate Backfill Gradation Requirements

Sieve Size	Percent Passing
3.0"	100
2.5"	90-100
2.0"	45-80
1.5"	0-30
1.0"	0-6

The Contractor shall provide location of the source pit to the Engineer, and allow the City's geotechnical consultant opportunity to conduct testing prior to transport to the work site. In lieu of source pit testing, ~~All~~ aggregate backfill suppliers are required to furnish documentation indicating compliance with the specifications, including gradation, unit weight, void space (40% minimum, dry rodded), and composition. This documentation shall be submitted to the Eengineer prior to transport to the work site.~~placing the aggregate backfill~~. Carbonate quarry rock, crushed concrete, and recycled bituminous material shall not be used.

Aggregate backfill should be placed in lifts and lightly compacted with plate compactors. Care shall be taken to prevent natural or fill soils from mixing with the aggregate backfill. All contaminated aggregate backfill shall be removed and replaced with uncontaminated backfill. Payment shall be by the CUBIC YARD and shall be compensation in full for all costs in purchase, transport, placing, and compacting of the material in place.

Street Construction Stormwater BMP Training

- Infiltration System Construction
  - Trench Materials and Specs
    - Perforated Pipe

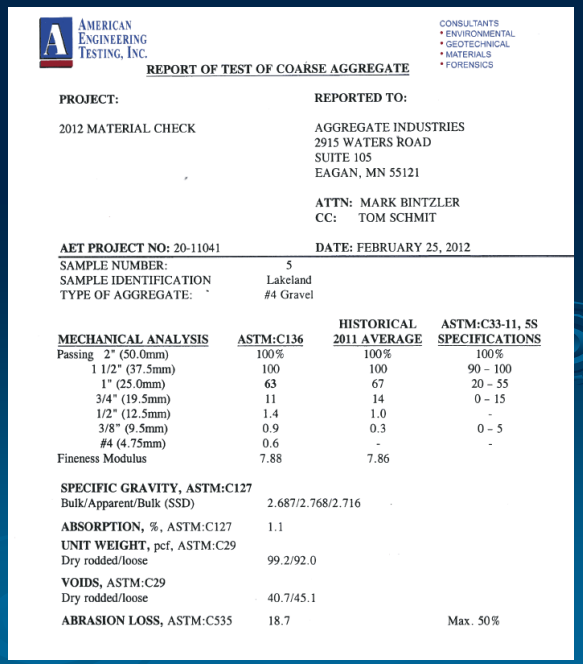
Bid item 2503.503 "12" Perforated Thermoplastic Pipe Sewer" shall be construed to mean the procurement and installation of 12-inch perforated PVC pipe, class SDR 26 to be laid along the length of the in-street infiltration trench. There shall be 12-holes, 0.5-inch in diameter, per foot. Perforation pattern is 4-rows, two spaced 75-degrees from the bottom, the other two spaced 135-degrees from the bottom. Drilling of holes shall be incidental to **bid item 2503.503 "12" Perforated Thermoplastic Pipe Sewer"**. End caps shall be placed on both ends of the pipe during construction. Caps shall be removed once the system is in place. Payment shall be by the LINEAR FOOT and shall be compensation in full for all costs to purchase, transport, and install.

Street Construction Stormwater BMP Training

- Submittals/Process
  - Test Pits (before materials are delivered)
  - Source Testing (also before materials are delivered)
  - Load Tickets
  - As-Builts

TRIBUTARY SURFACES ARE CLEANED OF SEDIMENT.

8. THE CONTRACTOR WILL BE REQUIRED TO EXCAVATE A TEST PIT (AT LEAST TWO PER TRENCH) DURING CONSTRUCTION AT LEAST 5–FEET BELOW THE PROPOSED BOTTOM OF THE TRENCH. VERIFICATION OF SOIL IS REQUIRED BY THE ENGINEER BEFORE INSTALLATION OF THE TRENCH CAN BEGIN. EXCAVATION FOR THE TEST PIT SHALL BE PAID FOR UNDER BID ITEM 2105 "UNCLASSIFIED EXCAVATION".



AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
• ENVIRONMENTAL
• GEOTECHNICAL
• MATERIALS
• FORENSICS

REPORT OF TEST OF COARSE AGGREGATE

PROJECT:
2012 MATERIAL CHECK

REPORTED TO:
AGGREGATE INDUSTRIES
2915 WATERS ROAD
SUITE 105
EAGAN, MN 55121

ATTN: MARK BINTZLER
CC: TOM SCHMIT

AET PROJECT NO: 20-11041
DATE: FEBRUARY 25, 2012

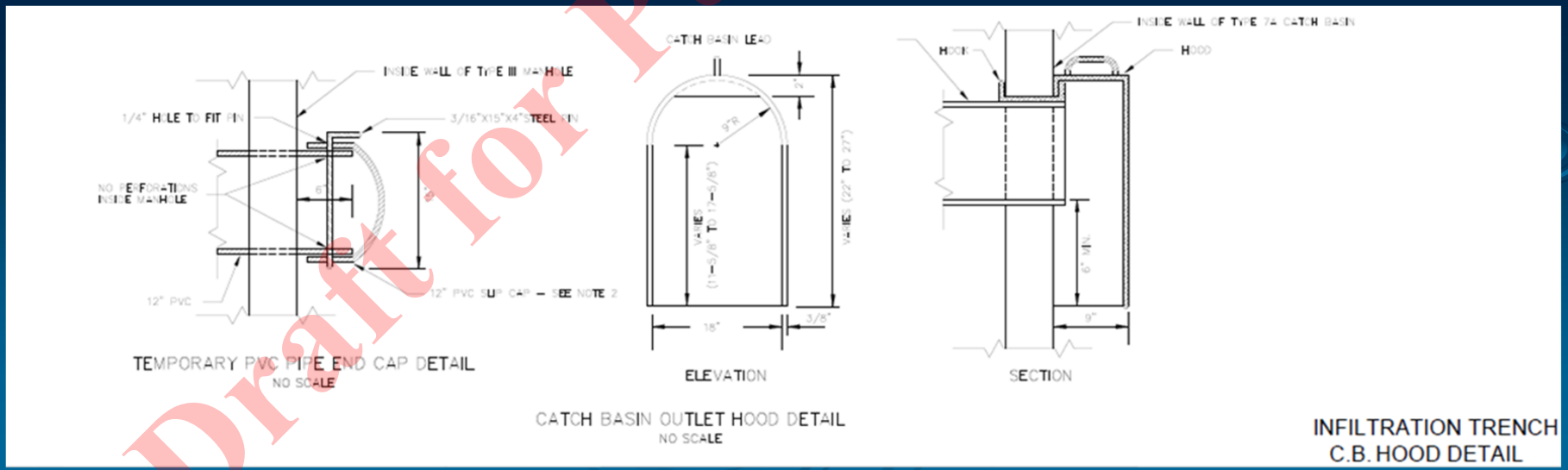
SAMPLE NUMBER: 5
SAMPLE IDENTIFICATION: Lakeland
TYPE OF AGGREGATE: #4 Gravel

MECHANICAL ANALYSIS	ASTM:C136	HISTORICAL 2011 AVERAGE	ASTM:C33-11, 5S SPECIFICATIONS
Passing 2" (50.0mm)	100%	100%	100%
1 1/2" (37.5mm)	100	100	90 – 100
1" (25.0mm)	63	67	20 – 55
3/4" (19.5mm)	11	14	0 – 15
1/2" (12.5mm)	1.4	1.0	-
3/8" (9.5mm)	0.9	0.3	0 – 5
#4 (4.75mm)	0.6	-	-
Fineness Modulus	7.88	7.86	

SPECIFIC GRAVITY, ASTM:C127 Bulk/Apparent/Bulk (SSD)	2.687/2.768/2.716	
ABSORPTION, %, ASTM:C127	1.1	
UNIT WEIGHT, pcf, ASTM:C29 Dry rodded/loose	99.2/92.0	
VOIDS, ASTM:C29 Dry rodded/loose	40.7/45.1	
ABRASION LOSS, ASTM:C535	18.7	Max. 50%

Street Construction Stormwater BMP Training

- Infiltration System Protection
  - End Caps
  - Erosion and Sediment Control
  - Post-construction Televising



Street Construction Stormwater BMP Training

- When to get others involved:
  - Watershed Districts require they be onsite for various stages
  - Test Pits (if the soils don't match the borings, consult with the Engineer)
  - Aggregate Sources (consult with the Engineer if they meet gradation, void ratio, and material specs)
  - As-Builts (earlier the better, the City has an annual obligation to maintain these systems)

