City of Saint Paul's
2021 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, the various City Departments that are responsible for permit activities. Included are the Public Works Department, Saint Paul Parks and Recreation Department and the Department of Safety and Inspections. These stakeholders are jointly responsible for the completion of the required permit submittals. The Department of Public Works provides program coordination. The Permit also requires public input on the development of the priorities and programs, and adoption by Council Resolution of the Annual Report.

This Report provides documentation of the activities conducted in 2021.

MS4 Permit Coordinator

Pat Murphy
Department of Public Works
651-266-6254
patrick.g.murphy@ci.stpaul.mn.us

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.

2021 Activities

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

MCM 2: Public Participation & Involvement

BMP 2.1: Encourage & Solicit Input from the Public

Description

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

Assessment Process for Annual Reporting

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

2021 Activities

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

A notice of the availability of the documents for review, and public comment, was sent to all Saint Paul neighborhood organizations, to the governmental entities that have jurisdiction over activities relating to stormwater management, and to other interested parties. The City typically holds a public meeting to provide an opportunity for public input regarding the Annual Report and Stormwater Management Program. This process was modified because of COVID-19 and associated limitations on public gatherings. There was still opportunity for public comments via email and mail format through the Public Works Department.

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

MCM 3: Illicit Discharge Detection & Elimination

BMP 3.1 PROHIBITED DISCHARGE MANAGEMENT PROGRAM

Description

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

Assessment Process for Annual Reporting

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

2021 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 (both included within the Appendix) in 2013 defining allowable discharges to the storm sewer system.

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

In 2021, DSI sent out 73 leaf letters to properties throughout the City. This letter states that a complaint was received by the City of leaves being raked into the street. It explains these leaves negatively impact downstream water bodies and gives information about compost sites in Ramsey County. The first letter is a warning and subsequent complaints will result in a fine to the property owner.

Discharges addressed in 2021 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.
- Sewer Utility conducted an Illicit Discharge Training for Street Engineering and Construction in January 2021.
- 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.

2021 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 2021, a comprehensive map was updated that identifies BMP locations, and their contributing drainage areas, that Public Works operate. This map can be utilized to aid in spill response, maintenance, inspection, plan review, and locating.

Watershed and Storm Sewer Outfall Inventory

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

Discharge points to receiving waters

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

Stormwater Ponds

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

NPDES Permitted Facilities

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

Industrial Land Use

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

MCM 3: Illicit Discharge Detection & Elimination

BMP 3.3 DRY WEATHER FIELD SCREENING PROGRAM

Description

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

Assessment Process for Annual Reporting

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

2021 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.

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.

2021 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 2021 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.

2021 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 2021, City Departments reviewed 76 site plan applications, and issued final approval and permitting on 42 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 2021, DSI inspectors conducted 61 erosion control inspections at various new and redevelopment sites.

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

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

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

- The City of Saint Paul utilizes standard forms for both public and private construction sites.
- Public Works Right-of-Way Division uses a form when ROW inspectors inspect Utility Installation work. (See Appendix.)
- In 2018, DSI revised the Site Plan Erosion and Sediment Control Review Procedure. City staff will continue to develop performance measures and to improve data collection, tracking and analysis. The City will also pursue means of measuring and understanding water quality impacts.
- Erosion control plans and inspections are tracked in the City's AMANDA system.
- Handouts and worksheets are distributed to all relevant applicants.
- The Department of Public Works developed an Environmental Enforcement Response Procedure for application on Public Works Construction sites included within the Appendix of the SWMP.
- The Department of Public Works developed a SWPPP Inspections standard operating procedure for application on Public Works Construction sites included within the Appendix of the SWMP.

Staff Training

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

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

- City of Saint Paul inspectors are trained and certified through the University of Minnesota's Erosion and Stormwater Management Certification Program. This includes Department of Public Works Street Construction inspectors, Public Works ROW inspectors, Department of Safety and Inspections Building inspectors and Parks Environmental Services staff. The certification includes a recertification component within a 3-year period, which ensures training stays current with techniques and regulations.

MCM 4: Construction Site Erosion & Sediment Control

BMP 4.2 MUNICPAL CONTROL PROGRAM

Description

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

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

Assessment Process for Annual Reporting

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

2021 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 2021, 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.

- City staff obtained certification for Construction Stormwater Pollution Prevention Plans.

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.

2021 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 2021, 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.

2021 Activities

City ordinance requires the design to minimize the need of maintenance and to provide access for equipment and personnel. The facilities must have a plan of operation and maintenance that ensures effective removal of pollutants. The ordinance also allows the City right of entry and inspection. In 2015, the City began a comprehensive review of its stormwater policies. In 2016, the City entered into a contract to update the Local Surface Water Management Plan. As a part of this planning effort, various ordinances will be analyzed, and revisions proposed. This will assist in future planning to meet the identified Proposed Activities and Implementation Schedule. The City coordinates with the CRWD and RWMWD in the development of a BMP database and procedures to ensure that private BMPs are maintained. The City's Local Surface Water Management Plan was adopted by City Council in 2019.

MCM 5: Post-Construction Stormwater Management

BMP 5.3 MUNICIPAL MITIGATION PROGRAM

Description

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

Assessment Process for Annual Reporting

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

2021 Activities

- ***Public Works Projects***
  - Advanced planning and engineering on 2022 Street Reconstruction projects. (Edgcumbe Road, Griggs-Scheffer Phase II, Wabasha Street, Kellogg-Third Street Bridge, Wheelock Parkway Phase V, Prior Avenue, Minnesota Street).
  - Bush-Desoto Pond: In 2021 Public Works pursued grant opportunities for construction costs (estimated construction cost in 2022: $975,000).
  - Crosby Subwatershed: In 2021 Public Works completed a detailed Hydrologic and Hydraulic Model of the 1,500 acre Crosby Subwatershed. Included in the scope of work was the development of a P8 water quality model. ($71,000).
- ***Parks and Recreation Projects***
  - Parks and Recreation received 1,640 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 1.5 acres of native prairie at Lake Phalen Regional Park to keep water on the land to protect the water quality of Lake Phalen and Round Lake.
  - Parks and Recreation constructed stormwater management features at Dickerman, Conway, and Midway Peace Park.
- ***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, Port Authority Preliminary assessment and planning for comprehensive stormwater facilities to service entire 112 acre public/private redevelopment.
  - Parks and Recreation coordinated with Capitol Region Watershed District on an herbicide application of Fluridone to Como Lake to target curly-leaf pondweed, an invasive aquatic plant in March 2021. In September 2021, over 500 native aquatic plants, representing ten species, were transplanted into Como Lake to re-introduce native plants to the lake within four submerged plant “nurseries”.

- A draft Como Lakeshore Management Plan was developed in 2022 in partnership with Capitol Region Watershed District and RES (Resource Environmental Solutions). Plan adoption is anticipated in April 2022.
- 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.
- Swede Hollow: Parks and CRWD participated on a feasibility study for enhancing flow within the existing Swede Hollow Creek. The study will further investigate stormwater diversions and future concepts for daylighting Phalen Creek to Swede Hollow.

MCM 6: Pollution Prevention & Good Housekeeping

BMP 6.1: STORM SEWER SYSTEM OPERATION & MAINTENANCE

Description

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

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

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

Assessment Process for Annual Reporting

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

2021 Activities

Trout Brook Interceptor Evaluation

In 2020-2021, the Sewer Utility contracted with a consultant engineer to conduct a condition survey of approximately 7,000 lineal feet of the Trout Brook Interceptor at its discharge point to the Mississippi River. In addition to the condition assessment, land ownership and easement rights were investigated to confirm access for future rehabilitation work. The condition report will be used to populate a rehabilitation plan for the evaluated area and had an estimated cost of $210,000.

East Kittsondale Storm Tunnel System

The East and West Kittsondale Storm Tunnel Systems were originally constructed in the 1920s and 1930s. The 4.3 mile long tunnel systems are comprised of cast in place concrete through varying geologic formations (Glacial Till, Decorah Shale, Platteville Limestone, Glenwood Shale and St. Peter Sandstone). In 2019, a multi-phase rehabilitation effort was initiated to

address insufficient access and structural deficiencies in the concrete ceiling, walls and invert of the tunnel systems. Phase I of the Kittsondale Storm Tunnel System Rehabilitation was completed in the Spring of 2020 with a construction cost of $1.8 Million. Phase II of the Kittsondale Storm Tunnel System Rehabilitation was completed in the Spring of 2021 with a construction cost of $800,000.

2021-2022 Shaft and Tunnel Repair

2021-2022, the Sewer Utility embarked on a various locations shaft and tunnel rehabilitation project. Improvements were made to the West Kittsondale system and Phalen Creek system. Construction timeframe spans 2021-2022, estimated construction cost is $500,000.

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 2021, the Sewer Utility issued a request for proposals for the 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 ongoing and is approximately $40,000.

Storm Sewer Inspection, Cleaning & Rehabilitation

- Point Douglas-Lower Afton Televised Inspection: 43,500 L.F. of Storm Sewer ($54,000)
- Eagle Pkwy-Shepard RD Televised Inspection: 91,500 L.F. of Storm Sewer ($195,000)
- Sewer Maintenance Televised Inspection: 6,000 L.F. of Storm Sewer ($40,000)
- Sewer Maintenance Cleaning: 9,000 L.F. of Storm Sewer ($31,000)

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.

2021 Activities

- Catch Basin Maintenance ($583,500)
  - Inspected: 984
  - Cleaned: 2,724
  - Repaired: 388
- Manhole Maintenance ($93,500)
  - Inspected: 709
  - Cleaned: 505
  - Repaired: 111

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.

2021 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 2021 the following outfalls were inspected:

Mississippi River: 138
Upper Crosby Lake: 8
Crosby Lake: 4
Crosby Pond: 5

Storm Drain Outfalls Repair

In 2021-2022, the Sewer Utility embarked on an outfall Rehabilitation contract. In total eight outfalls are scheduled for repair. Construction timeframe spans 2021-2022, estimated construction cost is $1.5 Million.

Storm Outfall Assessment

In 2020-2022, the Sewer Utility contracted with a consultant engineer to conduct a condition survey of outfalls to the Mississippi River. Geologic condition adjacent to the outfall, structural defects, repair options, etc. are to be included in a comprehensive report. Once finalized the report will be used to populate a rehabilitation plan for the outfalls. Condition assessment estimated to 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.

2021 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.

Maryland-Luella Pond

In 2021, the Sewer Utility installed a pond overflow to a landlocked basin. Included in part of that work was an overflow structure, isolation gate, and associated piping. Estimated construction cost was $50,000.

Flandrau-Hoyt Pond

In 2021, the Sewer Utility modified the pond overflow, added riprap, and reshaped the spillway for Flandrau-Hoyt pond. Additionally, pond depth was increased to prevent overtopping onto adjacent properties. Estimated construction cost was $50,000.

Structural Pollution Control Devices
The city constructs water quality and volume control BMPs as required by the MPCA Construction Permit and Watershed District Rules. Since 2006, the City has constructed BMPs, including infiltration trenches and rain gardens. In 2015, an inventory of constructed BMPs was developed and entered into the City's asset management system. BMPs will be added each year once as-builts are received. The BMPs are programmed to be cleaned annually, beginning in 2015. In 2021, the annual cost for self performed maintenance of water quality and volume control BMPs was estimated to be $87,000.

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 2021 Operation Report is included within the Appendix.

Snelling-Midway Tree Trench System
In 2021, the Sewer Utility contracted out the cleaning and televising of all tree trenches, sumps, and CDS units located at the Snelling-Midway site ($24,000).

Snelling-Midway StormFilter Cartridge System
In 2021, the Sewer Utility contracted out the removal, disposal, and replacement of 42 StormFilter Cartridges ($15,000).

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.

2021 Activities

- Material removed from stormwater ponds, BMPs and catch basins by Sewer Utility: 850 tons ($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

2021 Activities

Street Sweeping

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

Residential street spring sweeping activities occurred March 24, 2021 thru April 20, 2021. The primary material swept in the spring is debris from winter months. Fall sweeping occurred October 19, 2021 thru November 16, 2021. 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. Approximately 725,000 square yards of paved streets were chip sealed in 2021. 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. Approximately 119,000 square yards of alleys were chip sealed in 2021.

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.

2021 Street Sweeping Quantities (Cubic Yards)

Season	Spring/Summer	Fall
Totals	4,100	8,090

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.

2021 Activities

Snow and Ice Control

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

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

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

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

Storage of De-icing Materials

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

873 N. Dale Street
310 South Victoria Street

Snow and Ice Control

Typically 3 or 4 snow emergencies are declared during per winter. It is anticipated that ice control materials used for 2022 will be similar to 2021 quantities.

2021/2022 Ice Control Material Quantities

Regular Salt (tons) 7,967

Treated Salt (tons) 4,652

Staff Training

Saint Paul Public Works is an advocate of networking and regularly attends events such as the American Public Works Association North American Snow Conference and the Fresh Water Society Road Salt Symposium. All new operators attended a Snow and Ice Control training session. The main purpose of this session was to train employees to get the most out of every application, maintaining the safest roads possible in the most economical way, while protecting the environment. The session addressed the following: abrasives, salt, pre-wetting. anti-icing, equipment calibration and material storage. The Minnesota Snow and Ice Control Handbook and Saint Paul Public Works Salt Management Plan are available to all employees and are used as a guide in our best practices. Plow trainings were completed on November 2nd and 3rd, 2021, along with SPOT training on September 20th thru September 29th, 2021.

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

2021 Activities

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

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

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

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

Employee Training

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

on November 2nd and 3rd, 2021, along with SPOT training on September 20th thru September 29th, 2021.

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

2021 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 November 2nd and 3rd, 2021, along with SPOT training on September 20th thru September 29th, 2021.
- 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, bioinfiltration, stormwater reuse, evapotranspiration, minimizing and disconnecting impervious surfaces.

Assessment Process for Annual Reporting

- Narrative of progress towards plan development and implementation.

2021 Activities

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

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

In 2021, Parks and Recreation, Public Works, Ramsey-Washington Metro Watershed District, Saint Paul Port Authority, and other partners, continued the development of planning documents for redevelopment of Hillcrest Golf Course that will aid in the installation of water quality improvement projects.

In 2021, the Public Works Department furthered a feasibility study of retrofitting Bush-Desoto Pond for potential stormwater quality benefits. This design will include the addition of a hydrodynamic separator to provide a level of pretreatment to the pond. The extents of the pond will also be extended to maximize its size and increasing the volume of infiltration. Grant opportunities will be pursued in 2022, to 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.

2021 Activities

Monitoring Program

The City of Saint Paul collaborated with CRWD on the 2021 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 2021, 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 2021 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 2021 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**.**

2021 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.

Appendix

Minnesota Pollution Control Agency

National Pollutant Discharge Elimination System

Permit No. MN 0061263

May 2022

SAINT PAUL
MINNESOTA

Budget	2021	2022	2023	2024	2025	2026
Storm Sewer Projects						
Stormwater Quality Improvements	$500,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Storm Sewer Tunnel Rehabilitation	$3,500,000	$3,500,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000
	$4,000,000	**$4,500,000**	**$5,000,000**	**$5,000,000**	**$5,000,000**	**$5,000,000**
Storm Sewer Maintenance						
Storm Sewer Cleaning, Inspection & Repair	$319,479	$325,869	$332,386	$339,034	$345,814	$352,731
Pond-Levee Inspection & Maintenance	$209,790	$213,986	$218,266	$222,631	$227,083	$231,625
Catch Basin Inspection, Cleaning & Repair	$583,460	$595,129	$607,032	$619,172	$631,556	$644,187
Manhole Cleaning, Inspection & Repair	$93,493	$95,363	$97,270	$99,216	$101,200	$103,224
BMP Cleaning	$110,396	$112,604	$114,856	$117,153	$119,496	$121,886
Snelling Midway Green Infrastructure District	$115,000	$115,000	$115,000	$115,000	$115,000	$115,000
	$1,316,618	**$1,342,950**	**$1,369,809**	**$1,397,206**	**$1,425,150**	**$1,453,653**
Stormwater Modeling & Monitoring						
Stormwater Modeling	$195,000	$198,900	$202,878	$206,936	$211,074	$215,296
Stormwater Monitoring	$154,000	$150,000	$153,000	$156,060	$159,181	$162,365
	$349,000	**$348,900**	**$355,878**	**$362,996**	**$370,255**	**$377,661**
Street Maintenance						
Street Sweeping	$5,056,870	$5,158,007	$5,261,168	$5,366,391	$5,473,719	$5,583,193
Neighborhood Cleanups	$42,824	$40,000	$40,800	$41,616	$42,448	$43,297
	$5,099,694	**$5,198,007**	**$5,301,968**	**$5,408,007**	**$5,516,167**	**$5,626,490**
Public Education Program						
Storm drain stenciling including door hangers	$49,815	$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	$7,008	$7,000	$7,140	$7,283	$7,428	$7,577
	$81,463	**$81,548**	**$83,179**	**$84,842**	**$86,539**	**$88,270**
Total Budget	**$10,846,775**	**$11,471,406**	**$12,110,834**	**$12,253,050**	**$12,398,111**	**$12,546,074**

2% used for annual inflation where projected amounts unknown

City of Saint Paul

Public Education and Outreach Work Plan

NPDES Permit MN0061263

Updated March 2022

2021 Stormwater Mural at Swede Hollow 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 include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program seeks to: engage 550 volunteers to carry out 1,000 volunteer hours on water quality improvement activities including: stenciling 1,000 storm drains, distributing 1,500 door hangers, coordinating 2-3 litter clean-up outings, 5-6 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 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 metrowide 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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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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   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 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.