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

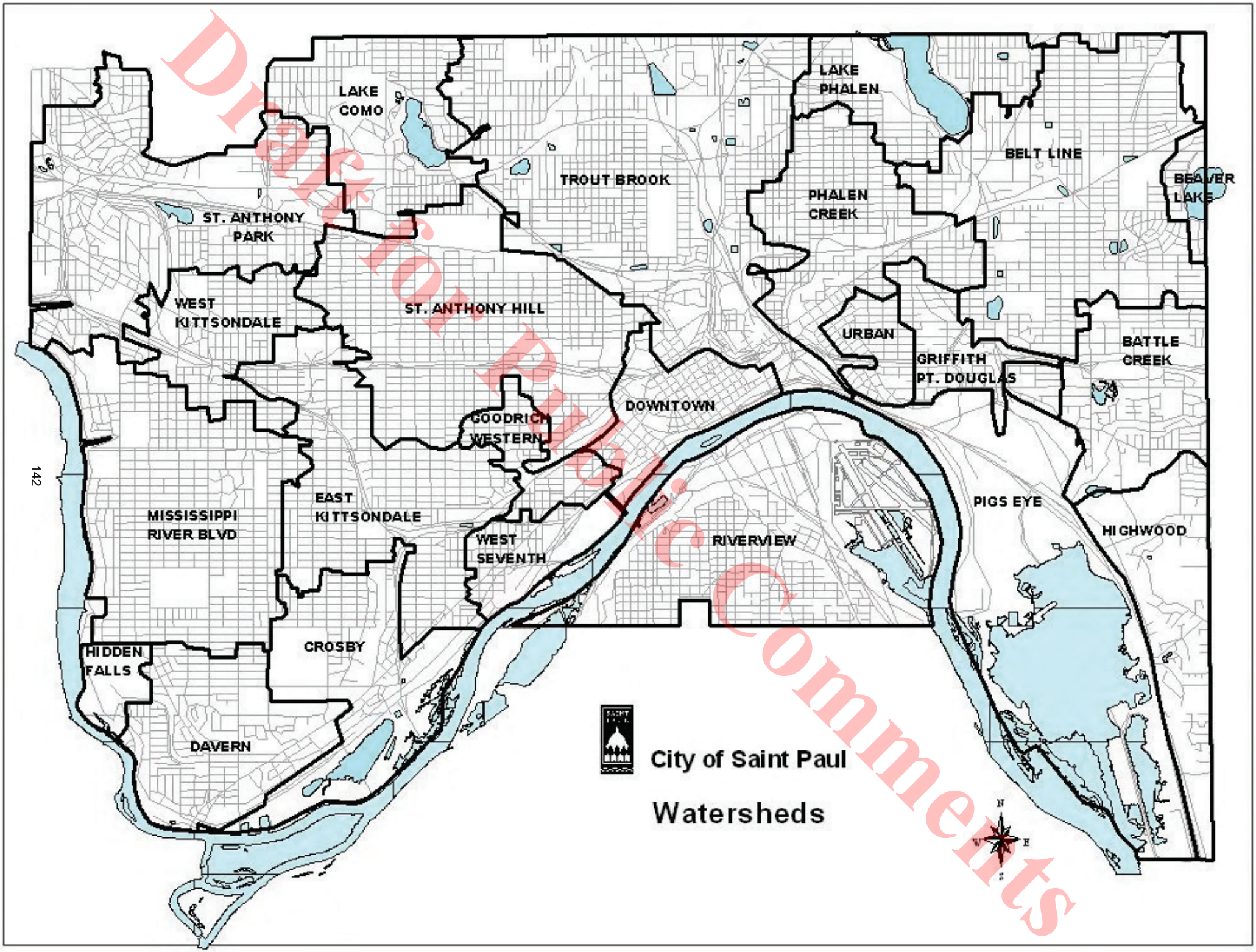
Outfall	Location	Watershed	Pipe Size	Acres
	Upper Lake			
152	Springfield	Crosby	15"	
	Crosby Lake			
153	Rankin	Crosby	27"	
154	Homer	Crosby	30"	
155	Leland	Crosby	30"	
	Fairview North Pond			
500	Tatum & Pierce Butler	St. Anthony Park	6'	
510	Pierce Butler & Aldine	St. Anthony Park	54"	
	Lake Como			
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"	

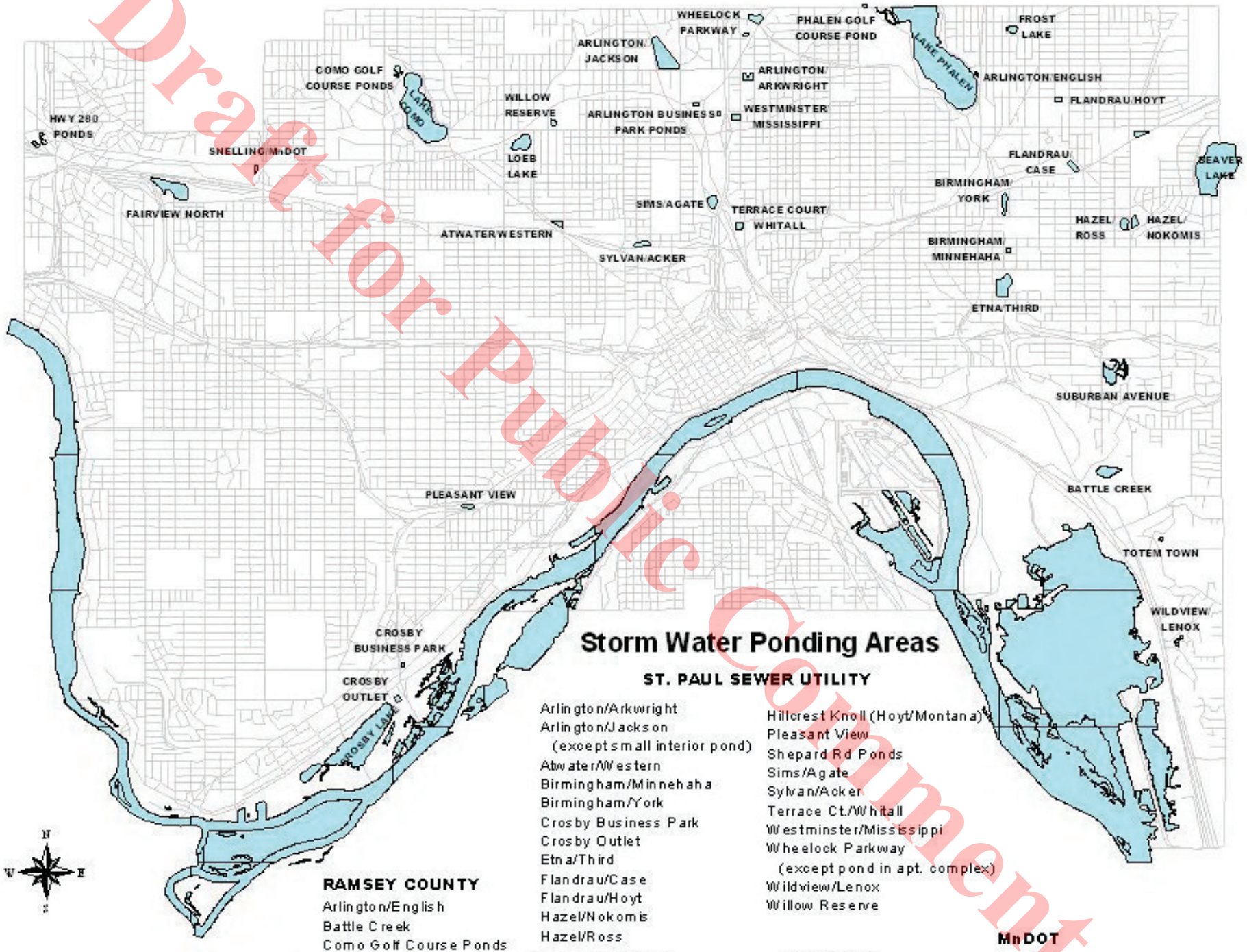
Outfall Inventory

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"	



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

Pond Number on P8 Map	Pond	P8 Model	Subwatershed	Drainage Area (Acres)	Pond Area (Acres)	TSS Removal Rate (LBS/YR)	TP Removal Rate (LBS/YR)
1	Sylvan/Acker	2019	Troutbrook	376.9	2.10	40,354.68	33.92
2	Barge Channel Ponds	2018	River View	39.7	0.84	27,314.00	51.61
3	Flandrau/Hoyt	2014	Belt Line	494.7	1.90	229,416.00	209.51
4	Flandrau/Case	2014	Belt Line	95.2	0.70	20,285.00	11.26
5	Birmingham/York	2014	Belt Line	146.5	2.20	55,364.00	32.63
6	Hazel/Nokomis	2014	Belt Line	81.0	2.30	43,513.00	33.07
7	Hazel/Ross	2014	Belt Line	57.0	4.00	14,590.00	10.13
8	Birmingham/Minnehaha	2014	Belt Line	43.8	0.90	6,588.00	8.76
9	Etna/Third	2014	Belt Line	235.9	4.70	84,877.00	68.77
10	Wildview/Lennox	2020	Highwood	19.3	0.73	2,359.70	13.70
11	Highwood/Oak Bluff	2020	Highwood	38.0	0.30	6,149.00	13.70
12	Crosby Business Park	2021	Crosby	34.0	1.00	10,438.00	17.00
13	Crosby Outlet	2021	Crosby	860.0	5.50	1,000,180.00	980.40

DATE: April 13, 2023
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

---

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 2022 and satisfy Parts 4.A. and 5.C. of the attached Cooperative Agreement for Maintenance of Green Infrastructure at Snelling-Midway.

2022 Operation

As in previous years, 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 on 04/08/2022 by obtaining City of St. Paul plumbing permit (#22-050334) and installing the submersible pumps in manhole 251 (MH251).

Rainwater reuse started around 5/09/22, exterior irrigation lines were blown out 11/01/22, and pumps were removed on 11/17/22 resulting in a total irrigation season of 176 days. Total material and labor costs associated with non-routine repairs amounted to roughly $11,600 of the total 2022 O&M cost of $35,460.85. Service tickets, invoices, and spreadsheet tabulating labor and material costs are attached for reference.

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 April of 2021, data streams for Inlet Flow Meter, Irrigation Flow Meter, Drain Flow Meter, Recirculation Flow Meter, City Water Flow Meter, Outlot Flow Meter, and Inlet and Supply Pressure were added to the Opti RTC dashboard. According to data provided on the Opti dashboard, total irrigation use in 2022 was 3,498,146 gallons, with 2,898,550 gallons of domestic water use, resulting in approximately 599,596 gallons of treated rainwater use. The Annual Water Use table below compares total irrigation, city water, and rainwater used from 2020 through 2022.

Annual Water Use (gallons)

Year	2020	2021	2022
Total Irrigation Used	1,093,185	3,985,567	3,498,146
Rainwater Used	693,302	1,206,071	599,596
Potable Water Used	399,883	2,779,496	2,787,360
Percent supplied by rainwater	63.4%	30.3%	17.1%

The volume of 3,498,146 gallons of irrigation corresponds to 50.52 inches of irrigation over the 2.55- acre area for the 2021 operational period. This is an average of 2.01 inches per week. Additionally, the MSP International Airport recorded 10.26 inches of rainfall from 5/09/22 through 11/01/22. The 2022 season was second year in a row of dryer than average precipitation, with only 0.87 inches of rainfall recorded during the month of July. The table

The system is equipped with an actuated valve that draws down and filters stored rainwater in anticipation of a predicted rainfall event. In 2022, the system's first drawdown event occurred on 5/11/2022 when the National Weather Service forecasted an 88% chance of 0.89 inches of rain. That evening, 2.35 inches of rain was recorded at the CRWD office rain gauge over a time period of less than 3 hours, with peak measured intensity of 3.56 inches per hour. Approximately 14,000 gallons were drained from the tank to make room for the forecasted rainfall and prevent overflow.

Treated rainwater usage 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. The system treated and reused nearly 600,000 gallons, and there are not believed to be any storage capacity issues at this time. Reused water is anticipated to be available for future private redevelopment in the Snelling-Midway Superblock, but low flow rates and pressure issues downstream of the treatment skid must be resolved if City water use is to be reduced.

Issues

Upon rainwater pump installation, it was determined that one of the irrigation booster pumps was not running due to a Variable Frequency Drive (VFD) failure. A proposal was submitted and approved by the City to replace the failed VFD with a new Yaskawa brand VFD with a three year warranty at a price of $4,044. Additional non-routine maintenance items addressed in 2022 are listed below.

1. Replacement of 25-micron stainless steel filter screens in the Orival auto backflush units with 120-micron screens to reduce pressure loss in the system.
2. The cistern pumps would not engage due to a failed field server tripping the power supply. A solution was implemented that did not involve replacement of the field server. This limits the information sent to the SCADA system, but replacement was not deemed necessary based on the high cost estimate.
3. A broken fitting on the Ozone injection system was discovered. The fitting was replaced, but caused an issue with low air pressure that required additional labor hours to troubleshoot.
4. Actuated valve to switch between City water and rainwater was not operational, and was replaced.
5. Temperature sensor was causing high temp alarm on City's SCADA system. Determined communications connections needed to be reconfigured between the RMS controller, field server, Opti Panel and Wunderlich Malec panel.
6. Two of the four light bulbs within the vault had failed. A work order was approved to replace the failed lights.

7. A booster pump shaft seal leak was identified. During seal replacement, it was determined the failure was caused by pieces of broken impeller veins inside the pump. The repair work was deferred to 2023.

There was a steep decline in the total volume and percentage of rainwater reused in 2022. This is likely still attributed to needing to supplement demand with City water and protect the booster pumps. However the cause may be less related to the pressure drop due to restrictions in the filtrating components, and more related to the volume of water being diverted to the Ozone injection and recirculation system (6.6 million gallons).

Recommendations for 2022

CRWD will contact MN United FC operations and groundskeeping staff to coordinate the preferred date for Harris to obtain the annual DSI plumbing permit and complete startup for the reuse system. CRWD recommends the following items be discussed for consideration in 2023:

1. Cease operation of Ozone Injection System and eliminate recirculation function to direct more flow to irrigation booster pumps.
2. If pressure drop still too low, swap 5-micron filter bags to a larger micron size (options up to 200-microns), and review option to implement similar swap with the 5 micron carbon filters.
3. Complete repair of booster pump impellor and seal replacement.
4. Complete hydrovac removal of sediment within MH 251 prior to installation of the submersible pumps, and add to annual task list. (Recommended and completed in 2022)

Next Steps

As 2022 invoices ($35,460.85) were similar to 2021 invoices ($32,784.09), CRWD does not expect an increase to the $45,000 annual budget. Per Section 4.K. of the Agreement, CRWD proposes the items contained herein be reviewed, and considered for adjustments to the 2023 O&M plan, with particular focus on the process for identifying and implementing system improvements.

enc: Harris 2022 Service Tickets
Paid 2022 Harris Invoices
2022 Service Cost Summary and Water Balance Spreadsheet
Cooperative Agreement

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CITY OF ST. PAUL
COMO AND WESTERN FACILITY STORMWATER MANAGEMENT PLAN

December, 2020

Goal of the Como and Western Stormwater Management Plan

- To develop and maintain an ongoing effort to manage the stormwater quality responsibly related to stormwater runoff from the property

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Facility Air Photo

BRAUN INTERTEC
The Science You Build On.

Materials Currently Exposed to Stormwater at the Facility

- Street sweepings
- Sewer Department vac truck grit
- Asphalt plant scrubber sediment
- Bituminous millings
- Brush
- Concrete rubble
- Bricks
- Black dirt
- Sand
- Tires
- Roadway solid wastes collected by the Street Department awaiting off-site recycling or disposal

Existing On-site Stormwater Facilities

- Trench drain and berm for vac truck sediment dewatering
- Two storm drains near exit to Western Avenue
- Concrete block bins on west end

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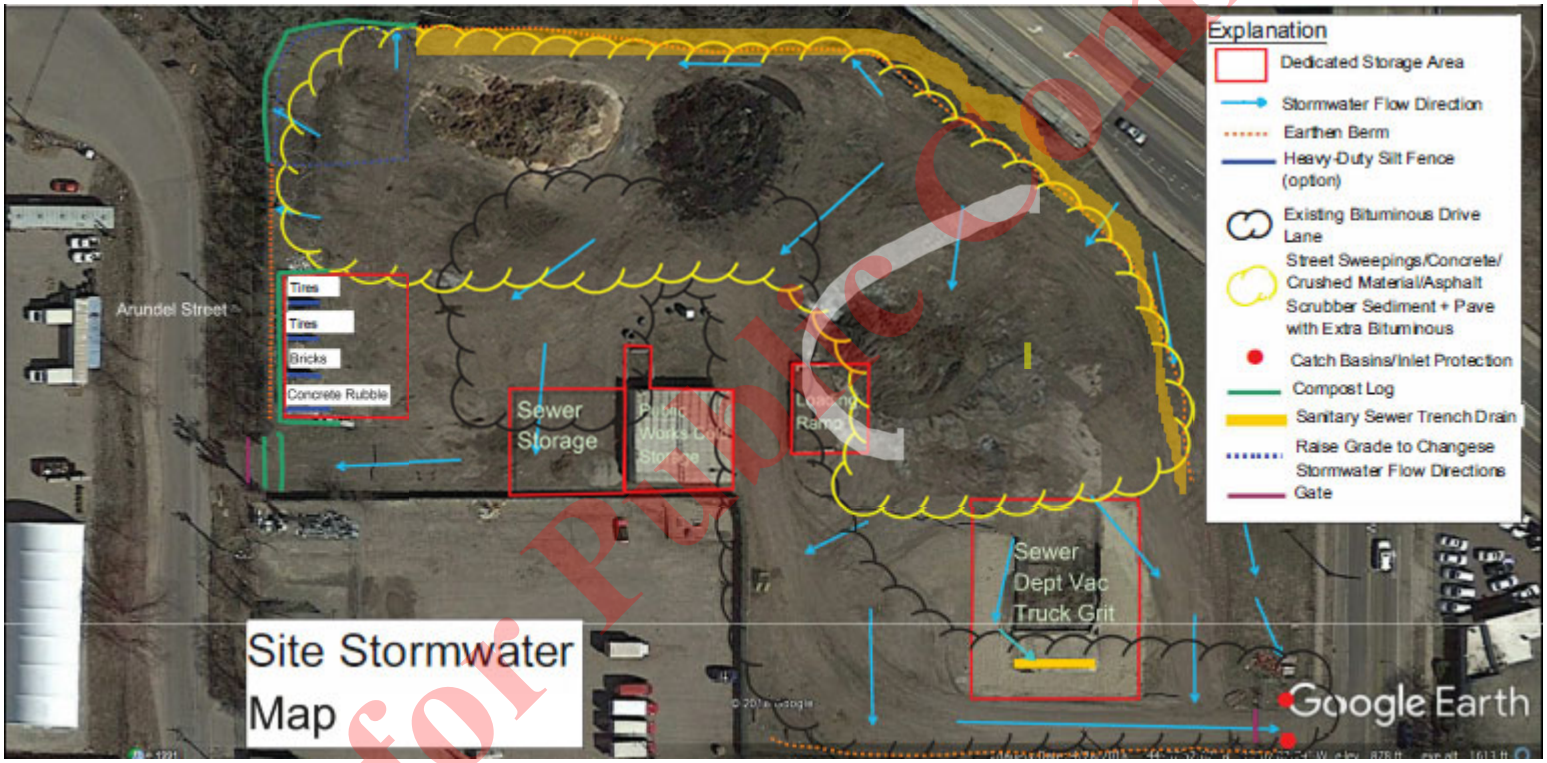
Facility Stormwater Plan



Como and Western Site Stormwater Improvement Plan

The purpose of the improvement plan is to describe site improvements that need to be made in order to affect changes that will minimize sediment transport from the site thereby improving the quality of stormwater that leaves the site. Several actions are recommended.