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   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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      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

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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 include: increased awareness, increased understanding, acquired skills, and/or desired changes in behavior. To accomplish these goals, the Program seeks to: engage 550 volunteers to carry out 1,000 volunteer hours on water quality improvement activities including: stenciling 1,000 storm drains, distributing 1,500 door hangers, coordinating 2-3 litter clean-up outings, 5-6 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.

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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.

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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.

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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 metrowide 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.

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.

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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.

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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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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.

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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.

      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 metrowide 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

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.

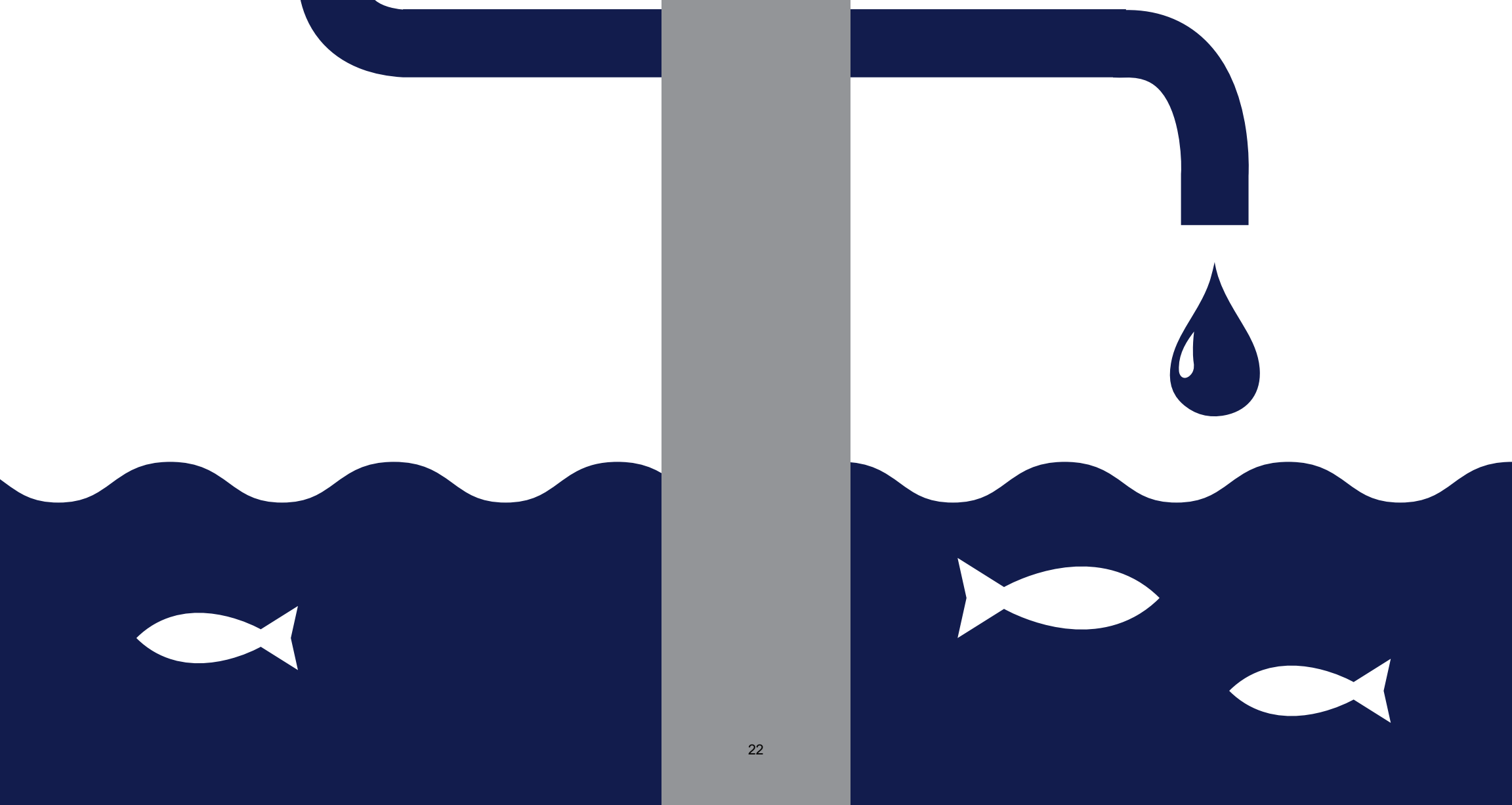
5. **Immediately clean up any oil leaks or spills from vehicles.**
Limpie inmediatamente cualquier fuga o derrame de aceite de los vehículos.
Tu tej roj xau los sis tej roj txheej tawm ntawm tsheb los kom huv si.

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

2021 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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Table of Contents

Metro Watershed Partners 2021 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 2021, members contributed $196,000 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 2021, our steering committee members were:

Abby Moore, Mississippi Watershed Management Organization
Angie Hong, Washington Conservation District
Emily Johnson, Anoka SWCD
Jen Dullum, Young Environmental Consulting Group, LLC
Kris Meyer, Freshwater
Kristin Seaman, City of Woodbury
Tracy Fredin, Center for Global Environmental Education, Hamline University

Clean Water MN

2021 Outreach Projects Report

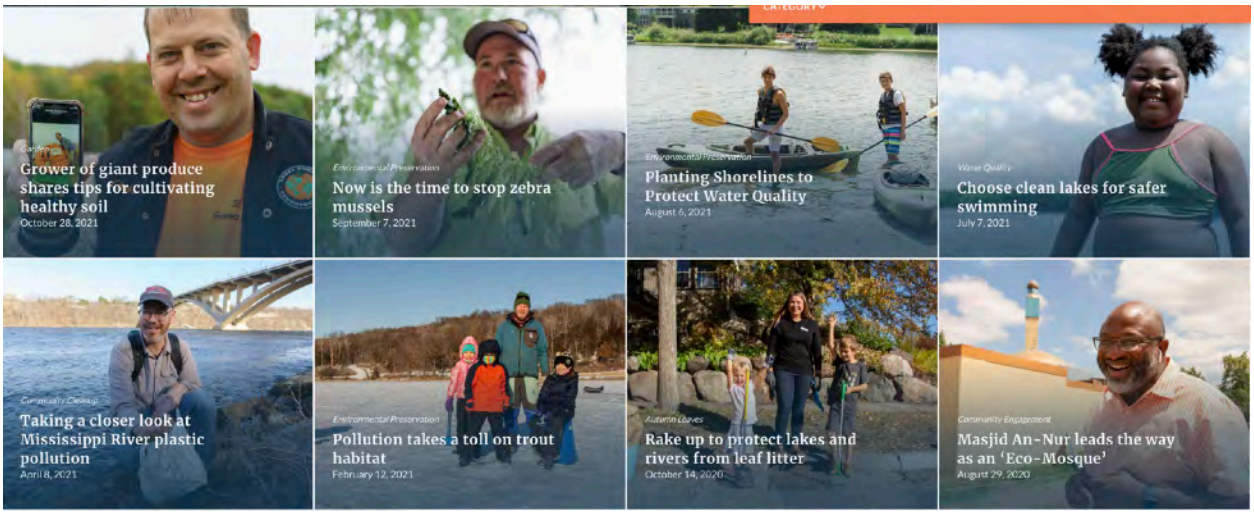
Clean Water MN is the collaborative outreach project of the Metro Watershed Partners. Working together, we provide resources, training, and support to partners as they work to inspire homeowners in the Twin Cities metro area to keep water clean and healthy.

The steering committee of the Metro Watershed Partners oversees the work of Clean Water MN. Jana Larson from Hamline University manages campaign fundraising and the creation and implementation of communication and outreach programs.

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. Additionally, these stories are posted to the Adopt-a-Drain Facebook, Instagram, and Twitter at the time of publication and are often seasonally pulled out of the archive and re-posted.

Along with each story we create a suite of professional photographs, accessible to partners online for use in their own stories and publications. Each story links to informational resources on our own site and other websites. In 2021 we published six new stories.

The cleanwatermn.org website also features informational pages, calls to action, information about the partnership, educational resources, and a list of our partners. We will continue to develop and add content to the site in 2022 and beyond.



Campaign Analytics

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

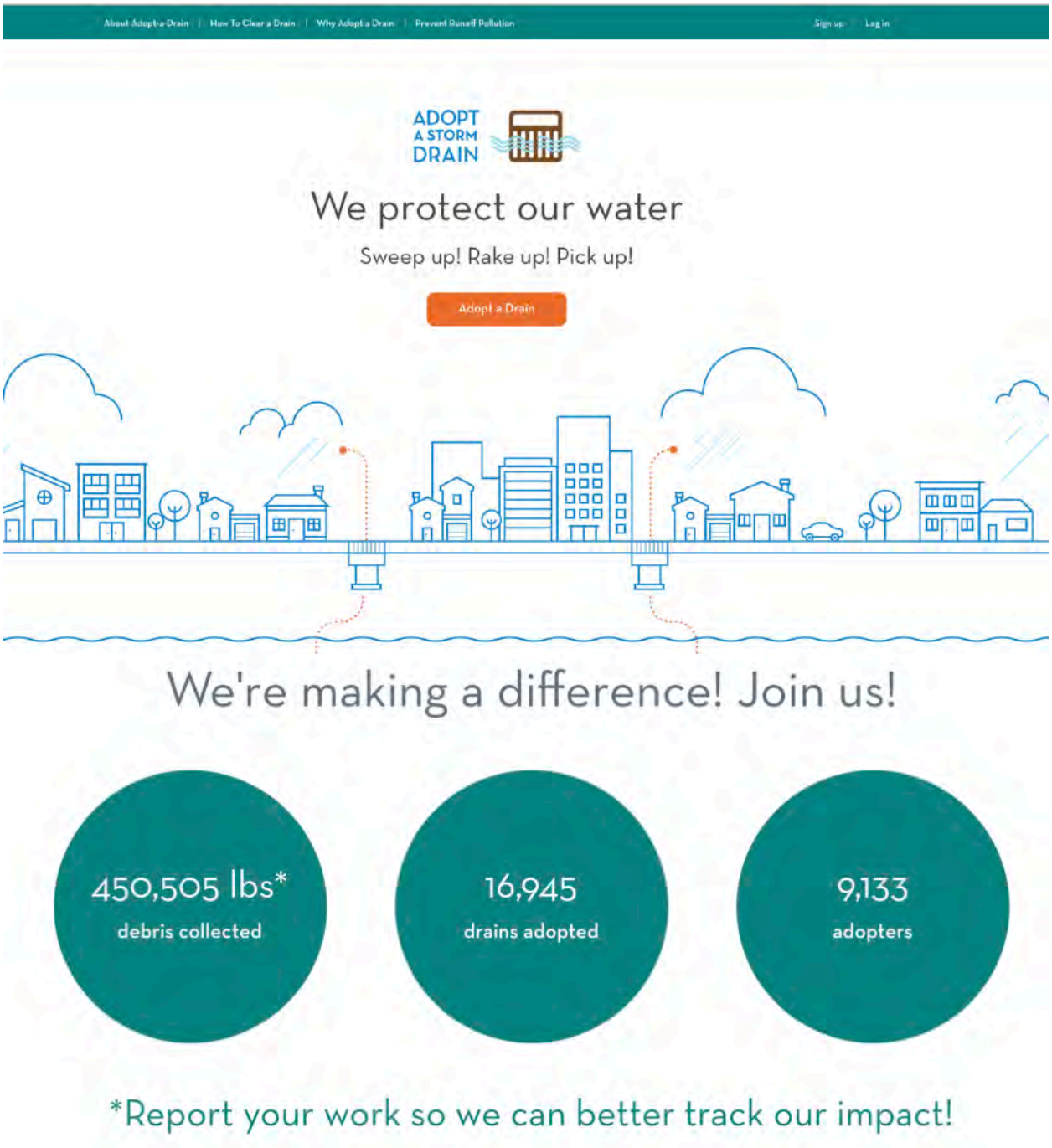
Month	Blog Title	Total page views	Unique page views	Average duration
January	[no new blog post]	657	545	01:15
February	Pollution Takes a Toll on Trout Habitat	1,657	1,105	00:50
March	[no new blog post]	929	752	01:14
April	Taking a Closer Look at Mississippi River Plastic Pollution	1,008	825	01:42
May	[no new blog post]	764	586	01:28
June	[no new blog post]	618	535	01:05
July	Choose Clean Lakes for Safer Swimming	1,601	1,099	00:41
August	Planting Shorelines to Protect Water Quality	762	665	01:23
September	Now is the Time to Stop Zebra Mussels	762	646	01:48
October	Grower of Giant Produce Shares Tips for Cultivating Healthy Soil	686	569	01:11
November	[no new blog post]	740	617	01:33
December	[no new blog post]	684	586	01:21
Total click-throughs to CWMN site		10,868	8,530	01:12

Adopt a Storm Drain News and Accomplishments in 2021:

Adopt-a-Drain continues to use and improve the website at adopt-a-drain.org.

New Minnesota cities—Red Wing, Cambridge, La Crescent, and New London—joined the program this year!

Drain adoption increased by approximately 20% in 2021; we now have more than 9,100 participants who have adopted more than 14,000 storm drains.



Special promotional events

To drive participant reporting and engagement and recruit new members to the Adopt-a-Drain program, we held three special online promotional events in 2021.

1. During the month of April, leading up to **Earth Day**, we created and shared a short animated video to highlight the collective impact of Adopt-a-Drain participants and encourage more people to sign up. The post reached 7,489 people and had 115 engagements. In April there were 264 new signups, 562 drains adopted, and 8,199 pounds of debris reported.

2. In July, we promoted a **refer-a-friend campaign** on social media and via our regular e-newsletter. All participants who referred a friend, and the new adopter they referred, received an Adopt-a-Drain water bottle. During the month, 30 new participants signed up after being referred by a current participant.