Recommended Facility Stormwater Best Management Practices

Structural BMPs

- Install biologs at west gate
- Install biologs around concrete bins
- Install new concrete bin for storage of roadway solid wastes
- Raise grade in NW portion of site
- Expand bituminous paved areas of site

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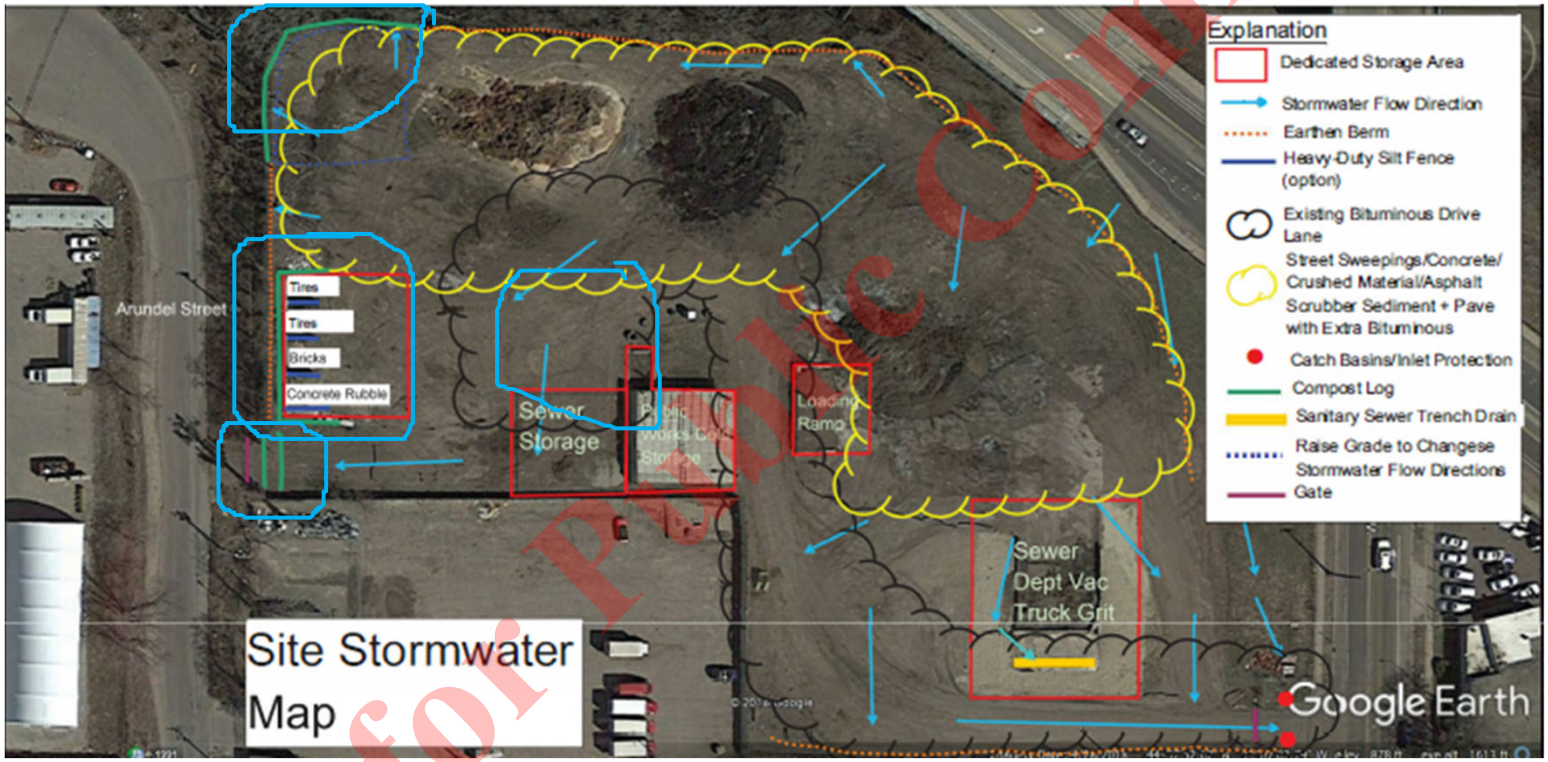

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Recommended Facility Stormwater Best Management Practices (continued)

Non-structural BMPs

- Perform monthly site stormwater inspections and document
- Sweep paved surfaces weekly during spring through fall months
- Jet and vactor site on-site storm sewer catch basins weekly
- Minimize storage of asphalt scrubber sediment
- Keep black dirt pile covered
- Evaluation of stormwater storage BMP needs for new wastes that may come to the site

Facility Stormwater Best Management Practices

- Como and Western Stormwater Management Policy
- Como and Western Stormwater Inspection Plan and Checklist
- Como and Western Site Stormwater Improvement Plan

Como and Western Stormwater Quality Management Policy

- **Policy Statement:**

The Saint Paul Sewer Utility uses the Como and Western facility to stockpile and dewater sediment obtained from cleaning City storm mains and structures. Accumulated sediment is dewatered at the facility and then trucked for off-site disposal once the facility has reached its holding capacity.

- **Reason for the Policy:**

This policy has been implemented to standardize how:

- Vector trucks are dumped.
- The site is maintained.
- Stockpiled material is dried
- Sediment transport from the site by stormwater is minimized.

Como and Western Site Stormwater Inspection Plan and Checklist

The City of St. Paul Public Works Department uses the Como & Western site to store various materials including: street sweepings, concrete, bricks, bituminous, brush, and storm sewer sediment. The purpose of the Como and Western storm water management plan is to employ practices that will minimize sediment transport from the site thereby improving the quality of stormwater that leaves the site.

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CITY OF ST. PAUL
419 BURGESS STREET FACILITY STORMWATER MANAGEMENT PLAN

December, 2020

Goal of the 419 Burgess Stormwater Management Plan

- To develop and maintain an ongoing effort to manage the stormwater quality responsibly related to stormwater runoff from the property

Materials Currently Exposed to Stormwater at the Facility

- Sheet pile, flood gates, trench boxes
- Excess soil and occasional brick
- Excess concrete and bituminous
- Clay, brick and concrete block
- Metal castings
- Ring beams
- Excess black dirt

Existing On-site Stormwater Facilities

- Three vegetated infiltration swales
- Soil, brick and concrete storage bins

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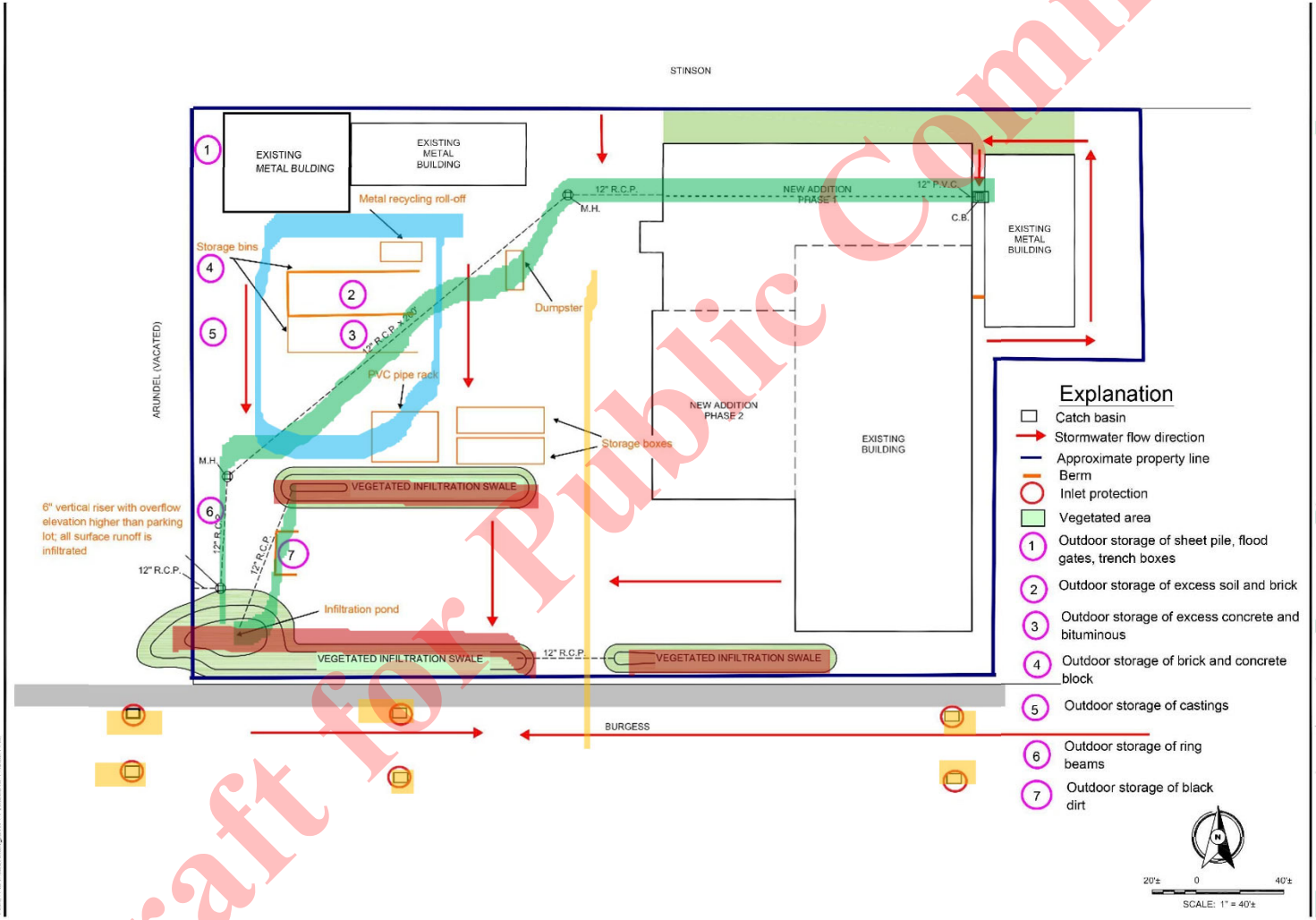

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Drawing Information
Project No: B1709679
Drawing No: B1709679
Drawn By: DJB
Date Drawn: 12/7/17
Checked By: DJB
Last Modified: 12/7/17

Project Information
419 Burgess Street Facility
419 Burgess Street
Saint Paul, Minnesota

Existing Conditions Storm Water Pollution Prevention Plan
Figure 2

Facility Stormwater Best Management Practices

Structural BMPs

- Weekly maintenance of the inlet protection of the 6 catch basins along Burgess Street.

Non-structural BMPs

- Keep dumpster lids closed when not adding waste
- Perform monthly site stormwater inspections and document
- Sweep paved surfaces weekly during spring through fall months
- Sweep up concrete waste from poured catch basin bottoms promptly
- Jet and vactor site 12” storm sewer annually
- Keep black dirt pile covered

Facility Stormwater Best Management Practices

- City of St. Paul Stormwater Management Policy
- 419 Burgess Street Weekly Inspection

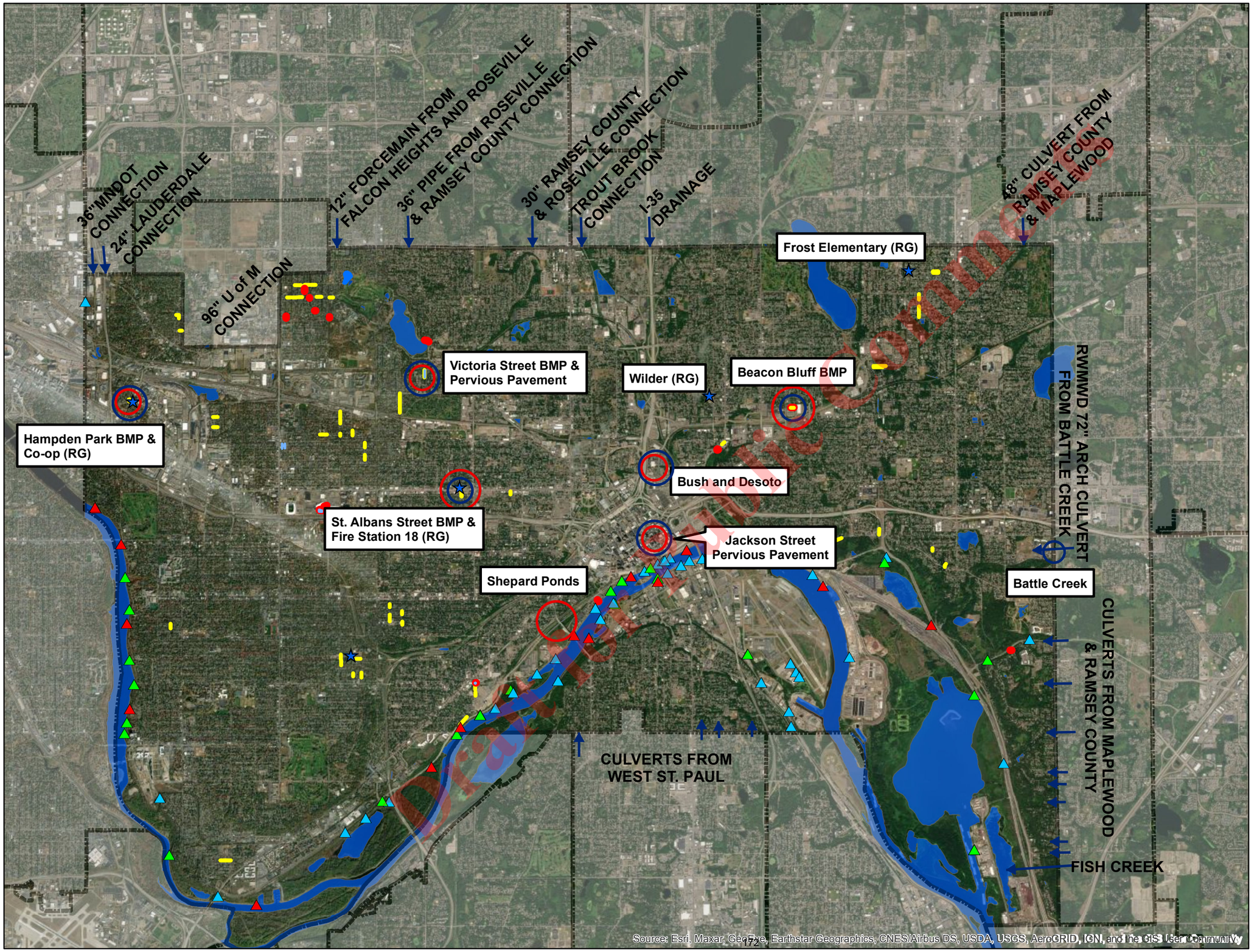
City of St. Paul

2022 Water Quantity & Quality Monitoring Program

SAINT PAUL
MINNESOTA

Figure 1-1

2022 Monitoring Site Locations



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
- 2021 Monitoring Locations
- 2022 Monitoring Locations
- Rain Gauge Locations

Outfalls

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

wsb

12. City-wide Loading Assessment

12.1. 2022 Pollutant Loading Calculations

Monitoring of major outfalls within the City of Saint Paul was completed by Capitol Region Watershed District (CRWD) in 2022. 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, and Phalen Creek. 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	140.2	2.9	0.51	0.57	186.6	65.0
Q1 (Jan-Mar)	341.5	3.7	0.63	0.83	134.8	45.6
Q2 (Apr-Jun)	51.3	2.5	0.43	0.49	218.5	81.8
Q3 (Jul-Sep)	16.7	2.3	0.46	0.39	217.5	69.1
Q4 (Oct-Dec)	145.2	1.6	0.52	0.43	132.3	47.7

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	390520	7966	1413	1586	519619	180991
Beaver Lake	41430	845	150	168	55125	19201
Belt Line	1083928	22111	3921	4402	1442254	502359
Crosby	432179	8816	1563	1755	575049	200298
Davern	409613	8356	1482	1664	545023	189840
Downtown	249327	5086	902	1013	331750	115553
East Kittsondale	190398	4532	863	747	308190	118153
Fish Creek	15641	319	57	64	20811	7249
Goodrich/Western	161455	3293	584	656	214829	74828
Griffith/Pt. Douglas	183477	3743	664	745	244131	85035
Hidden Falls	98471	2009	356	400	131023	45637
Highwood	367151	7489	1328	1491	488524	170160
Lake Como	347882	7096	1258	1413	462885	161230
Lake Phalen	278198	5675	1006	1130	370164	128934
Mississippi River Blvd.	793246	16181	2869	3222	1055477	367639
MRWMO	54055	1103	196	220	71924	25052
Phalen Creek	226734	4292	781	844	361245	119124
Pigs Eye	784911	16011	2839	3188	1044388	363776
Riverview	379045	7732	1371	1539	504350	175673
St. Anthony Hill	1025498	20919	3710	4165	1364508	475279
St. Anthony Park	311400	7306	1203	1859	558390	219637
Trout Brook	89389	4067	993	670	285181	91275
Urban	121876	2486	441	495	162165	56485
West Kittsondale	399340	8146	1445	1622	531354	185079
West Seventh	163558	3336	592	664	217628	75803

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

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	165427	1782	303	400	65325	22084
Beaver Lake	17550	189	32	42	6930	2343
Belt Line	459158	4947	841	1109	181316	61296
Crosby	209276	2255	383	506	82640	27938
Davern	198349	2137	363	479	78325	26479
Downtown	114256	1231	209	276	45118	15253
East Kittsondale	171790	1622	215	239	73959	30143
Fish Creek	6625	71	12	16	2616	884
Goodrich/Western	73988	797	136	179	29217	9877
Griffith/Pt. Douglas	77722	837	142	188	30691	10376
Hidden Falls	47683	514	87	115	18829	6366
Highwood	155527	1676	285	376	61416	20762
Lake Como	168457	1815	309	407	66521	22488
Lake Phalen	117846	1270	216	285	46536	15732
Mississippi River Blvd.	384117	4139	704	928	151683	51278
MRWMO	26175	282	48	63	10336	3494
Phalen Creek	184841	1157	230	292	112173	32210
Pigs Eye	332493	3582	609	803	131297	44387
Riverview	160566	1730	294	388	63405	21435
St. Anthony Hill	469944	5063	861	1135	185575	62736
St. Anthony Park	194500	1164	139	422	64688	17522
Trout Brook	21816	668	124	63	45075	12920
Urban	51627	556	95	125	20387	6892
West Kittsondale	193374	2083	354	467	76361	25815
West Seventh	74952	808	137	181	29598	10006