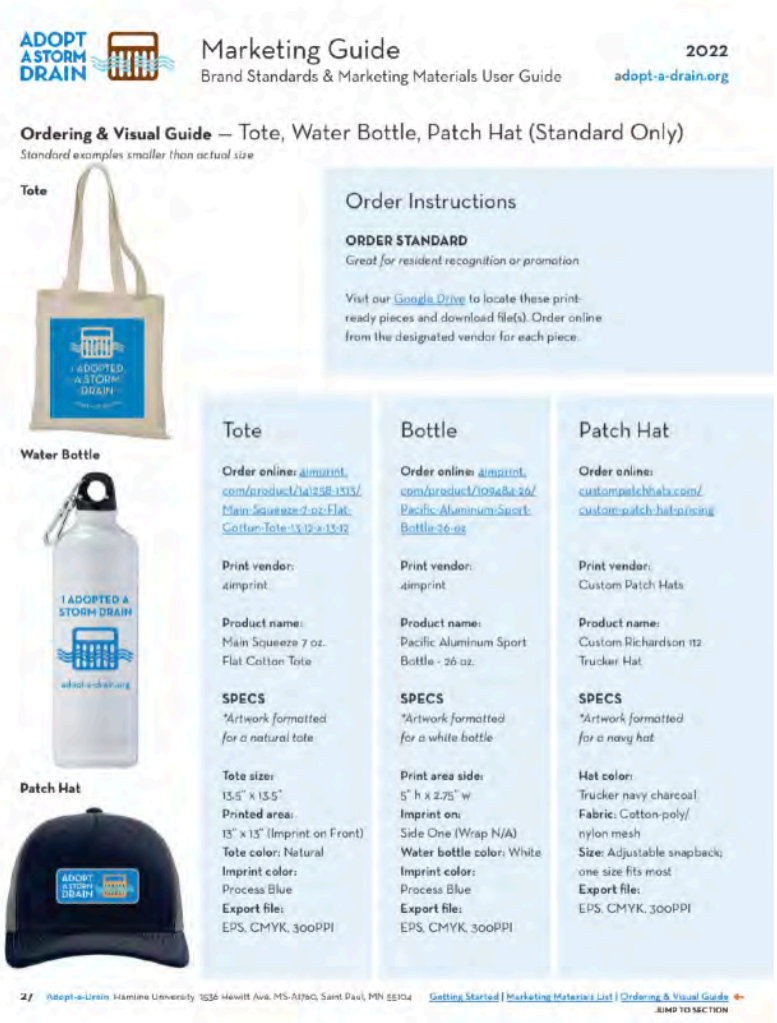
3. From October 11 – October 17 we held a **fall leaf cleanup event** that rewarded participants for reporting the leaves they picked up that week by sending them an Adopt-a-Drain tote bag. 328 participants reported collecting 5,731 pounds of debris during the week.

Communication with participants

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

All participants commit to reporting their work when they sign up for the program, and opt in to receive automated email reminders to report however often they'd like. In November, we sent a postcard to all participants who had not yet reported their work, and received an additional 400 responses. As a result of this outreach, the reporting rate increased from 34% to 38%.

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


ADOPT A STORM DRAIN

Marketing Guide
Brand Standards & Marketing Materials User Guide

2022
adopt-a-drain.org

Ordering & Visual Guide — Tote, Water Bottle, Patch Hat (Standard Only)
Standard examples smaller than actual size

Tote

Water Bottle

Patch Hat

Order Instructions

ORDER STANDARD
Great for resident recognition or promotion

Visit our Google Drive to locate these print-ready pieces and download file(s). Order online from the designated vendor for each piece.

Tote	Bottle	Patch Hat
Order online: aimprint.com/product/1a1258-1313/Main-Squeeze-7-oz-Flat-Cotton-Tote-13-12-x-13-12	**Order online:** aimprint.com/product/10948a-26/Pacific-Aluminum-Sport-Bottle-26-oz	**Order online:** custompatchhats.com/custom-patch-hat-pricing
Print vendor: aimprint	**Print vendor:** aimprint	**Print vendor:** Custom Patch Hats
Product name: Main Squeeze 7 oz. Flat Cotton Tote	**Product name:** Pacific Aluminum Sport Bottle - 26 oz.	**Product name:** Custom Richardson 112 Trucker Hat
SPECS **Artwork formatted for a natural tote*	**SPECS** **Artwork formatted for a white bottle*	**SPECS** **Artwork formatted for a navy hat*
Tote size: 13.5" x 13.5" **Printed area:** 13" x 13" (Imprint on Front) **Tote color:** Natural **Imprint color:** Process Blue **Export file:** EPS, CMYK, 300PPI	**Print area side:** 5" h x 2.75" w **Imprint on:** Side One (Wrap N/A) **Water bottle color:** White **Imprint color:** Process Blue **Export file:** EPS, CMYK, 300PPI	**Hat color:** Trucker navy charcoal **Fabric:** Cotton-poly/ nylon mesh **Size:** Adjustable snapback; one size fits most **Export file:** EPS, CMYK, 300PPI

27 Adopt-a-Drain Hamline University 1536 Hewitt Ave. MS-A1760, Saint Paul, MN 55104 Getting Started | Marketing Materials List | Ordering & Visual Guide JUMP TO SECTION

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

We're excited to share the new guide we've developed to help partners promote Adopt-a-Drain in their communities. Access the most up-to-date guide in Google Drive at: https://bit.ly/aadmarketing

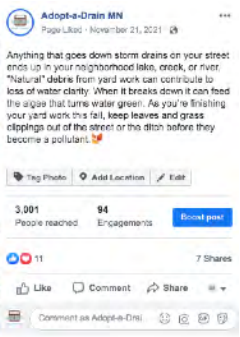
In this guide, you will find concise guidelines for using the Adopt-a-Drain brand, as well as a visual resource that guides you through accessing and utilizing the most up-to-date print and digital resources to promote the Adopt-a-Drain program in your community. We continue to refine and update print 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.

Social Media Promotion in 2021

The Adopt-a-Drain Social Media team focused on posting high-quality and consistent content across all of our social media platforms. With the assistance of a social media consultant we implemented strategic tactics, including paying to boost posts on Facebook. As a result, our posts reached a large audience and we saw a significant increase in the number of people following our accounts and engaging with our posts. See summary table below.

	Facebook	Instagram	Twitter
Total Number of Followers	1,224	1,898	363
Percentage Increase in Followers	56%	121%	55%
Organic Reach	122,413	134,044	135,042
Paid Reach	6,126	0	0
Dollars Spent on Boosting Posts	$186.99	0	0

The posts that had the most impressions in 2021 on Facebook were the following:



Social Media: Adopter Spotlight Series

In 2021 we introduced the Adopter Spotlight Series—a monthly series of feature stories about exemplary individuals, community groups, and businesses participating in the Adopt-a-Drain program. Like the blog posts, these stories are great content for partners to re-share via their own social media channels or to include in newsletters or blogs.

In 2021, we published 11 Spotlight stories that were read by 7,218 people and generated 512 likes, comments, and shares.

Debra Petersen and 11 others 1 Comment 1 Share

Adopt-a-Drain MN
September 27, 2021 ·

With the 2021-22 school year now in full swing, it's the perfect time to spotlight one of our amazing educator partners. We are so appreciative of all of the teachers who bring the Adopt-a-Drain program into their classrooms to help kids learn about how storm drains affect our environment.

Ana Morice is a seasoned teacher who loves spending time with little ones and connecting with nature. For the last 3 years, she's been teaching preschoolers in Minnesota about nature with a hands-on approach. This year she's excited to bring her experience to a new school, Amigo del Bosque Nature Preschool in Eden Prairie where she's a teacher and the school's director. "Kids this age love to be outside and are very excited to help keep our adopted drains clean," Ana said. "We learn about where rain water goes from books and other in-classroom resources, and then go outside to see for ourselves. It's so fun for them!"

Originally from Costa Rica, she's led youth adventure camps and provided outdoor experiences to her elementary school aged students for over 15 years. Here in Minnesota she has found joy in sharing her love for nature with her students. She holds a degree in Education Management from Universidad de Costa Rica.

"My advice to other teachers is to just get out there and do it," Ana said. "Many kids really benefit from more interaction with nature! Most love to get out of the classroom setting and explore the outside world. It can be a nice break in their day."

Thanks for all you do, Ana! If you're interested in learning more about our teacher resources, please send us an email at info@adopt-a-drain.org.

Education and Outreach at the Minnesota State Fair

We were back at the fair this year! We created new signage and put cleaning practices and sanitization stations at the booth to help protect visitors and staff. It was a quieter year than we saw pre-pandemic: total attendance was 1.3 million, compared to the record-breaking overall attendance of 2.1 million in 2019. The EcoExperience building, which required masks for all volunteers and visitors, had a lower overall attendance too, with an estimate of 86,000 visitors over the 12 days.

Although the Fair was significantly less busy, the Adopt-a-Drain exhibit saw lots of return visitors who were excited to take a photo—a State Fair tradition for many!—and adopt a storm drain. The slower pace of the fair this year allowed staff and volunteers to spend more time talking with visitors about water quality issues.

The exhibit featured: an Adopt-a-Drain photo booth, air hockey, foosball, an Adopt-a-Drain signup station, and two portable tabletop exhibits focused on the science of eutrophication and taking action to reduce runoff.

Over the twelve days of the fair, 344 Minnesotans in 75 different cities signed up to adopt storm drains. Those who signed up at the EcoExperience building received an informational packet and a small yard sign that reads “We protect Minnesota lakes, rivers, and wetlands.”

We took and printed 1,936 photos of visitors in the Adopt-a-Drain photo booth. Over 60% shared a digital copy of the photo via email or text. Fairgoers were encouraged to post the photo to social media with the hashtag #AADStateFair2021 to be entered in a drawing for a $200 gift card. This year’s winners are pictured in the photo above!

Watershed Partners on Mobilize

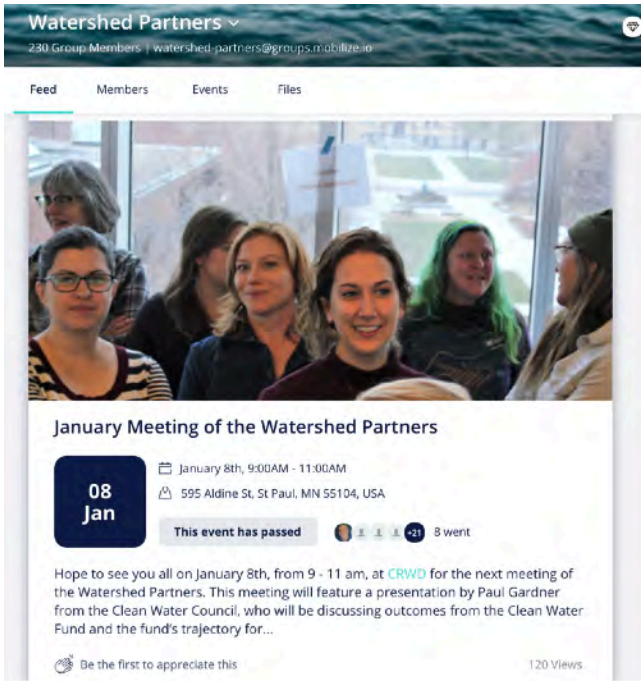
The Metro Watershed Partners listserv is a forum for watershed educators and other industry professionals throughout the state to share information and resources.

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 jlarson25@hamline.edu



In 2021, the Metro Watershed Partners listserv provided 260 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.

2021 Accomplishments of the Metro Watershed Partners

Networking and Sharing Resources

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

In 2021, the Watershed Partners held 10 meetings on Zoom; an average of 40 partners attended each meeting. We're pleased to see that partners continue to value our meetings, and demonstrate energy for collaboration and information sharing; we plan to continue offering workshops and events in 2022 and beyond.

2021 PARTNER MEETINGS — TOPICS AND PRESENTERS

January	Drinking Water Contaminants of Emerging Concern Initiative	Helen Goeden, Minnesota Department of Health
February	Social Media Training	Rebecca Weldon, Full Digital Marketing
March	Legislative Update	Trevor Russell, Friends of the Mississippi River
April	Community perspectives about the City of Minneapolis' Adopt-a-Drain program, results from a 3-year study	Amit Pradhananga, Center for Changing Landscapes, University of Minnesota
June	Green Career Pathways in Local Water-Serving Organizations	Haddy Bayo, National Park Service; Akia Vang, Mississippi River Green Team; and Ben Rolland, Minnesota GreenCorps
August	Field Trip at Wakáŋ Tipi/Bruce Vento Nature Sanctuary	Sam Wegner, Keeli Siyaka, and Mishaila Bowman, Lower Phalen Creek Project
September	Effective Communication Strategies when Engaging with People who are Deaf, DeafBlind, Late-Deafened, and Hard of Hearing	Mary Bauer, Deaf and Hard of Hearing Services (DHHS)
October	Community Engagement in Hennepin County's Climate Action Plan	Alisa Reckinger and Angie Timmons, Hennepin County
November	Civic Organizing and Lake Stewardship	Jeff Forester, Minnesota Lakes and Rivers
December	Interactive Adopt-a-Drain planning, visioning, and discussion session	Vanessa Perry and Emma Ramsbottom, Lune, LLC

2021 Financial Report

In response to our fundraising requests, partners contributed $196,000 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 2021

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

Watershed Partners 2021 Accounting

	IN-KIND	CASH	TOTAL
REVENUE			
CWMN funds rollover		$17,857.37	
Revenue Generation	$67,800.00	$196,000.00	$263,800.00
Total Funds	$67,800.00	$213,857.37	$281,657.37
EXPENSE			
1. Watershed Partners Coordination			
Principle Investigator	$2,500.00	$6,000.00	$8,500.00
ProgramCoordinator	$12,000.00	$13,000.00	$25,000.00
Steering Committee	$32,400.00		$32,400.00
Meeting room rental fees	$4,500.00		$4,500.00
Technology maintenance	$1,400.00	$1,000.00	$2,400.00
Meeting expenses		$1,000.00	$1,000.00
Postage and printing		$200.00	$200.00
Subtotal	$52,800.00	$21,200.00	$74,000.00
2. Watershed Exhibit Implementation			
New exhibit creation			$0.00
Exhibit coordination	$4,500.00	$5,000.00	$9,500.00
State fair expenses		$14,247.00	$14,247.00
Storage and check-out	$5,000.00		$5,000.00
Subtotal	$9,500.00	$19,247.00	$28,747.00
3. Clean Water MN			
Campaign coordination	$5,500.00	$24,000.00	$29,500.00
Printing and postage		$37.43	$37.43
Blog writing and photography		$5,544.00	$5,544.00
Emails and communications		$371.00	$371.00
Web hosting and maintenance		$2,000.00	$2,000.00
Graphic design and website updates		$1,865.88	$1,865.88
Focus group research		$1,200.00	$1,200.00
Meeting expenses			$0.00
Cleanup kit resources			$0.00
Subtotal	$5,500.00	$35,018.31	$40,518.31
4. Adopt-a-Drain			
Site license		$30,000.00	$30,000.00
Program coordination		$25,000.00	$25,000.00
Program implementation		$14,931.00	$14,931.00
Social media and communications		$23,990.00	$23,990.00
Promo merch		$2,399.00	$2,399.00
End of year mailing		$2,410.00	$2,410.00
Subtotal	$0.00	$98,730.00	$98,730.00
TOTAL	$67,800.00	$174,195.31	$241,995.31
ADMINISTRATION FEE		$13,189.68	$13,189.68
TOTAL (INCL. ADMIN)	$67,800.00	$187,384.99	$255,184.99
	We have a rollover of	$26,472.38	

Watershed Partners 2022 Projected Budget

	IN-KIND	CASH	TOTAL
REVENUE			
CWMN funds rollover		$26,472.00	$26,472.00
Watershed Partners coordination	$53,800.00	$23,700.00	$77,500.00
Watershed Partners exhibit	$22,000.00	$30,000.00	$52,000.00
Media campaign	$5,500.00	$39,720.00	$45,220.00
Adopt-a-Drain		$118,500.00	$118,500.00
Total revenue	$81,300.00	$238,392.00	$319,692.00
EXPENSE			
1. Watershed Partners Coordination			
Principle Investigator	$2,500.00	$8,000.00	$10,500.00
ProgramCoordinator	$12,000.00	$15,000.00	$27,000.00
Steering Committee	$32,400.00		$32,400.00
Meeting room rental fees	$4,500.00	$500.00	$5,000.00
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	$25,200.00	$78,000.00
2. Watershed Exhibit Implementation			
New exhibit creation		$5,000.00	$5,000.00
Exhibit coordination	$4,500.00	$5,000.00	$9,500.00
State fair expenses		$15,000.00	$15,000.00
Storage and check-out	$5,000.00		$5,000.00
Subtotal	$9,500.00	$25,000.00	$34,500.00
3. Clean Water MN			
Campaign coordination	$5,500.00	$24,000.00	$29,500.00
Printing and postage		$400.00	$400.00
Blog writing and photography		$6,000.00	$6,000.00
Emails and communications		$0.00	$0.00
Web hosting and maintenance		$1,320.00	$1,320.00
Focus group research		$1,200.00	$1,200.00
Meeting expenses		$1,000.00	$1,000.00
Cleanup kit resources		$3,000.00	$3,000.00
Community event, 10,000th adopter		$10,000.00	$10,000.00
Media purchase		$10,000.00	$10,000.00
Subtotal	$5,500.00	$56,920.00	$62,420.00
4. Adopt-a-Drain			
Site license		$30,000.00	$30,000.00
Program coordination		$35,000.00	$35,000.00
Program implementation		$15,000.00	$15,000.00
Social media and communications		$20,000.00	$20,000.00
Promo merch		$5,000.00	$5,000.00
End of year mailing		$3,500.00	$3,500.00
Reporting mechanism update		$5,000.00	$5,000.00
Subtotal	$0.00	$113,500.00	$113,500.00
TOTAL	$67,800.00	$220,620.00	$288,420.00
ADMINISTRATION FEE		$17,649.60	$17,649.60
TOTAL (INCL. ADMIN)	$67,800.00	$238,269.60	$306,069.60