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

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	47591	2339	402	459	202933	75972
Beaver Lake	5049	248	43	49	21529	8060
Belt Line	132093	6493	1116	1275	563262	210869
Crosby	62295	3062	526	601	265632	99445
Davern	59042	2902	499	570	251762	94253
Downtown	32748	1610	277	316	139640	52277
East Kittsondale	10927	1772	325	277	134710	55330
Fish Creek	1906	94	16	18	8128	3043
Goodrich/Western	21206	1042	179	205	90426	33853
Griffith/Pt. Douglas	22359	1099	189	216	95344	35694
Hidden Falls	14194	698	120	137	60524	22658
Highwood	44743	2199	378	432	190789	71426
Lake Como	50144	2465	424	484	213821	80048
Lake Phalen	33903	1666	287	327	144565	54121
Mississippi River Blvd.	114339	5620	966	1104	487556	182527
MRWMO	7791	383	66	75	33224	12438
Phalen Creek	7719	861	150	191	62654	25113
Pigs Eye	95653	4702	808	924	407878	152698
Riverview	46192	2271	390	446	196970	73740
St. Anthony Hill	134693	6621	1138	1300	574350	215020
St. Anthony Park	42770	1996	320	462	204440	71069
Trout Brook	20711	1084	269	169	77410	25208
Urban	14852	730	126	143	63333	23710
West Kittsondale	57561	2829	486	556	245448	91889
West Seventh	21482	1056	182	207	91604	34294

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

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	14830	2008	411	347	193205	61374
Beaver Lake	1573	213	44	37	20497	6511
Belt Line	41162	5575	1142	963	536261	170350
Crosby	10766	1458	299	252	140256	44554
Davern	10204	1382	283	239	132932	42228
Downtown	7934	1075	220	186	103366	32835
East Kittsondale	5317	980	182	188	81703	28833
Fish Creek	594	80	16	14	7738	2458
Goodrich/Western	5138	696	143	120	66936	21263
Griffith/Pt. Douglas	6968	944	193	163	90773	28835
Hidden Falls	2453	332	68	57	31957	10151
Highwood	13943	1888	387	326	181644	57701
Lake Como	8666	1174	240	203	112899	35864
Lake Phalen	10565	1431	293	247	137635	43721
Mississippi River Blvd.	19760	2676	548	462	257433	81777
MRWMO	1347	182	37	31	17542	5573
Phalen Creek	6253	2050	346	268	176292	56646
Pigs Eye	29807	4037	827	697	388326	123356
Riverview	14394	1949	399	337	187528	59571
St. Anthony Hill	32634	4420	905	763	425152	135055
St. Anthony Park	51793	3969	704	892	278316	51793
Trout Brook	35340	2008	482	377	125182	39235
Urban	4628	627	128	108	60297	19154
West Kittsondale	9948	1347	276	233	129598	41168
West Seventh	5205	705	144	122	67808	21540

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

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	70158	793	251	210	63963	23058
Beaver Lake	7443	84	27	22	6786	2446
Belt Line	194732	2201	698	582	177535	64001
Crosby	88333	999	316	264	80532	29032
Davern	83720	946	300	250	76327	27516
Downtown	47765	540	171	143	43546	15698
East Kittsondale	2364	158	141	43	17818	3846
Fish Creek	2810	32	10	8	2562	924
Goodrich/Western	30931	350	111	92	28199	10166
Griffith/Pt. Douglas	32962	373	118	99	30051	10834
Hidden Falls	20126	228	72	60	18349	6615
Highwood	65960	746	236	197	60135	21679
Lake Como	71103	804	255	213	64824	23369
Lake Phalen	91867	1038	329	275	83754	30193
Mississippi River Blvd.	162131	1833	581	485	147813	53286
MRWMO	11048	125	40	33	10072	3631
Phalen Creek	27921	225	55	93	10126	5155
Pigs Eye	141012	1594	505	422	128559	46346
Riverview	68097	770	244	204	62083	22381
St. Anthony Hill	196459	2221	704	587	179109	64569
St. Anthony Park	22338	177	40	84	10946	22338
Trout Brook	11522	307	118	61	37514	13912
Urban	21895	248	78	65	19962	7196
West Kittsondale	81621	923	292	244	74413	26826
West Seventh	31334	354	112	94	28566	10298

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: 4/1/2022

Permittee: St. Paul

Permit ID: MN0061263

Contact Name: Huong Hoang

Contact Phone: 651-266-6231

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Reporting Year	Data Entry Date	Entered by	Notes
2019	4/10/2020	St. Paul Sewers	
2020	3/1/2021	St. Paul Sewers	
2021	4/1/2022	St. Paul Sewers	
2022	4/27/2023	St. Paul Sewers	

BMP - Activities Completed Spreadsheet

Required: Place an "X" in a cell if the BMP applies to the TMDL shown in the column