Adopt-a-Drain in St. Paul, 2021

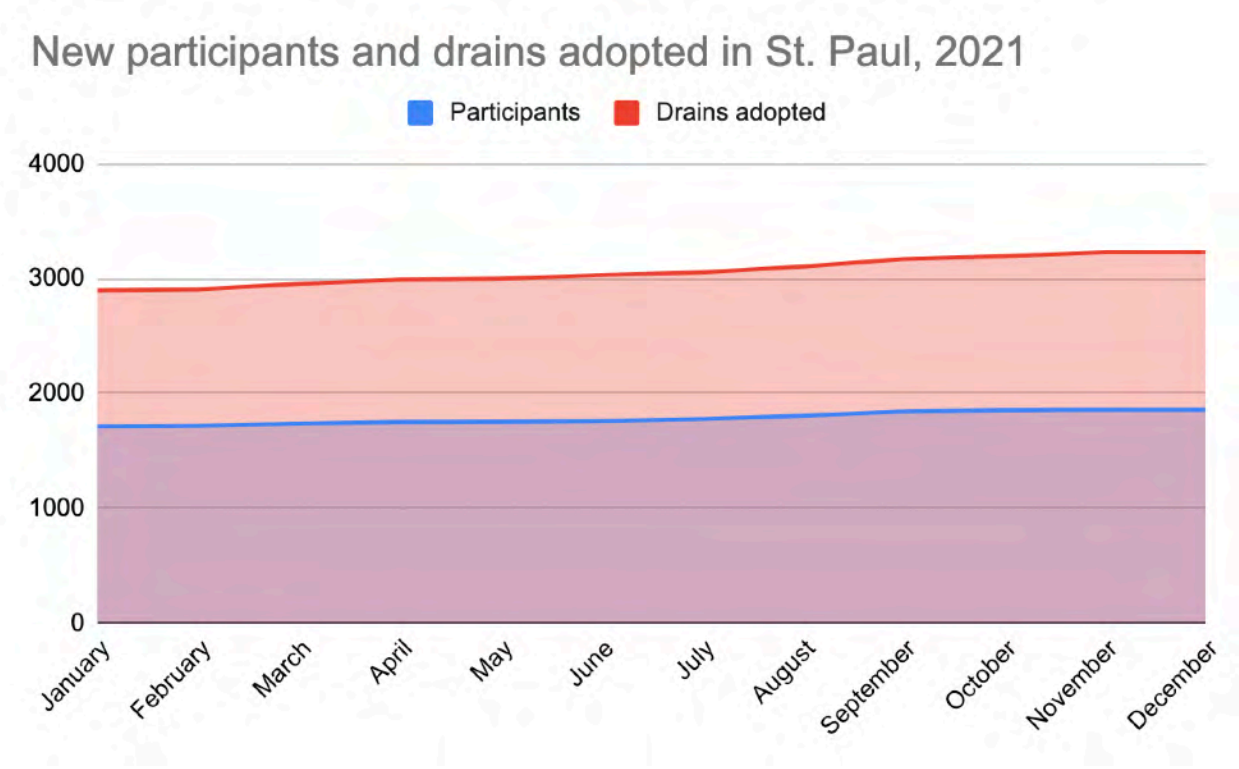
Annual Report

151
new participants in 2021

342
drains adopted in 2021

1,859
total participants

3,230
total adoptions



2021 Reporting Data

527 St. Paul participants reported cleanings, which represents 28.4% of all participants in the city.

St. Paul participants collected 28,161 lbs of debris from their adopted storm drains in 2021.

Debris Type	Amount (lbs)
Brown leaves	18,417.3
Grass and green leaves	1,481.8
Sediment and dirt	6,949.1
Trash	1,303.0
Salt	9.9

In 2020, the total amount reported was 45,148 lbs.

Month	New participants	Drains adopted	Debris collected (lbs)	Time spent (hours)
January*	7	9	7,658.3	301.2
February	5	9	383.0	24.6
March	15	48	2,636.3	47.6
April	16	37	604.2	25.3
May	2	10	2,049.2	28.0
June	7	30	641.2	18.7
July	16	25	907.5	26.3
August	30	50	963.8	25.5
September	36	65	610.9	18.5
October	12	26	3,879.5	77.8
November	5	33	7,827.2	142.3
December				
TOTALS	**151**	**342**	**28,161.1**	**735.8**

*January total includes year-end reports from 2020.

Geographic Breakdown: Watershed and Subwatershed

Drains adopted: Cumulative total
Debris collected: 2021 data only.

Watershed	Drains adopted	Debris collected (lbs)	Time spent (hours)
Capitol Region	2,690	25,516.43	613.2
Ramsey-Washington Metro	417	1,661.34	69.0
Lower Mississippi River	104	270.3	15.7
Rice Creek	19	713	37.7

Subwatershed	Drains adopted	Debris collected (lbs)	Time spent (hours)
Mississippi River (CRWD)	434	4,625.8	85.8
St. Anthony Park towards the Mississippi River	342	3,350.4	100.4
Trout Brook	326	1,941.5	57.1
Como Lake	324	5756.28	123.6
East Kittsondale routes to Mississippi River	307	3,027.6	54.8
St. Anthony Hill towards the Mississippi River	298	1,531.6	61.2
West Kittsondale routes to Mississippi River	176	1,806.0	60.6
Davern St and routes to Mississippi River	151	1,476.0	49.5
St. Paul Beltline pipe to the Mississippi River	146	578.4	22.9
Lake Phalen	140	672.8	34.4
City of St. Paul-Mississippi River	104	270.3	15.7
Phalen Creek	90	489.5	5.6
Crosby Lake	80	209.4	4.5
Goodrich-Western routes to Mississippi River	63	469.6	13.7
Battle Creek	59	220.1	7.1
Downtown Subwatershed routes to Mississippi River	55	1,131.2	20.6
West Seventh towards the MIssissippi River	43	298.8	10.6
Mississippi River Bottomlands	29	25.8	0.5
Urban Subwatershed towards the Mississippi River	25	114.0	3.0
Beaver Lake	23	80.2	2.2
Blufflands	14	85.9	1.9
Fish Creek	1		

St. Paul Water Quality Education Project - 2021 Final Report
Submitted by Friends of the Mississippi River
12/17/2021

This report summarizes Friends of the Mississippi River's activities in fulfillment of our 2021 Water Quality Education Program contract with the City of St. Paul. The Program Objectives were:

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

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

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

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

STORM DRAIN STENCILING

Description:

Storm drain stenciling is a service-learning program in which community volunteers receive a 15-30 minute lesson about urban runoff pollution and ways to prevent it, then spray paint the message "Keep 'em Clean - Drains to River" next to storm drains on St. Paul city streets. Volunteers also distribute educational door hangers and pick up trash along their way. In 2020, due to the pandemic, FMR transitioned to a majority of no-contact stenciling kits, prepared at our office for groups to pick up and drop off on their own timeline. These kits provide all of the supplies to stencil as well as educational materials. However, these groups do not receive the 15-30 minute presentation. In 2021, we increased the number of in-person staffed stenciling outings but maintained the no-contact kit system as well. Using the stenciling kits has allowed us

to be more flexible, and reach individuals and small groups who want to stencil. To enhance the program and ensure that everyone who stencils gets the same educational materials, in 2021 we recorded a stenciling introduction video. In 2022, anyone who checks out a stenciling kit will also receive the same educational introduction as those who participate in staffed outings.

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

Outreach:

In 2021, storm drain stenciling and cleanups were promoted using the following means:

- Emailing previous years' stenciling participants
- Contacting past participants and potential new contacts (St. Paul schools, afterschool programs, and service-learning programs)
- Posting on FMR's website, social media (Facebook, Instagram, and Twitter pages), as well as announcements in FMR's email newsletter, *Mississippi Messages*
- Postings on the volunteer website VolunteerMatch

Accomplishments:

Stenciling:

Storm drain stenciling continued this year with both in-person outings and no-contact kit options. FMR Youth Coordinator Ashley O'Neill Prado facilitated the program with assistance from Stewardship & Education Program Director Laura Mann Hill, former Youth Coordinator Kate Clayton, and seasonal interns Marcellus Dees and Megan Daniluk. In total, 31 groups including school and college groups, community groups, corporate groups, and residents of the City of St. Paul participated in storm drain stenciling outings. A list of the 31 groups with event dates and goals achieved is attached at the end of this report.

399 volunteers stenciled 1,368 storm drains and distributed 2,220 educational door hangers within the city, for a total of 724.7 hours of volunteer work. Stenciling programs covered much of St. Paul, though were concentrated in the western portion of the city. We successfully connected with new community partners in the eastern portion of St. Paul as the pandemic eliminated the opportunity to work with many of our regular contacts. A map of specific locations is included at the end of this report.

FMR staff also worked with the City of Saint Paul to redesign the stenciling door hanger. Our goal was to update the information and language on the door hanger, create a physical design that is less likely to blow away after being hung on door knobs, and have a design file available for

faster edits in the future. Our new door hangers have been printed and will be distributed as soon as we run out of our old copies. A copy of the door hanger design is included at the end of this report.

Cleanups:

In 2021, FMR facilitated twelve group cleanups with a total of 244 people, contributing 444 total volunteer hours. The event dates and accomplishments are attached at the end of this report. For these outings, FMR provided general education, trash bags and gloves, as well as coordinated with the City of St. Paul Parks and Recreation Department.

In total, FMR engaged 643 volunteers for 1168.7 hours in cleanup and stenciling outings in 2021. We exceeded our goals of engaging 550 volunteers for 1,000 volunteer hours and stenciling 1,000 storm drains and distributing 1,500 flyers.

Surveys were shared with program participants, and volunteers also responded with feedback via email. In general, the no-contact stenciling kit program was well received by people who were looking for flexibility and social distancing. All survey respondents said that storm drain stenciling with FMR was an effective teaching tool and that their experience was “good” or “excellent.” All respondents were either interested in engaging in more water quality programming with FMR next spring or were considering it.

<u>Equipment:</u>

FMR staff coordinated the purchase, storage, and maintenance of storm drain stenciling supplies for the 2021 season. Below is an inventory of supplies remaining at the end of the 2021 season. See previous reports for a comparison with prior years.

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

Stencils:
Drains to River: 31
Drains to Creek: 23
Drains to Lake: 29
Hmong language: 7
Somali language: 12

EXTRA EDUCATION

Description:

FMR provides additional water quality education programming, separate from the lessons included in storm drain stenciling outings, to schools and community groups. In previous years, these programs existed in multiple formats including classroom presentations, interpretive field trips, and participation in special events (i.e. the Children's Water Festival). In 2021, we carried out a mixture of in-person and virtual classroom programs, as well as hands-on restoration field trips at various sites in St. Paul. Unfortunately, as we are still rebuilding relationships with schools and teachers after limited communication during the height of the pandemic, our number of programs was limited this year.

Each educational program includes information about urban runoff pollution and methods for its prevention, and additional topics may include the water cycle, watershed, erosion, wetlands, river ecosystems, landscape change, and habitat restoration. In 2021, we also piloted our new

Cultural Landscapes lesson, which centers the Indigenous history of our land and waters and encourages participants to explore their own connections to place.

These presentations are designed to increase knowledge of urban non-point source pollution and related environmental issues and may include demonstrations, PowerPoint presentations, games/activities, and discussion topics. FMR Youth Coordinator Ashley O'Neill Prado primarily provided extra education experiences, with assistance from Stewardship & Education Program Director Laura Mann Hill and intern Megan Daniluk.

Outreach:

In 2021, extra educational programs were promoted using the following means:

- Emailing previous years' stenciling participants
- Contacting past participants and potential new contacts (St. Paul schools, afterschool programs and service-learning programs)
- Features in the FMR monthly newsletter and on social media
- Creation and distribution of a youth program offerings flyer, which details different ways school and youth groups can get involved with FMR

Accomplishments:

In 2021, FMR coordinated 11 classroom presentations and held 7 field trips in Saint Paul. In total, we provided extra education for 484 participants in the City of St. Paul. Classroom lessons averaged 1 hour. A list of the schools and participants is attached at the end of this report.

In 2020, FMR created online resources for area schools and partner organizations to use. These resources reflect our regular educational offerings and cover the same information. In 2021, we researched, developed, piloted, and created online resources for our new Cultural Landscapes lesson.

Data collected from Google analytics show that we had an additional 670 engagements with our online curriculum. This includes web page views and worksheet downloads, though we cannot tell if those views were students or teachers who then used the materials while working with their students. To date, our online video lessons have been viewed 482 times.

STORM DRAIN MURAL

In 2021, FMR contracted with artist Thomasina Topbear of City Mischief Murals. We connected with Thomasina through Indigenous Roots, with whom we partnered throughout the year. The mural was one of the collaborative projects we worked on with Indigenous Roots.

To facilitate community input on the mural design, we set up a workshop at the Indigenous Roots Cultural Arts Center. Community members were able to stop by and draw or write about why protecting water was important to them. Thomasina then incorporated the art and writings into the final mural design. Artist Tom Jay assisted with installing the mural.

The mural was painted in October at the Swede Hollow Bruce Vento Regional Trail lot on the Eastside of St. Paul.

- 7/14/2021: Indigenous Roots Workshop (22 participants)
- 10/3/2021: Painting day

COMMUNITY EDUCATION WORKSHOPS AND EVENTS

Description:

The workshops and stenciling outings included continued development of our River Friendly Homes and Gardens workshops (updating information on the impact of stormwater pollutants on water quality, best practices for rain garden design and installation, benefits and techniques for composting in residential yards and gardens, rain barrel assembly, installation and use, watershed-friendly lawn care strategies, and local resources related to these topics). Much of the messaging is crafted around quick, memorable items that individuals can easily apply to their lives, making them more easily incorporated into shorter formats for presenting, like those of stenciling events. Staff also updated online materials on these topics that were distributed at the rain barrel workshop.

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

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

FMR hosted a rain barrel pick-up and virtual workshop in 2021. We distributed 60 barrels to 51 individuals, which is equivalent to past years' in-person rain barrel workshops. Participants received a barrel, a conversion kit, resources for proper use and maintenance of their rain barrel, and information on how to contribute to water conservation and water quality efforts in St. Paul. The virtual workshop provided attendees with background on river pollutants coming from our homes, yards, and streets or developed areas, and encouraged water-friendly actions for individuals to take to improve water quality. Stewardship & Education Program Director Laura Mann Hill, Youth Coordinator Ashley O'Neill Prado, and Volunteer & Outreach Coordinator Sophie Downey facilitated the workshop, which included a video demonstration of building a rain barrel using the Rain Barrel Depot conversion kits. The workshop was recorded for use by participants in the future, and was sent out to every individual who purchased a barrel.

- Wellstone Center at the Neighborhood House, Robie St, St. Paul. August 24, 2021 (51 participants, 60 barrels)

Outreach:

Participants for the workshop were recruited using the following means:

- Reaching out to our "waitlist" of individuals interested in rain barrels who contacted us after the 2020 workshop
- Posts and boosted posts on patch.com
- Posting on FMR's website and announcements in FMR's newsletter, *Mississippi Messages*
- Targeted ads through social media, including Facebook and Instagram
- Posting on various online event calendars

Accomplishments:

The following table summarizes public event participation in 2020:

Name	Date	Location	# Participants
Rain barrel pick up	8/24/2021	Wellstone Center Robie Street	51
Rain barrel virtual workshop	8/25/2021	Virtual Zoom workshop	9
Total			60

PHOTOS

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

Storm Drain Stenciling

- https://www.flickr.com/photos/friendsmissriv/albums/72157719062246709

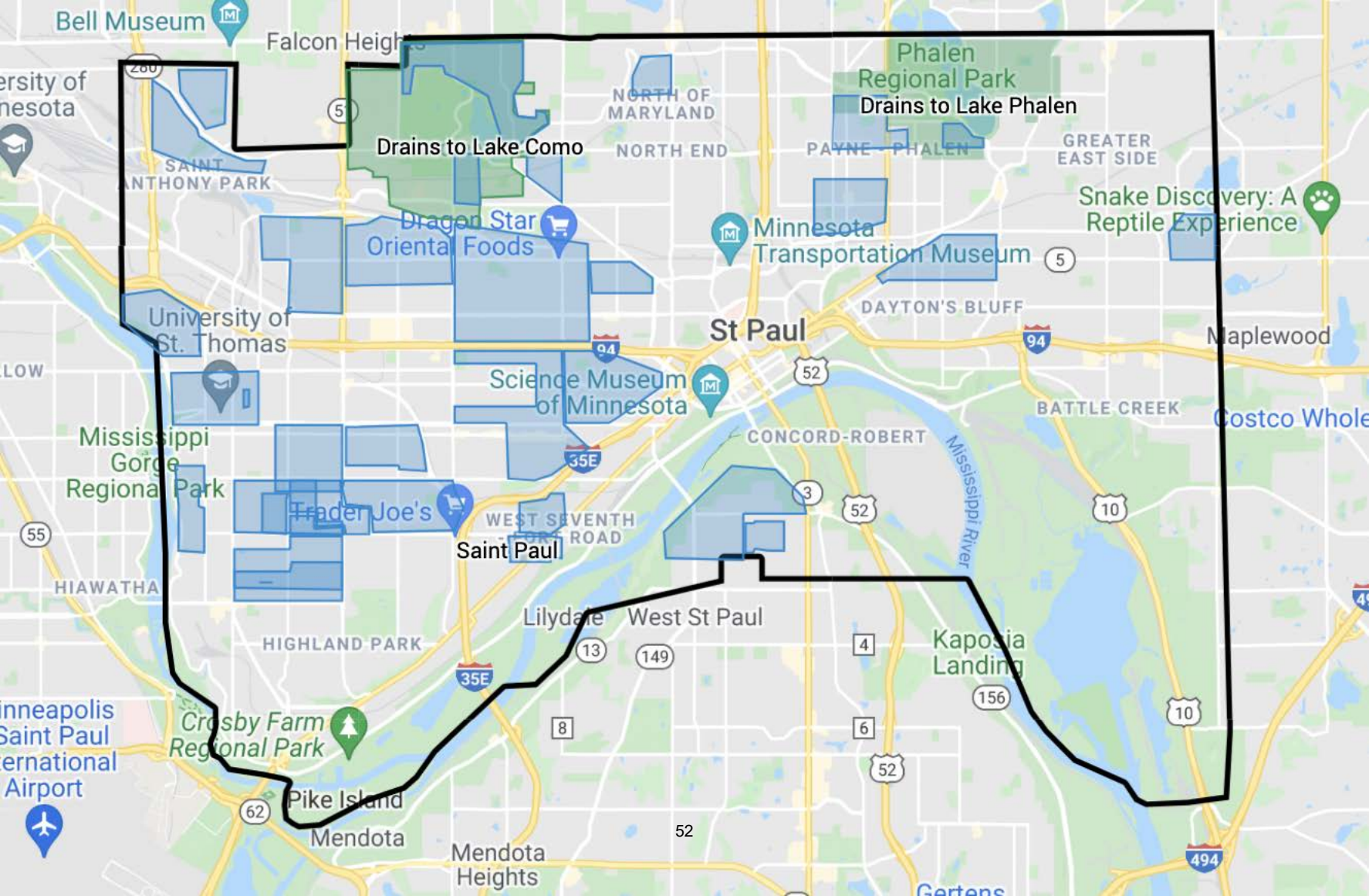
Storm Drain Mural

- https://www.flickr.com/photos/friendsmissriv/albums/72157719511761493

Rain Barrel Workshop

- https://www.flickr.com/photos/friendsmissriv/albums/72157719733690539

Date	Name	Location	Youth?	Description	People Attended	Volunteer Hours	Drains	Flyers
SAINT PAUL ONLY								
04/09/2021	Storm Drain Stenciling Kit	St. Paul Streets		Stenciling Kit	1	5	10	25
04/09/2021	Storm Drain Stenciling Kit	St. Paul Streets	Yes	Storm Drain Stenciling Kit	4	20	15	40
04/20/2021	Storm Drain Stenciling Kit	St. Paul Streets	Yes	Becky Tennison Saint Anthon	51	76.5	84	174
04/22/2021	Stenciling Kits	St. Paul Streets	Yes	Stenciling Kit for SEAK	8	16	8	22
04/28/2021	Stenciling	St. Paul Streets	Yes	Stenciling with Great River Sc	25	50	53	98
04/29/2021	Stenciling	St. Paul Streets	Yes	Stenciling Kits for SEAK	6	12	18	18
05/07/2021	Stenciling	St. Paul Streets	Yes	OWL Grade 6-12 students ste	7	7	45	39
05/21/2021	Stenciling Kit	St. Paul Streets		Stenciling Kits lent to Summe	2	4	17	175
05/28/2021	Stenciling	St. Paul Streets	Yes	Stenciling with Great River Sc	41	82	122	224
06/04/2021	Storm Drain Stenciling	St. Paul Streets		Stenciling Kit	7	10.5	10	50
06/09/2021	Stenciling	St. Paul Streets		Lyft storm drain stencilers	3	12	28	35
06/13/2021	Stenciling	St. Paul Streets	Yes	Stenciling with Girl Scout Tro	8	16	11	17
06/14/2021	Stenciling	St. Paul Streets		Volunteer day with Medtroni	10	20	58	80
06/14/2021	Stenciling	St. Paul Streets		Volunteer day with Medtroni	9	18	48	55
06/21/2021	Storm Drain Stenciling	St. Paul Streets		Storm Drain Stenciling Kit	2	8	26	64
06/22/2021	Storm Drain Stenciling	St. Paul Streets	Yes	Storm drain stenciling with S	11	22	50	43
06/25/2021	Storm Drain Stenciling	St. Paul Streets		Stenciling Kit	5	5	12	8
07/02/2021	Stenciling	St. Paul Streets	Yes	Normandale Upward Bound	40	80	110	78
07/07/2021	Storm Drain Stenciling	St. Paul Streets	Yes	Stenciling outing with Indige	10	10	42	76
07/12/2021	Storm Drain Stenciling	St. Paul Streets		Storm drain stenciling kits (3	3	30	81	200
07/19/2021	Storm Drain Stenciling	St. Paul Streets		Stenciling Kit	2	8	18	53
07/23/2021	Storm Drain Stenciling	St. Paul Streets		Storm drain stenciling kit	4	4	6	25
08/03/2021	Storm Drain Stenciling	St. Paul Streets	Yes	Storm drain stenciling with S	6	12	61	71
08/05/2021	Storm Drain Stenciling	St. Paul Streets	Yes	Storm drain stenciling with H	17	34	105	61
08/20/2021	Stenciling	St. Paul Streets	yes	Storm drain stenciling kit	1	3	34	45
08/30/2021	Stenciling	St. Paul Streets	Yes	Storm Drain Stenciling outing	37	74	105	200
09/23/2021	Stenciling	St. Paul Streets	Yes	Storm Drain Stenciling at Soli	10	10	7	0
10/20/2021	Stenciling	St. Paul Streets	Yes	Storm Drain Stenciling Kits fc	20	1	15	0
10/31/2021	Stenciling	St. Paul Streets	Yes	Storm drain stenciling kits fo	20	40	100	80
10/31/2021	Stenciling	St. Paul Streets		Storm drain stenciling kit for	1	2.5	20	25
11/5/2021	Stenciling	St. Paul Streets	Yes	St Paul Academy	28	32.2	49	139
				SAINT PAUL TOTAL	**399**	**724.7**	**1368**	**2220**


Drains to Lake Como
Drains to Lake Phalen
Saint Paul
Bell Museum
Falcon Heights
Phalen Regional Park
NORTH OF MARYLAND
NORTH END
PAYNE - PHALEN
GREATER EAST SIDE
SAINT ANTHONY PARK
Dragon Star Oriental Foods
Minnesota Transportation Museum
Snake Discovery: A Reptile Experience
University of St. Thomas
DAYTON'S BLUFF
St Paul
Maplewood
Science Museum of Minnesota
BATTLE CREEK
CONCORD-ROBERT
Mississippi Gorge Regional Park
Trader Joe's
WEST SEVENTH
ROAD
Mississippi River
HIAWATHA
Lilydale
West St Paul
HIGHLAND PARK
Kaposia Landing
Crosby Farm Regional Park
Pike Island
Mendota
Mendota Heights
52

Date	Program	Location	School/Group	Description	# attendees	Volunteer hours	Education hours	Number of Class	Number of Field Trips	
1/11/21	Extra Education	Virtual	JJ Hill	Cultural Landsca	26	0	26	1		
4/2/21	Extra Education	St. Paul Streets	SEAK	Cultural Landsca	10	0	20		1	
4/14/21	Extra Education	Virtual	JJ Hill	Cultural Landsca	26	0	26	1		
4/16/21	Extra Education	Virtual	Hmong College Prep	Our Waters/Wate	32	0	32	1		
4/22/21	Extra Education	Virtual	Hmong College Prep	Invasive Species	32	0	32	1		
4/22/21	Extra Education	Virtual	Saint Anthony Elemer	Watersheds intro	70	0	70	1		
4/28/21	Extra Education	Virtual	Upper Mississippi Aca	Informational inte	5	0	5	1		
4/29/21	Extra Education	Virtual	Hmong College Prep	Cultural Landsca	32	0	32	1		
5/1/21	Extra Education	Trout Brook	SEAK	SEAK at Trout Br	6	0	12		1	
5/6/21	Extra Education	Virtual	Hmong College Prep	Erosion Lesson	32	0	32	1		
5/13/21	Extra Education	Virtual	Hmong College Prep	Wetlands Lessor	32	0	32	1		
7/6/21	Extra Education	St. Paul Streets	Incarnation Lutheran	Stenciling cancel	17	34	0		1	
11/1/21	Extra Education	JJ Hill	JJ Hill	Pollinator Garder	20	0	10		1	
10/14/21	Extra Education	JJ Hill	JJ Hill	Pollinator Garder	20	0	10		1	
10/1/21	Extra Education	Trout Brook	Como High School	Restoration and	35	35	70		1	
9/29/21	Extra Education	Crosby Farm Park	Saint Paul Academy	Invasive Spcies S	27	0	54		1	
9/23/21	Extra Education	Saint Paul Academy	Saint Paul Academy	Invasive Spcies L	27	0	33.75	1		
9/22/21	Extra Education	Como High School	Como High School	Invasive Spcies I	35	0	35	1		
				Totals	**484**	**69**	**531.75**	**11**	**7**	

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.

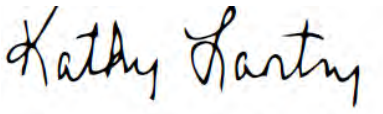
2. Employees will not blow, broom, sweep, whip, or shovel anything including dirt, silt, sand, debris, weeds, or other organic material into such body of water.

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, 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.

PROCEDURES (AND/OR REQUIREMENTS, EXPECTATIONS):

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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.

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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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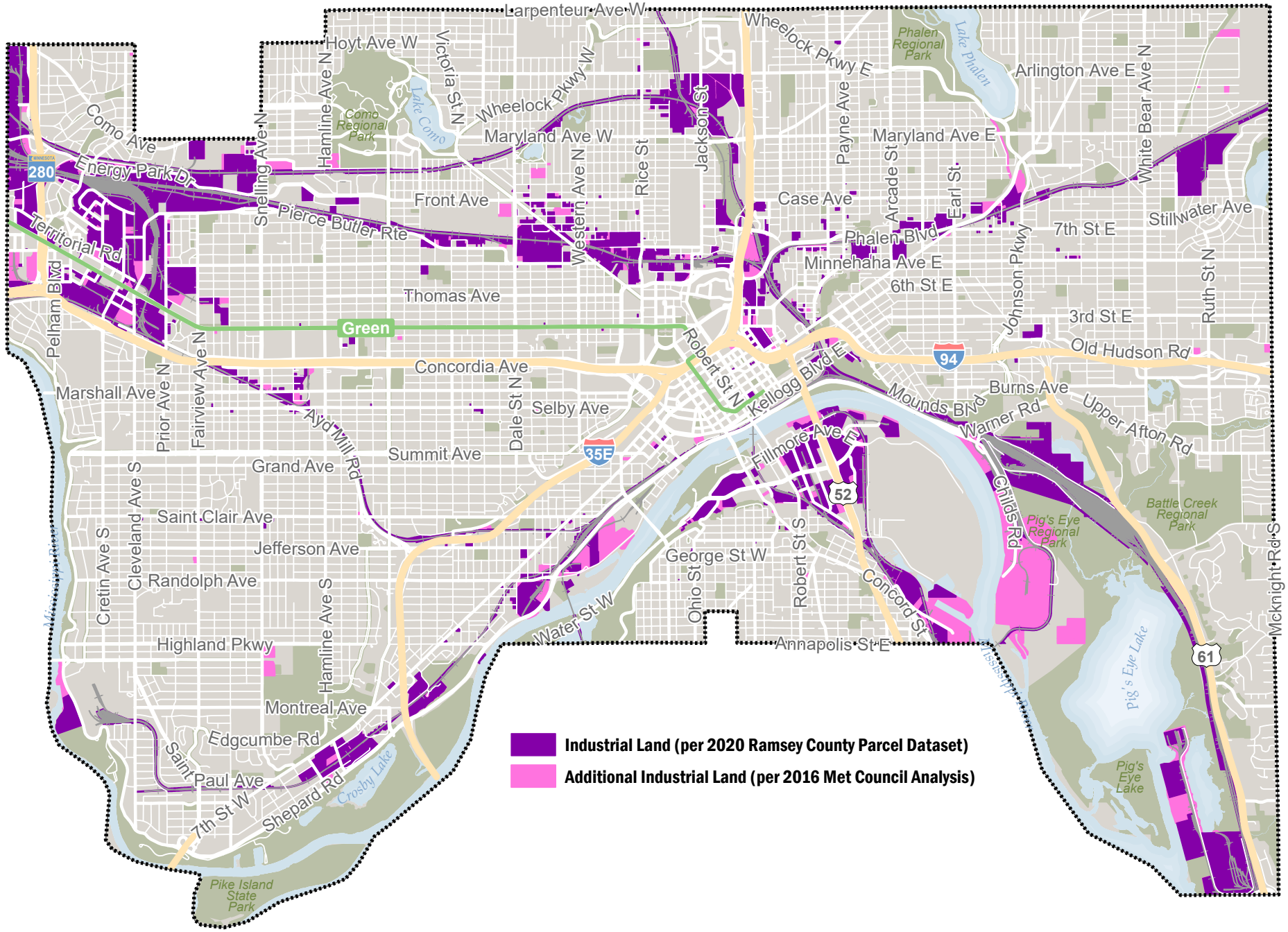
Industrial Land Use in Saint Paul

February 24th, 2020



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

2021 Discharges Addressed

Date	Discharge	Action
January 2021	Complaint received re foam on River (at Elm and Mill St) submitted to the City.	Sewer Maintenance inspected area and had foam sampled by Braun. Foam is routinely observed. In 2015 orange-brown foam was tested and determined to be the result of iron bacteria rich waters.
January 2021	Watson sanitary tunnel failure. Sanitary spill into Kittsondale storm tunnel.	Sewer Maintenance responded to clean the spill. Material sampled by Braun. Spill reported to MPCA.
February 2021	Complaint received re dry weather flow from Como Zoo.	Sewer Maintenance inspected manholes looking for dry weather flow on February 11th. Also, reviewed inspection videos from November. No dry weather flow was detected.
April 2021	Complaint received re grease from bakery at 1248 Arcade.	DSI sent letter to responsible party.
April 2021	Complaint received re oil/gasoline being discharged from garage into alley and CB at 1470 St Clair.	Street Maintenance investigated on April 8th. No discharge was detected. Investigated by ROW.
April 2021	Complaint received re paint discharged into storm sewer at 530 St. Peter.	Sent to DSI to address and enforce. Letters sent to responsible parties. Sewer Maintenance responded to clean the spill. Spill reported to MPCA.
April 2021	Sanitary sewer spill related to 431 Griggs.	Sewer Maintenance responded to clean the spill. Material sampled by Braun. Spill reported to MPCA.
May 2021	ROW inspector detected erosion tracking into street and storm sewer at 75 Otis.	Sent to DSI and ROW to address and enforce.
June 2021	Complaint received re maintenance worker washing paint into storm sewer at Allianz Field.	Sent to DSI to address and enforce. Letters sent to responsible parties.
July 2021	Complaint received re excessive sediment tracking into ROW (Maryland and Payne).	Sent to DSI and ROW to address and enforce.
July 2021	Complaint received re sewage discharge to boulevard and roadway caused by utility cross bore at 669 Kent.	Sewer Maintenance cleaned roadway, boulevard, and repaired private service. Spill reported to MPCA.
July 2021	Complaint received re dye detected in Bruce Vento stream.	Sent to Parks to inspect. No discharge present upon inspection.
August 2021	Complaint received re oil discharged onto street at 1060 Virginia.	Sent to DSI and ROW to address and enforce. Letters sent to responsible parties. Street maintenance sent crew out to clean oil.
August 2021	Complaint received re oil being dumped from garage at 2147 University.	Sent to DSI to address and enforce. No spill present at time of inspection.
August 2021	Dry weather flow at Como Zoo detected by CRWD monitoring station.	Public Works and Parks investigated and discovered dry weather flow coming from animal enclosure. Parks to address cross connection.
December 2021	Contractor notified Sewer Utility of potential illicit discharge in Marshall storm tunnel.	Sewer Utility (Design) investigated. No active discharge observed. No trace from previous discharge detected.