For MPCA use only			Required		Optional	Required							Optional		Como Lake: Excess Nutrients TMDL	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
Entry ID	Permittee	MS4 ID	Reporting year	BMP/Activity	BMP Description	Location and ID Information Needed?	BMP ID	y-coord (lat, e.g. 44.9866)	x-coord (long, e.g. -93.2581)	Coordinate system (e.g. lat-long, UTM)	Who owns this BMP/activity?	If applicable, name other owner(s)	Year when BMP was implemented	Note(s)	Como Lake - Phosphorus	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
MN0061263-1	St. Paul	MN0061263																		
MN0061263-2	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1501994	44.9387	-93.1441	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Lincoln and Oxford		X				
MN0061263-3	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1501991	44.9371	-93.144	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Fairmount and Oxford (North)		X				
MN0061263-4	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1501991	44.9364	-93.144	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Fairmount and Oxford (South)		X				
MN0061263-5	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1501997	44.9377	-93.1415	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Chatsworth and Goodrich		X				
MN0061263-6	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1501995	44.936	-93.1415	Lat-long	Permittee (you)	NA	2006	Chatsworth-Goodrich Trench at Chatsworth and Osceola		X				
MN0061263-7	St. Paul	MN0061263	2019	Infiltrator	Bioretention with no underdrain (rain garden)	Complete columns H through K	1502184	44.9317	-93.014	Lat-long	Permittee (you)	NA	2006	Londin Lane-Burlington Road Reconstruction		X				
MN0061263-8	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502009	44.9641	-93.1578	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Hamline and Englewood		X				
MN0061263-9	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502012	44.9641	-93.1542	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Syndicate and Englewood		X				
MN0061263-10	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502020	44.9643	-93.1517	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Grigge and Englewood		X				
MN0061263-11	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502014	44.9661	-93.1542	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Syndicate and Hubbard		X				
MN0061263-12	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502015	44.9668	-93.1542	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Syndicate and Hewitt		X				
MN0061263-13	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502015	44.9672	-93.1543	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Syndicate and Taylor		X				
MN0061263-14	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502027	44.9285	-93.1517	Lat-long	Permittee (you)	NA	2007	Jefferson/Griggs Trench at Palace and Griggs		X				
MN0061263-15	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502030	44.9283	-93.1503	Lat-long	Permittee (you)	NA	2007	Jefferson/Griggs Trench at Palace and Edgecumbe		X				
MN0061263-16	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502025	44.9301	-93.1543	Lat-long	Permittee (you)	NA	2007	Jefferson/Griggs Trench at Syndicate and Juliet		X				
MN0061263-17	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502026	44.9311	-93.1543	Lat-long	Permittee (you)	NA	2007	Jefferson/Griggs Trench at Syndicate and Wellesley		X				
MN0061263-18	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1432139	44.9904	-93.035	Lat-long	Permittee (you)	NA	2007	White Bear/Burns Trench at Christie and Idaho		X				
MN0061263-19	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1432139	44.9467	-93.0303	Lat-long	Permittee (you)	NA	2007	White Bear/Burns Trench at Kennard and Louise				X		
MN0061263-20	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1432136	44.9445	-93.0277	Lat-long	Permittee (you)	NA	2007	White Bear/Burns Trench at Flandrau and Upper Afton				X		
MN0061263-21	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502120	44.9465	-93.0557	Lat-long	Permittee (you)	NA	2008	Earl/McLean Trench at Mounds and Earl		X				
MN0061263-22	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502117	44.9461	-93.0533	Lat-long	Permittee (you)	NA	2008	Middle Trench on Mounds (Earl/McLean)		X				
MN0061263-23	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502118	44.9482	-93.0501	Lat-long	Permittee (you)	NA	2008	Easternmost Trench on Mounds (Earl/McLean)		X				
MN0061263-24	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502116	44.9473	-93.0543	Lat-long	Permittee (you)	NA	2008	Earl/McLean Trench at Frank and Thom		X				
MN0061263-25	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502121	44.9493	-93.0414	Lat-long	Permittee (you)	NA	2008	Earl/McLean Trench at Elna and Burns		X				
MN0061263-26	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502115	44.9843	-93.0329	Lat-long	Permittee (you)	NA	2008	Ivy/Kennard Trench at Germain and Sherwood		X				
MN0061263-27	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502111	44.9825	-93.0329	Lat-long	Permittee (you)	NA	2008	Ivy/Kennard Trench at Germain and Cottage		X				
MN0061263-28	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502111	44.9816	-93.0329	Lat-long	Permittee (you)	NA	2008	Ivy/Kennard Trench at Germain and Ivy		X				
MN0061263-29	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502099	44.9215	-93.1287	Lat-long	Permittee (you)	NA	2008	Seventh/Bay Trench at Bay and Butternut		X				
MN0061263-30	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502192	44.9819	-93.1884	Lat-long	Permittee (you)	NA	2009	Knapp/Raymond Trench on Carter		X				
MN0061263-31	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502199	44.9816	-93.1888	Lat-long	Permittee (you)	NA	2009	Knapp/Raymond Trench in Alley		X				
MN0061263-32	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502195	44.9797	-93.1877	Lat-long	Permittee (you)	NA	2009	Knapp/Raymond Trench on Knapp		X				
MN0061263-33	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502536	44.9357	-93.19	Lat-long	Permittee (you)	NA	2009	Cretin/Goodrich Trench at Sargent and Finn		X				
MN0061263-34	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502546	44.978	-93.1359	Lat-long	Permittee (you)	NA	2009	Victoria/Aldnation Trench at Como Lake Dr and Moreland	X					
MN0061263-35	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502548	44.9626	-93.0741	Lat-long	Permittee (you)	NA	2009	Payne Trench at Payne and Minnehaha		X				
MN0061263-36	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1216132	44.9552	-93.1289	Lat-long	Permittee (you)	NA	2010	St Albans Trench Aurora to University		X				
MN0061263-37	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1216137	44.9554	-93.1187	Lat-long	Permittee (you)	NA	2010	Arundel Trench Aurora to University		X				
MN0061263-38	St. Paul	MN0061263	2019	Infiltrator	Infiltration basin	Complete columns H through K	1216123	44.9731	-93.1365	Lat-long	Permittee (you)	NA	2010	Front/Victoria Trench at Victoria and Orchard	X					
MN0061263-39	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502554	44.9698	-93.1415	Lat-long	Permittee (you)	NA	2010	Front/Victoria Trench at Chatsworth and Front	X					
MN0061263-40	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502554	44.9688	-93.1416	Lat-long	Permittee (you)	NA	2010	Front/Victoria Trench at Chatsworth and Burgess	X					
MN0061263-41	St. Paul	MN0061263	2019	Infiltrator	Underground infiltration	Complete columns H through K	1718554	44.9732	-93.1385	Lat-long	Permittee (you)	NA	2010	Infiltration Manole on Colne Street	X					
MN0061263-42	St. Paul	MN0061263	2019	Infiltrator	Underground infiltration	Complete columns H through K	1718552	44.9735	-93.1395	Lat-long	Permittee (you)	NA	2010	Infiltration Manole on Ryde Street	X					
MN0061263-43	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1227690	44.9678	-93.0599	Lat-long	Permittee (you)	NA	2010	Beacon/Bluff Infiltration system at Wells/Duchess		X				
MN0061263-44	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502575	44.961	-93.1543	Lat-long	Permittee (you)	NA	2011	Blair/Grimes Trench at Sandicate and Blair		X				
MN0061263-45	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502576	44.96	-93.1517	Lat-long	Permittee (you)	NA	2011	Blair/Griggs Trench at Griggs and Lafond		X				
MN0061263-46	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502577	44.96	-93.1492	Lat-long	Permittee (you)	NA	2011	Blair/Griggs Trench at Dunlap and Lafond		X				
MN0061263-47	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502578	44.9624	-93.1492	Lat-long	Permittee (you)	NA	2011	Blair/Griggs Trench at Dunlap and Van Buren		X				
MN0061263-48	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502657	44.9668	-93.1804	Lat-long	Permittee (you)	NA	2012	Hewitt/Tatum Trench at Tatum and Hewitt		X				
MN0061263-49	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502656	44.9652	-93.1804	Lat-long	Permittee (you)	NA	2012	Hewitt/Tatum Trench at Tatum and Pennock		X				
MN0061263-50	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502658	44.9008	-93.1792	Lat-long	Permittee (you)	NA	2012	Madison/Benson Trench at Sue and Wordsworth		X				
MN0061263-51	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502658	44.9008	-93.178	Lat-long	Permittee (you)	NA	2012	Madison/Benson Trench at Edgecumbe and Wordsworth		X				
MN0061263-52	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502660	44.9879	-93.0295	Lat-long	Permittee (you)	NA	2012	Hillcrest Knoll Park and Dale Street stormwater improvement at Hillcrest Knoll Park		X				
MN0061263-53	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1502661	44.9694	-93.1985	Lat-long	Permittee (you)	NA	2013	Hampden Park Trench		X				
MN0061263-54	St. Paul	MN0061263	2019	Filter	Iron enhanced filter	Complete columns H through K	1615136	44.9761	-93.0929	Lat-long	Permittee (you)	NA	2014	Trout Brook Nature Sanctuary (South of Maryland)		X				
MN0061263-55	St. Paul	MN0061263	2019	Filter	Iron enhanced filter	Complete columns H through K	1615151	44.9741	-93.0931	Lat-long	Permittee (you)	NA	2014	Trout Brook Nature Sanctuary (at Magnolia Ave)		X				
MN0061263-56	St. Paul	MN0061263	2019	Filter	Iron enhanced filter	Complete columns H through K	1615153	44.9711	-93.0922	Lat-long	Permittee (you)	NA	2014	Trout Brook Nature Sanctuary (at Jenks Ave)		X				
MN0061263-57	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1613993	44.9483	-93.1165	Lat-long	Permittee (you)	NA	2014	Western Ave Trench at Western and Marshall		X				
MN0061263-58	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1718556	44.9124	-93.1678	Lat-long	Permittee (you)	NA	2014	Montreal Ave Trench at Montreal and Snelling		X				
MN0061263-59	St. Paul	MN0061263	2019	Infiltrator	Bioretention with no underdrain (rain garden)	Complete columns H through K	1718548	44.9771	-93.145	Lat-long	Permittee (you)	NA	2015	Como-Chatsworth Filtration Basin (East) at Horton and Churchill	X					
MN0061263-60	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1718548	44.9772	-93.1446	Lat-long	Permittee (you)	NA	2015	Como-Chatsworth Filtration Basin (West) at Como and Churchill	X					
MN0061263-61	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1718536	44.9746727	-93.137728	Lat-long	Permittee (you)	NA	2016	Como-Chatsworth Phase II Trench	X					
MN0061263-62	St. Paul	MN0061263	2019	Manufactured_device	SAFL Baffle	No ID information needed	1705329	44.9579816	-93.0916384	Lat-long	Permittee (you)	NA	2016	University Ave Trench at 12th St		X				
MN0061263-63	St. Paul	MN0061263	2019	Manufactured_device	SAFL Baffle	No ID information needed	1718561	44.976571	-93.190874	Lat-long	Permittee (you)	NA	2016	Raymond Ave Phase III Trench at Priscilla		X				
MN0061263-64	St. Paul	MN0061263	2019	Manufactured_device	SAFL Baffle	No ID information needed	1718564	44.973888	-93.1465827	Lat-long	Permittee (you)	NA	2016	McMurray Field at Lexington and Jessamine	X					
MN0061263-65	St. Paul	MN0061263	2019	Manufactured_device	SAFL Baffle	No ID information needed	1806449	44.9795891	93.1931973	Lat-long	Permittee (you)	NA	2017	Como 2017 Trench at Hillside		X				
MN0061263-66	St. Paul	MN0061263	2019	Manufactured_device	SAFL Baffle	No ID information needed	1802711	44.9756049	-93.1356788	Lat-long	Permittee (you)	NA	2017	Como Park I/C at Rose	X					
MN0061263-67	St. Paul	MN0061263	2019	Manufactured_device	Gross pollutant trap	No ID information needed	1806439	44.9775139	-93.1354225	Lat-long	Permittee (you)	NA	2017	Wheelock Parkway-CDS structure at Victoria	X					
MN0061263-68	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1806440	44.9805571	-93.130087	Lat-long	Permittee (you)	NA	2017	Wheelock Parkway Trench at Alameda	X					
MN0061263-69	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1806453	44.9419077	-93.0202492	Lat-long	Permittee (you)	NA	2017	Battle Creek Trench at Upper Afton				X		
MN0061263-70	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1806457	44.9900725	-93.0479802	Lat-long	Permittee (you)	NA	2017	Idaho-Atlantic at Atlantic		X				
MN0061263-71	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1806458	44.9900539	-93.0473107	Lat-long	Permittee (you)	NA	2017	Idaho-Atlantic at Chamber		X				
MN0061263-72	St. Paul	MN0061263	2019	Manufactured_device	SAFL Baffle	No ID information needed	1910955	44.9537302	-93.04947254	Lat-long	Permittee (you)	NA	2018	Jackson St at 12 St		X				
MN0061263-73	St. Paul	MN0061263	2019	Manufactured_device	SAFL Baffle	No ID information needed	1910963	44.9306828	-93.1959043	Lat-long	Permittee (you)	NA	2018	Woodlawn-Jefferson at Woodlawn		X				
MN0061263-74	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1910966	44.9828368	-93.1962685	Lat-long	Permittee (you)	NA	2018	Como Ave at Luther		X				
MN0061263-75	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1910973	44.9829326	-93.1185004	Lat-long	Permittee (you)	NA	2018	Wheelock Parkway at Arundel		X				
MN0061263-76	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K	1910989	44.9604272	-93.0461671	Lat-long	Permittee (you)	NA	2018	Margaret St at Sixth		X				
MN0061263-77	St. Paul	MN0061263	2019	Infiltrator	Bioretention with no underdrain (rain garden)	Complete columns H through K	1620389	44.9188322	-93.1349173	Lat-long	Permittee (you)	NA	2018	Stewart Rain Garden at Otto		X				
MN0061263-78	St. Paul	MN0061263	2019	Swale_or_strip	Dry swale	Complete columns H through K	884052	44.9739	-93.0411	Lat-long	Permittee (you)	NA	2009	Vegetated Swale on Magnolia (Mechanic to Barclay)		X				
MN0061263-79	St. Paul	MN0061263	2019	Swale_or_strip	Dry swale	Complete columns H through K	884050	44.9703	-93.0525	Lat-long	Permittee (you)	NA	2009	Vegetated Swale on Case (Frank to Duluth)		X				
MN0061263-80	St. Paul	MN0061263	2019	Manufactured_device	Gross pollutant trap	No ID information needed	1613674	44.9879	-93.0295	Lat-long	Permittee (you)	NA	2012	Dale Street Stormwater Improvement- Vortech Structure		X				
MN0061263-81	St. Paul	MN0061263	2020	Manufactured_device	Hydrodynamic separator	No ID information needed	2009457	44.920	-93.109	Lat-long	Permittee (you)	NA	2020	Cherokee Heights Stormwater Management and Ravine Stabilization (2 CDS units)		x				
MN0061263-82	St. Paul	MN0061263	2020	Infiltrator	Infiltration trench	Complete columns H through K	2009461	44.953	-93.177	Lat-long	Permittee (you)	NA	2020	Fairview Street Project		x				
MN0061263-83	St. Paul	MN0061263	2020	Infiltrator	Infiltration trench	Complete columns H through K	2009460	44.989	-93.114	Lat-long	Permittee (you)	NA	2020	Wheelock Parkway Sneet Project		x				
MN0061263-84	St. Paul	MN0061263	2020	Infiltrator	Tree trench/tree box/planter	Complete columns H through K	Multiple	44.964	-93.206	Lat-long	Permittee (you)	NA	2020	Weyerhauser Development (multiple tree trenches)		x				
MN0061263-85	St. Paul	MN0061263	2020	Filter	Bioretention with underdrain (rain earden)	Complete columns H through K	2019677	44.941	-93.154	Lat-long	Permittee (you)	NA	2020	Summit Bridge		x				
MN0061263-86	St. Paul	MN0061263	2021	Infiltrator	Infiltration trench	Complete columns H through K	2106010	44.924	-93.150	Lat-long	Permittee (you)	NA	2021	Griggs-Scheffer Phase I (Watson)		X				
MN0061263-87	St. Paul	MN0061263	2021	Infiltrator	Infiltreation trench	Complete columns H through K	2106006	44.922	-93.150	Lat-long	Permittee (you)	NA	2021	Griggs-Scheffer Phase I (Bayard)		X				
MN0061263-88	St. Paul	MN0061263	2021	Infiltrator	Infiltration trench	Complete columns H through K	2106023	44.959	-93.082	Lat-long	Permittee (you)	NA	2021	Tedesco-Payne		X				
MN0061263-89	St. Paul	MN0061263	2021	Filter	Media filter	Complete columns H through K	Multiple	44.953	-93.165	Lat-long	Permittee (you)	NA	2020	Snelling-Midway (multiple tree trenches)		X				
MN0061263-90	St. Paul	MN0061263	2021	Stormwater_reuse	Underground vault	No ID information needed	NA	44.954	-93.165	Lat-long	Permittee (you)	NA	2020	Snelline-Midway Reuse System		X				
MN0061263-91	St. Paul	MN0061263	2021	Supplemental_public_education_outreach	Publications	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Adopt-a-Drain Education Program	X	X	X	X	X	X
MN0061263-92	St. Paul	MN0061263	2021	Supplemental_public_education_outreach	Publications	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Water Quality Education Program	X	X	X	X	X	X
MN0061263-93	St. Paul	MN0061263	2021	Supplemental_public_education_outreach	Publications	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Watershed Partners and Clean Water MN	X	X	X	X	X	X
MN0061263-94	St. Paul	MN0061263	2021	Supplemental_employee_education_training	Staff training	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Annual Utility Coordination Meeting Training	X	X	X	X	X	X
MN0061263-95	St. Paul	MN0061263	2021	Manufactured_device	Sump	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Catch Basin/ Manhole Operation and Maintenance	X	X		X		X
MN0061263-96	St. Paul	MN0061263	2021	Manufactured_device	Water quality inlet	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Outfall Operation and Maintenance	X	X		X		X
MN0061263-97	St. Paul	MN0061263	2021	Manufactured_device	Sump	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Stormwater Pond/Structural Pollution Control Device Operation and Maintenance	X	X		X		X
MN0061263-98	St. Paul	MN0061263	2021	Manufactured_device	Sump	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Handling and Disposal of Removed Materials	X	X		X		X
MN0061263-99	St. Paul	MN0061263	2021	Enhanced_road_salt_management	Salt storage	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Roadway Deicing Materials Management			X			
MN0061263-100	St. Paul	MN0061263	2021	Enhanced_road_salt_management	Winter maintenance education	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Snow Operations Plan			X			
MN0061263-101	St. Paul	MN0061263	2021	Enhanced_road_salt_management	Winter maintenance education	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Snow and Ice Control Annual Training			X			
MN0061263-102	St. Paul	MN0061263	2021	Supplemental_street_sweeping	Street sweeping	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Street Sweeping Program	X	X	X	X	X	X
MN0061263-103	St. Paul	MN0061263	2021	Supplemental_public_education_outreach	Publications	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Public Education Program	X	X	X	X	X	X
MN0061263-104	St. Paul	MN0061263	2021	BMP_improvement_enhancement_retrofitting	BMP improvement	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Stormwater Runoff Volume Reduction	X	X		X		X
MN0061263-105	St. Paul	MN0061263	2021	BMP_improvement_enhancement_retrofitting	BMP maintenance	No ID information needed	NA	NA	NA	NA	Permittee (you)	NA	2018	Pond Cleanings Completed in 2002 2003 2017		X				
MN0061263-106	St. Paul	MN0061263	2022	Infiltrator	Infiltration trench	Complete columns H through K	2204985	44.956	-93.182	Lat-long	Permittee (you)	NA	2022	Prior Ave Street Project		X				
MN0061263-107																				
MN0061263-108																				
MN0061263-109																				
MN0061263-110																				
MN0061263-111																				
MN0061263-112																				