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

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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

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Example photos of illicit discharges

Discharge of Oil

6

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Example photos of illicit discharges

Discharge of Paint

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Example photos of illicit discharges

Discharge of Drilling Mud

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Example photos of illicit discharges

Discharge of Glycol

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Example photos of illicit discharges

Sanitary Discharge, Private Storm Drain

10

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Example photos of illicit discharges

Tack Emulsion, Seal Coating

Example photos of illicit discharges

Sanitary Discharge, Urban Outfall

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

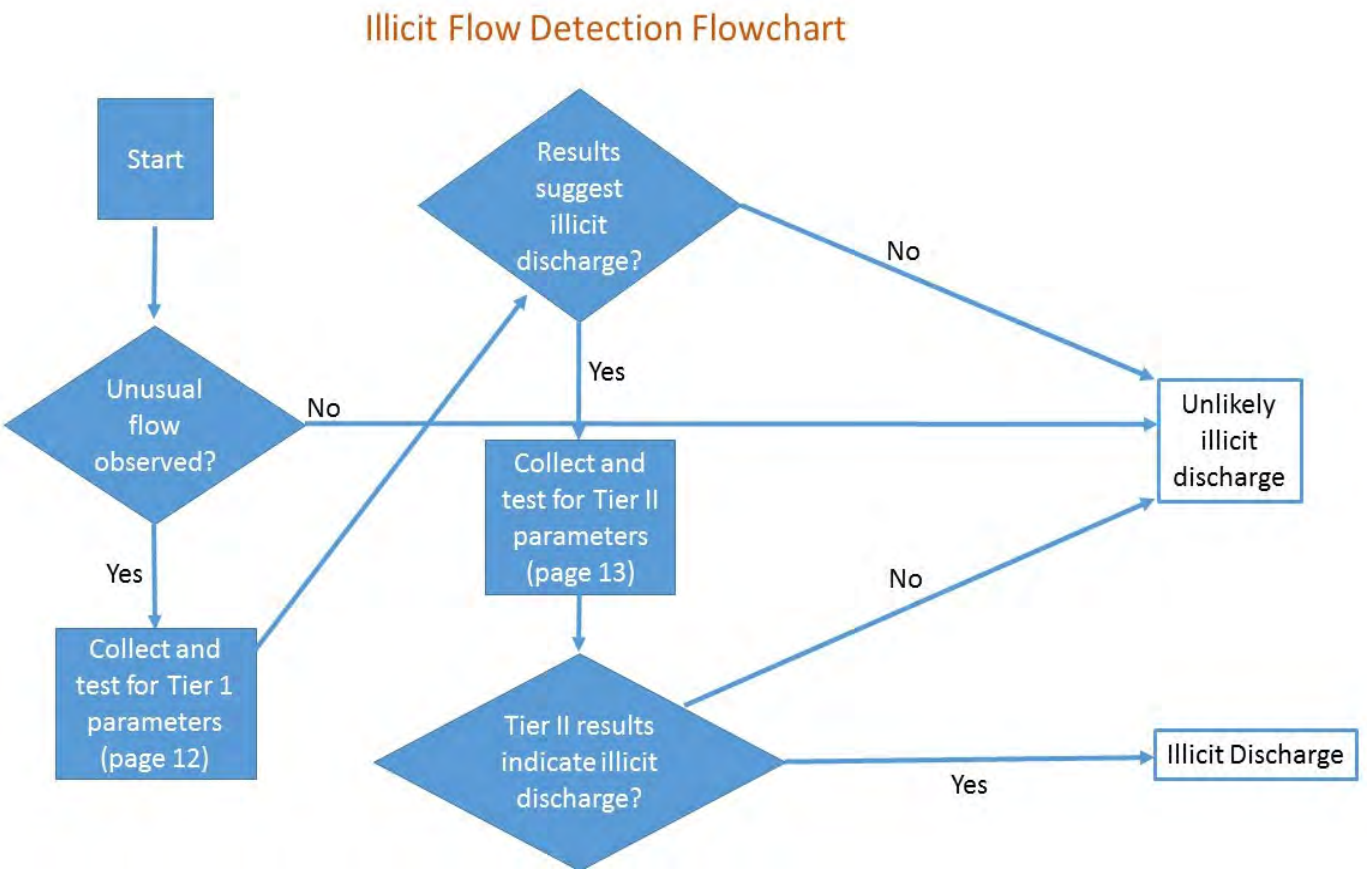
Examples of allowable non-stormwater discharges

- 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

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Natural Sheen vs. Synthetic Sheen

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The Science You Build On.

Foam and Suds Examples

Low Severity, Naturally Occurring Suds

High Severity Suds

Biological Indicators

Fish Kill

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Biological Indicators

Algae Bloom

Biological Indicators

Iron Bacteria on Bulkhead

Chemical Indicators

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

Tier I Chemical Parameters

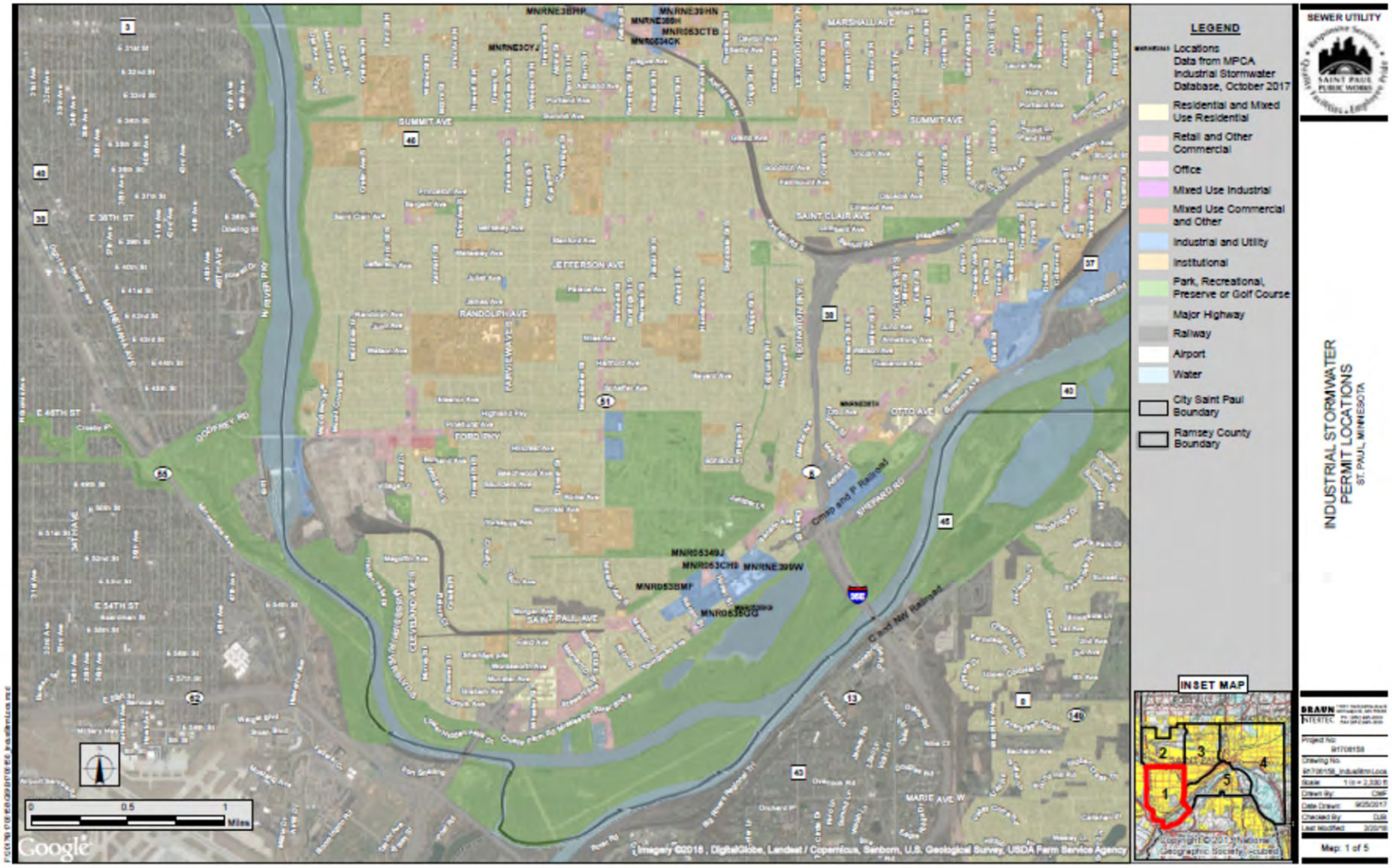
- Ammonia
- Boron
- Potassium
- Fluoride
- GRO, DRO, VOCs
- pH
- Temperature

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


LEGEND
Locations
Data from MPCA Industrial Stormwater Database, October 2017
Residential and Mixed Use Residential
Retail and Other Commercial
Office
Mixed Use Industrial
Mixed Use Commercial and Other
Industrial and Utility
Institutional
Park, Recreational, Preserve or Golf Course
Major Highway
Railway
Airport
Water
City Saint Paul Boundary
Ramsey County Boundary
INSET MAP
SEWER UTILITY
INDUSTRIAL STORMWATER PERMIT LOCATIONS
ST. PAUL, MINNESOTA
Map: 1 of 5
SUMMIT AVE
JEFFERSON AVE
RANDOLPH AVE
SAINT CLAIR AVE
MARSHALL AVE
FORD PKY
OTTO AVE
SHEPARD RD
E 46TH ST
E 38TH ST
E 54TH ST
SAINT PAUL AVE
MARIE AVE W
Imagery ©2018 , DigitalGlobe, Landsat / Copernicus, Senborn, U.S. Geological Survey, USDA Farm Service Agency

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

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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	Metropolitian 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

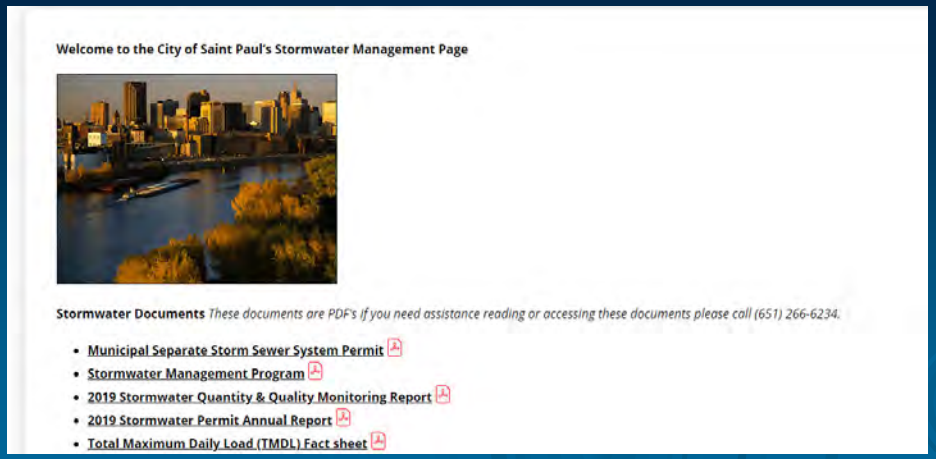
- Illicit Discharge Detection and Elimination (IDDE)
  - What is an illicit discharge?
    - Anything entering the storm sewer system that is not comprised entirely of stormwater
    - There are a few exceptions (uncontaminated groundwater, springs, residential car washing, fire suppression, etc.)
  - 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



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

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

It is essential to prevent dirt, debris, oils and other waste from entering storm drains or water resources.
(See official Public Works Right-of-Way Erosion Control Policy, dated 2/23/2015)

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

- Inlet protection and perimeter control must be installed BEFORE any land disturbance begins.
- Temporary land stabilization practices should be installed:
  - Daily for temporary stockpiles on or near street (including plastic cover); *and*,
  - Within 7 days after work is completed over all disturbed areas not on or near the street (including temporary seeding of spoil piles though seeding and mulching).
- Refer to the Mn/DOT Pocketbook Guide (2017) for guidance to preventing pollutants from leaving construction sites: https://www.erosion.umn.edu/resource-links/pocketbook-guide

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

TEMPORARY SEEDING AND MULCHING, OR PLASTIC COVER

Temporary seeding and mulching quickly protects the soil from erosion until establishment of permanent stabilization. Applicable areas include any topsoil stockpiles and any areas disturbed by grading activities.

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

STORM DRAIN INLET PROTECTION

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

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

DEWATERING TREATMENT

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

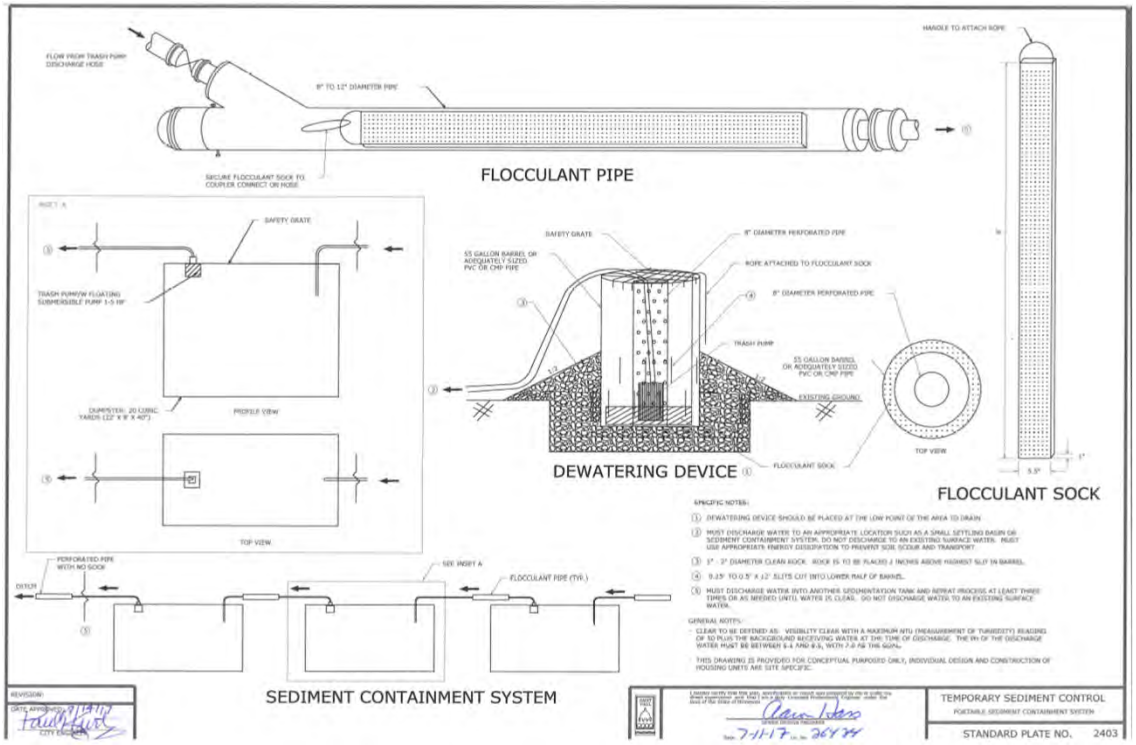
Clear discharge is defined as a maximum NTU reading of 50 plus the background receiving water at the time of discharge.

DAILY AND AS-NEEDED STREET SWEEPING

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

Rev. 2020

Plate 2403


FLOCCULANT PIPE
DEWATERING DEVICE
FLOCCULANT SOCK
SEDIMENT CONTAINMENT SYSTEM
TEMPORARY SEDIMENT CONTROL
STANDARD PLATE NO. 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/Il

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.

2021 UTILITY COORDINATION MEETING

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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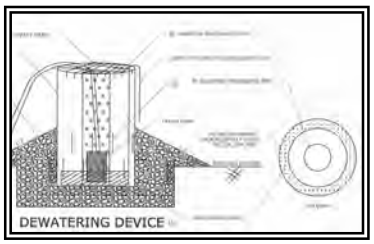

DEWATERING TREATMENT
Site-specific devices, including flocculant pipes or socks, can be used to reduce sediment in pumped discharge. Refer to Public Works standard plate 2403 for controlling dewatering activities.

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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.

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:

Detailed Model Done
2022 Wheelock Parkway
Street Project

Saint Paul Sewers

CITYWIDE H&H MODELING MAP

N
W E
S

Legend

- Intersection Scale Model Done
- Mixed Scale Model Done
- Skeleton Scale Model Done

DATA UPDATED 03/2022

Document Path: Z:\sewers\projects\City Stormwater Modeling Projects\Maps & Index\Citywide Modeling Map.mxd

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

1 2 3 4 5 6 7 8 9 10 11 12 13

Saint Paul Sewers

CITYWIDE P8 MODELING MAP

Legend

- Subwatershed P8 Model Done
- Pond P8 Model Done

N W E S

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

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DATA UPDATED 03/2022

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

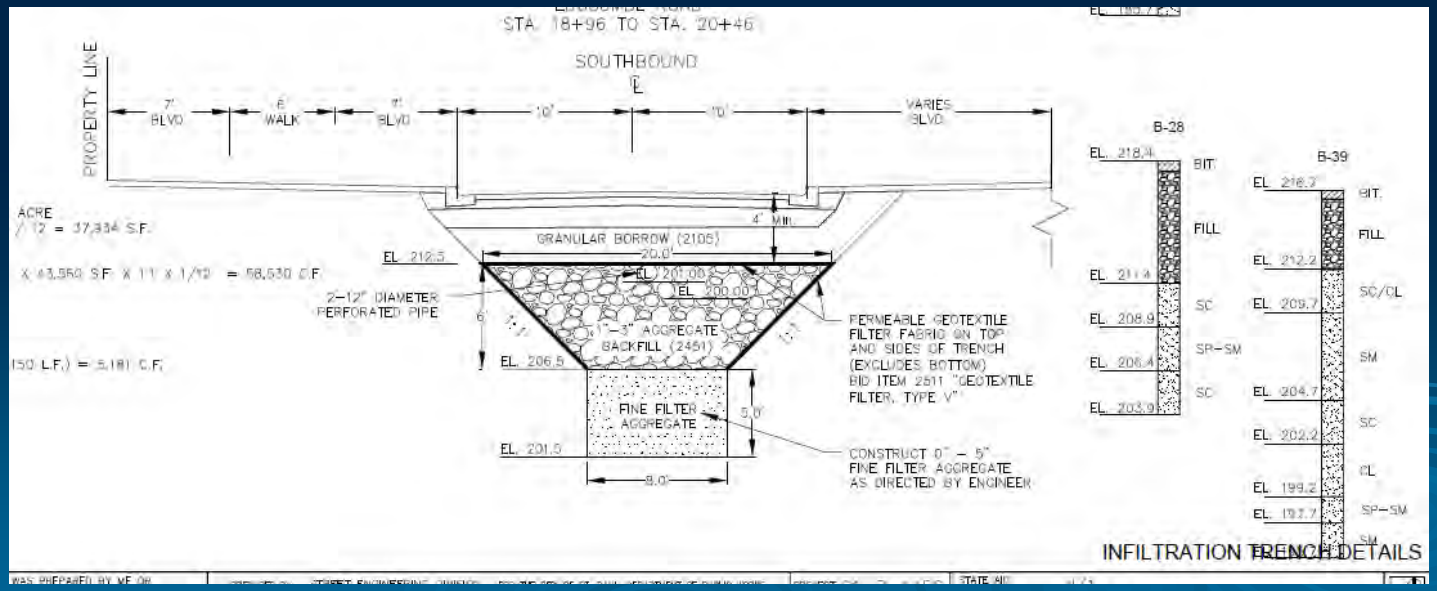
(b) For **linear project**s, a **water quality volume** of one (1) inch times the net increase of **impervious surface**s, in addition to a reduction in **stormwater** runoff volume from fully reconstructed surfaces, unless precluded by the **stormwater** infiltration prohibitions in Part III.C.5.a.(3). 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?
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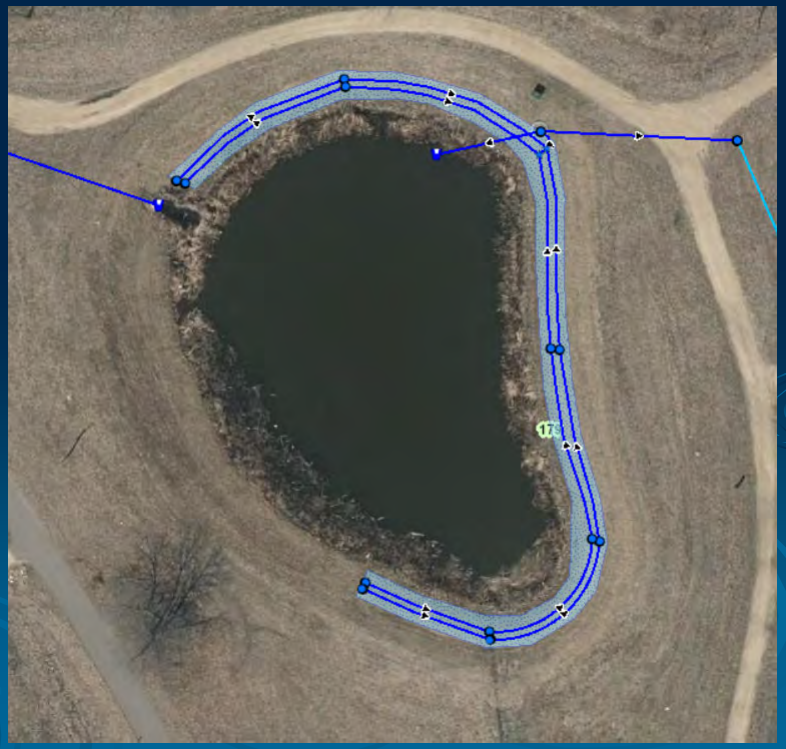
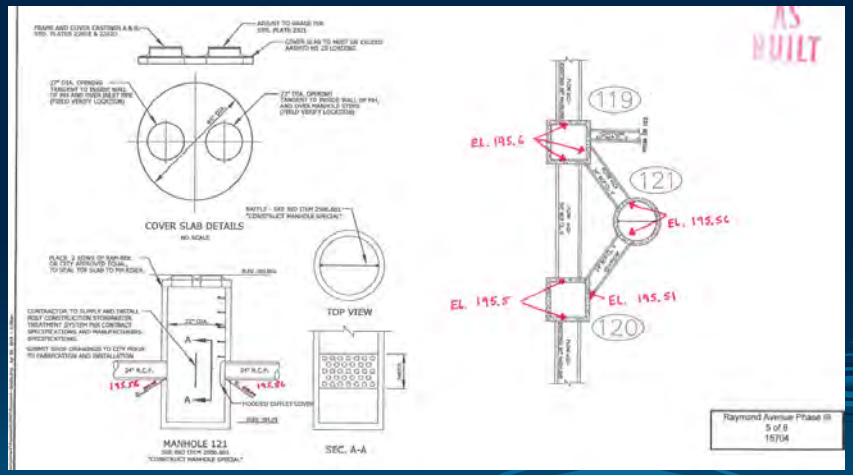


Street Construction Stormwater BMP Training

- 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.

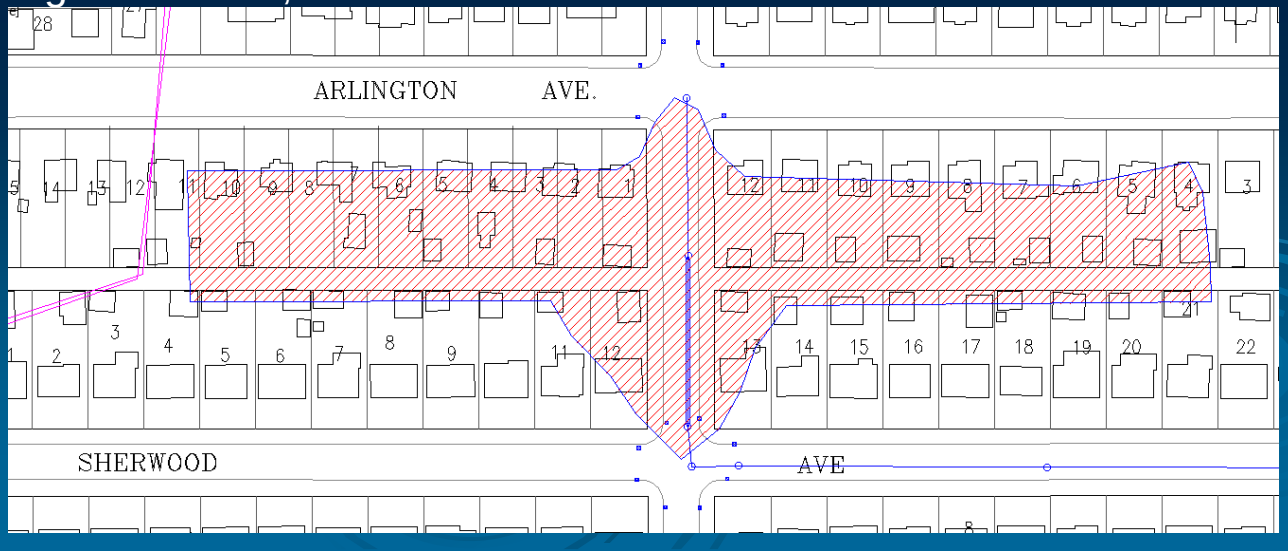
TRENCH #1 AGGREGATE BACKFILL TRENCH CAPACITY =
((96 S.F. – 1.57 S.F.) X 95 L.F. X 40%) + (1.57 X 95 L.F.) = 3,737 C.F.

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

SEE SHEET 25 FOR PROFILE

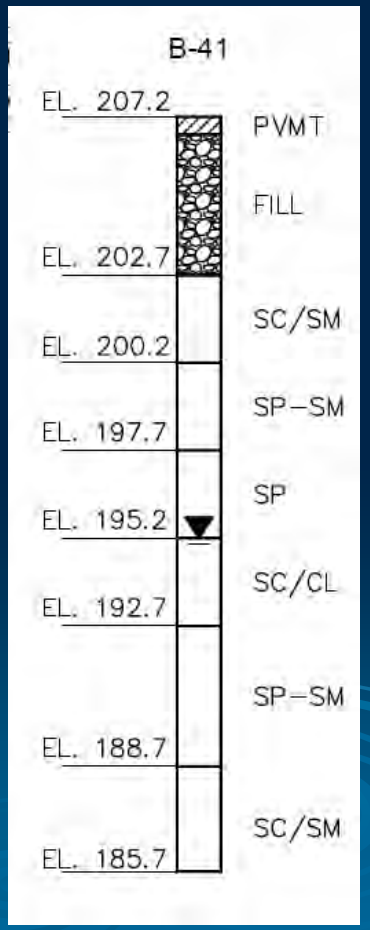
Street Construction Stormwater BMP Training

- 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

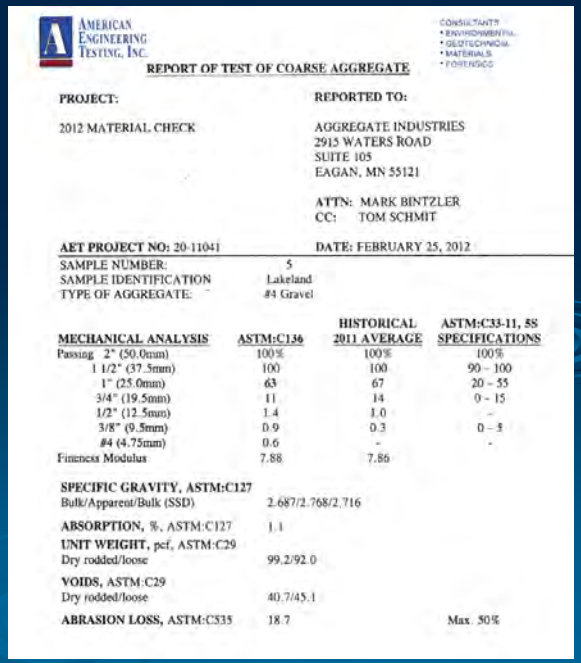
Bid item 2503.503 "12" Perforated Thermoplastic Pipe Sewer" shall be construed to mean the procurement and installation of 12-inch perforated PVC pipe, class SDR 26 to be laid along the length of the in-street infiltration trench. There shall be 12-holes, 0.5-inch in diameter, per foot. Perforation pattern 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.

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

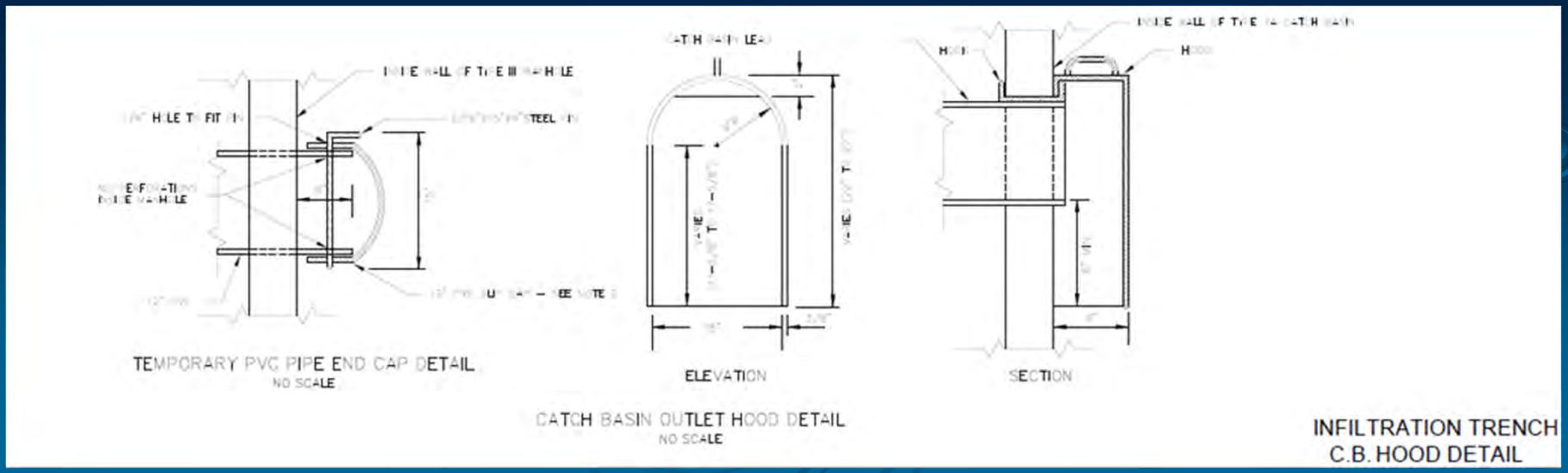
SAMPLE NUMBER: 5
SAMPLE IDENTIFICATION: Lakeland
TYPE OF AGGREGATE: #4 Gravel