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	30	30	30	30					
St. Paul	MN0061263	South Metro Mississippi River TMDL (Metro) - TSS	pounds reduced	247,689	247,705	262,072	262,937					
St. Paul	MN0061263	Battle Creek; Como Lake; Kasota Ponds North; Kasota Ponds West; Mallard Marsh - Chloride	pounds reduced	0	0	0	0					
St. Paul	MN0061263	Battle Creek -TSS	pounds reduced	4,497	4,497	4,497	4,497					
St. Paul	MN0061263	Fish Creek - E. coli	pounds reduced	0	0	0	0					
St. Paul	MN0061263	Wakefield Lake - Phosphorus	pounds reduced	0	0	0	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	11	11	11	11				
St. Paul	MN0061263	South Metro Mississippi River TMDL (Metro) - TSS	12	11	11	11				
St. Paul	MN0061263	Battle Creek; Como Lake; Kasota Ponds North; Kasota Ponds West;	9	9	9	9				
St. Paul	MN0061263	Battle Creek -TSS	11	11	11	11				
St. Paul	MN0061263	Fish Creek - E. coli	6	6	6	6				
St. Paul	MN0061263	Wakefield Lake - Phosphorus	11	11	11	11				

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	Minnesota St	Under construction	2023	Filtration		X				
St. Paul	MN0061263	Edgcumbe Rd	Under construction	2023	Filtration		X				
St. Paul	MN0061263	Annapolis Ave	Under construction	2023	2 Infiltration Trenches		X				
St. Paul	MN0061263	Kellogg/Third St Bridge	Under construction	2023	Filtration		X				
St. Paul	MN0061263	Wheelock Pkwy (Phase V)	Under construction	2023	Infiltration Trench		X				
St. Paul	MN0061263	Griggs-Scheffer Phase II	Under construction	2023	Infiltration Trenches		X				
St. Paul	MN0061263	Flandrau/Case	Planned	2024	Iron Enhanced Filtration		X				
St. Paul	MN0061263	Grand Ave	Planned	2024	Filtration		X				
St. Paul	MN0061263	Shepard Ponds	Planned	2024	CDS Structures/Infiltration Pond		X				
St. Paul	MN0061263	Bush Desoto	Planned	2024	CDS Structures/Infiltration Pond		X				
St. Paul	MN0061263	Ford Site	Planned	2024	CDS Structures/Filtration Basins/Filtration Cartridges		X				
St. Paul	MN0061263	Gold Line	Planned	2024	Infiltration/Filtration		X		X		
St. Paul	MN0061263	Exchange St	Planned	2024	MTD		X				
St. Paul	MN0061263	Hillcrest Site	Planned	2025	CDS Structures/Filtration Basins/Filtration Cartridges		X				
St. Paul	MN0061263										
St. Paul	MN0061263										
St. Paul	MN0061263										
St. Paul	MN0061263										
St. Paul	MN0061263										
St. Paul	MN0061263										
St. Paul	MN0061263										

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

City Street Construction: The City of Saint Paul proposes to install 10 BMPs throughout the year in 2023. These BMPs will be combined with various pretreatment structures to reduce the loading of TSS into the Mississippi River.
Bush Desoto Pond: The Sewer Utility will also be pursuing funding to implement the Bush-Desoto Pond retrofit design plans developed in 2021.
Flandrau Case Pond: The Sewer Utility will also be pursuing funding to implement the Flandrau-Case retrofit design plans developed in 2021.
Ford Site: The City of Saint Paul will be accepting a major stormwater management system at the Ford Redevelopment Site. Calculations on the effectiveness of TSS and Phosphorus removal throughout the site will be determined qualitatively and quantitatively and reported on in the future.
Hillcrest Site: The City of Saint Paul will also be working with RWMWD and SPPA on the design/installation of a major stormwater management system at the Hillcrest Golf Course Site. Calculations on the effectiveness of TSS and Phosphorus removal throughout the site will be determined qualitatively and quantitatively and reported on in the future.