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

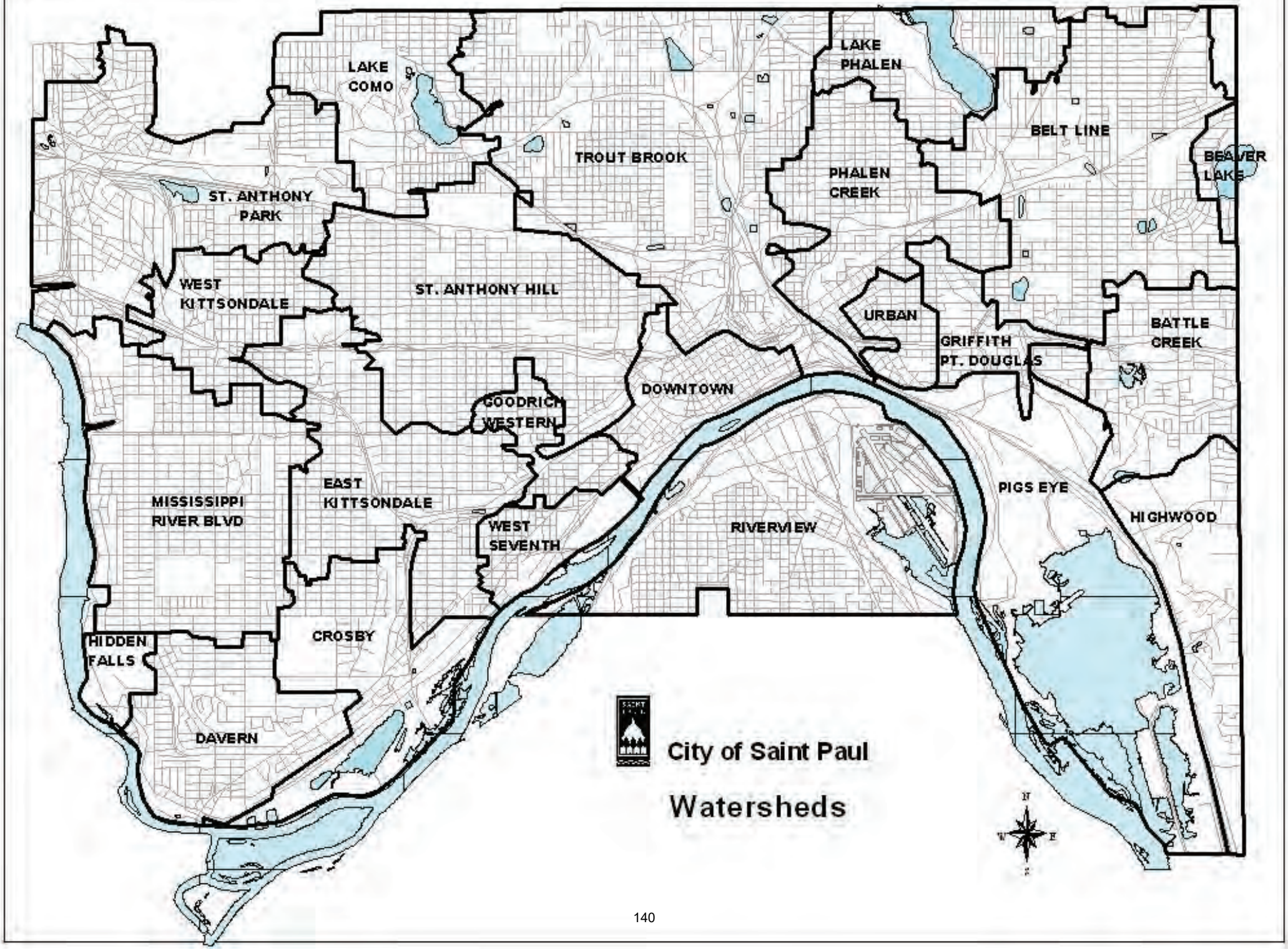
Outfall	Location	Watershed	Pipe Size	Acres
	Upper Lake			
152	Springfield	Crosby	15"	
	Crosby Lake			
153	Rankin	Crosby	27"	
154	Homer	Crosby	30"	
155	Leland	Crosby	30"	
	Fairview North Pond			
500	Tatum & Pierce Butler	St. Anthony Park	6'	
510	Pierce Butler & Aldine	St. Anthony Park	54"	
	Lake Como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

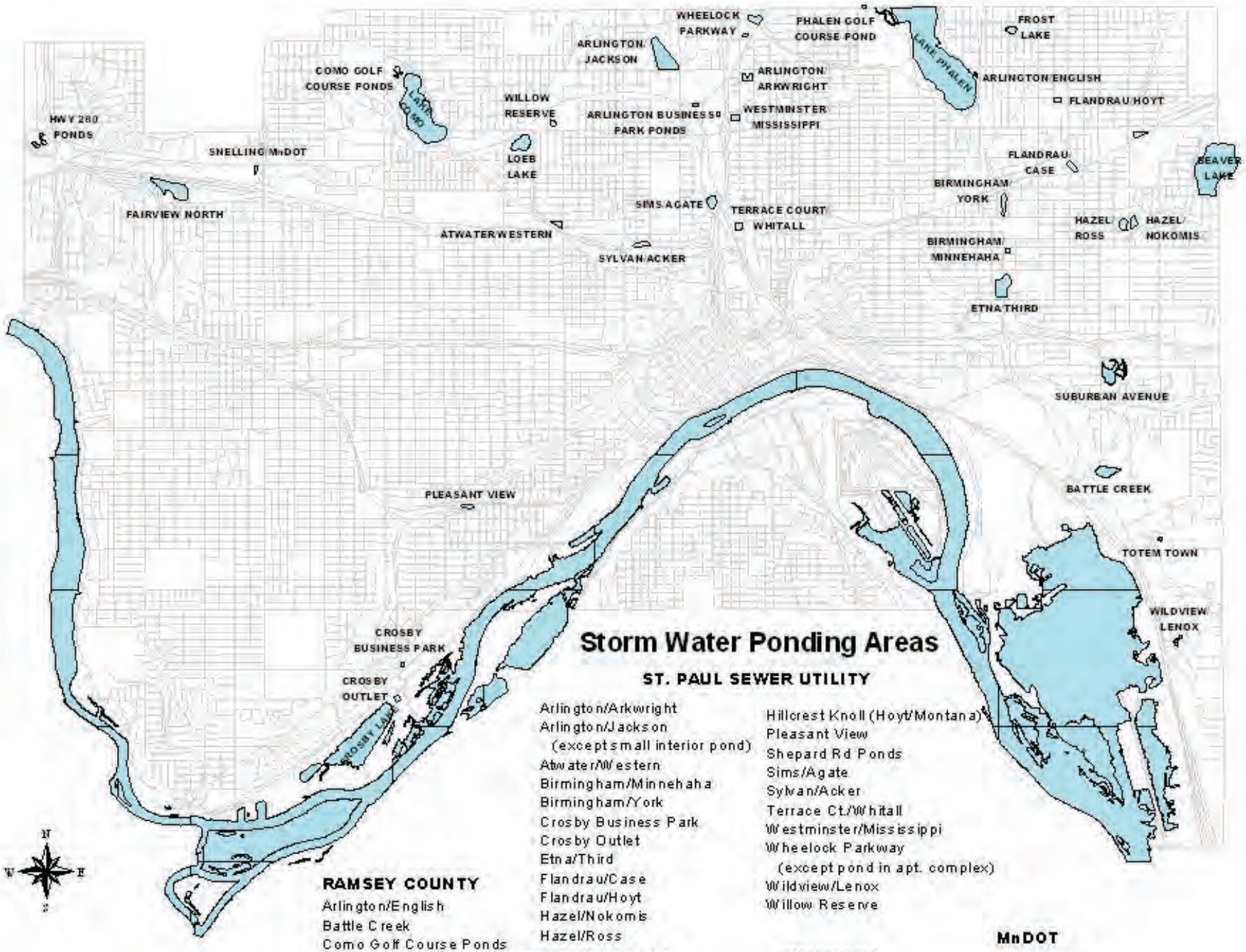
Outfall Inventory

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"	


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

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

2021 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 12th, 2022
TO: Pat Murphy, PE, City of St. Paul Sewer Utility
FROM: Forrest Kelley, PE, Regulatory Division Manager
RE: Snelling-Midway Superblock Rainwater Reuse System Annual Report

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Background

Capitol Region Watershed District (CRWD) and City of St. Paul have partnered to operate and maintain the rainwater reuse system installed as part of construction of Allianz Field and the surrounding 35- acre redevelopment of the former Midway Shopping Center and Metro Transit Bus Barn property, termed the Snelling-Midway Superblock. This memorandum serves to summarize the activities conducted during operation of the system in 2021 and satisfy Parts 4.A. and 5.C. of the attached Cooperative Agreement for Maintenance of Green Infrastructure at Snelling-Midway.

2021 Activities

As in 2020, 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 03/29/21 by obtaining City of St. Paul plumbing permit (#20 21 249017) and installing the submersible pumps in manhole 251 (MH251). Additional routine startup activities, including filter replacement and cleaning, ozone and HVAC system maintenance, and air meter sensor calibration were conducted throughout April. Costs attributed to startup activities were approximately $9,500

A proposal was submitted and approved by the City to conduct inspection and cleaning of the rainwater storage pipes. Tank draining was initiated 4/29/21. Inspection was completed 5/4/21 and found sediment accumulation within the baffled manifold of the pipe gallery ranging from 0.25 to 0.5 inches of fine material, downstream of the baffle between 0.0 and 0.25 inches, and around 2 inches of accumulation within MH 251. Material within MH 251 was removed with a hydrovac truck. Observations are summarized in an email from American Environmental within the attachments. Total cost for observation and cleaning was $6,714

Non-routine work identified in 2020 was completed to replace a circuit board and gas meter/sensors associated with the atmospheric monitoring system. This was approved by the City at a cost of $7,449.

Irrigation with City water began on 5/04/21, and the reuse system was activated on 5/10/21, allowing the system to supplement irrigation demand with harvested rainwater. Pump removal and winterization of the vault was completed 11/05/21 resulting in a 2021 operational period spanning 185 days. CRWD paid invoices to Harris in 2021 totaling $32,784.09. 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 2021 was 3,985,567 gallons, with 2,779,496 gallons of domestic water use, resulting in approximately 1,206,071 gallons of treated rainwater use. However, data for flow just upstream of the backflush filters indicates that only 255,268 gallons of rainwater were pumped into the treatment vault. The Annual Water Use table below compares total irrigation, city water, and rwainwater used for 2020 and 2021.

Annual Water Use (gallons)

Year	2020	2021
Total Irrigation Used	1,093,185	3,985,567
Rainwater Used	693,302	1,206,071
Potable Water Used	399,883	2,779,496
Percent Supplied by Rainwater	63.4%	30.3%

The volume of 3,985,567 gallons of irrigation corresponds to 57.56 inches of irrigation over the 2.55- acre area for the 2021 operational period. This is an average of 2.18 inches per week. Additionally, the MSP International Airport recorded 16.45 inches of rainfall from 5/04/21 through 11/05/21. The 2021 season was dryer than average years, 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 2021, no drawdowns events occurred, indicating that sufficient reserve volume was available, and stored rainwater was utilized for irrigation. Significant 2021 rainfall events on 5/27/2021(0.98”), 8/8/2021 (1.22”), 8/24/2021(1.27”), and 8/26/2021(1.59”)

Treated rainwater usage in 2020 is limited to the broadcast and drip irrigation systems. No private development occurred to provide additional demand for treated rainwater. The MLS stadium does not use treated rainwater. Although the system treated and reused in excess of 1,000,000 gallons, it is not believed there are 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

No unexpected repair needs arose during normal operation of the system in 2021. However, low pressure downstream of the filters and UV disinfection components remains an issue resulting in the need to supplement irrigation demand with City water to make up for the pressure deficit and prevent cavitation on the irrigation booster pumps. This decreases the benefit of harvesting rainwater for use as irrigation.

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 2022:

1. Complete hydrovac removal of sediment within MH 251 prior to installation of the submersible pumps, and add to annual task list.

2. Explore cause and rectify discrepancy between Inlet Flow Meter data and total calculated water reused for irrigation. CRWD has requested Harris inquire with SPRWS regarding total domestic water use indicated on the City water meter.
3. Troubleshoot low pressure conditions downstream of treatment components, upstream of irrigation booster pumps.
4. Engage system designers to review expected flow rates, pressure, and irrigation demand to determine if system is functioning as designed, was undersized, or is underperforming based on other conditions.
5. Determine feasibility and cost of potential improvements to reduce reliance on potable water.

Next Steps

As 2021 invoices ($32,784.09) were less than 2020 invoices ($44,495), 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 2022 O&M plan, with particular focus on the process for identifying and implementing system improvements.

enc: Harris 2021 Service Tickets
Paid 2021 Harris Invoices
Storage Pipe Inspection and Observation Summary Email
2021 Service Cost Summary and Water Balance Spreadsheet
Cooperative Agreement

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SAINT PAUL

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

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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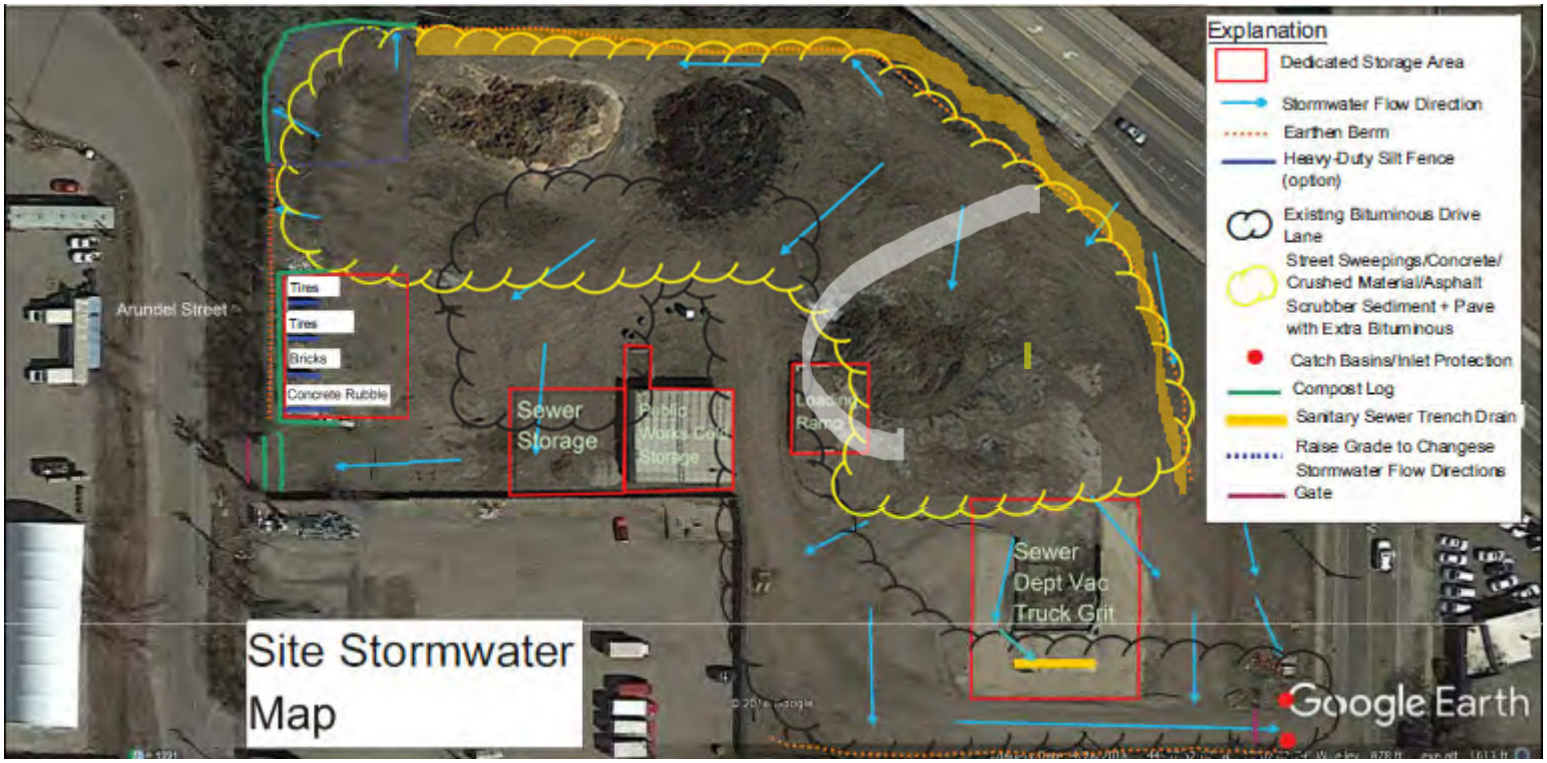
Facility Stormwater Plan



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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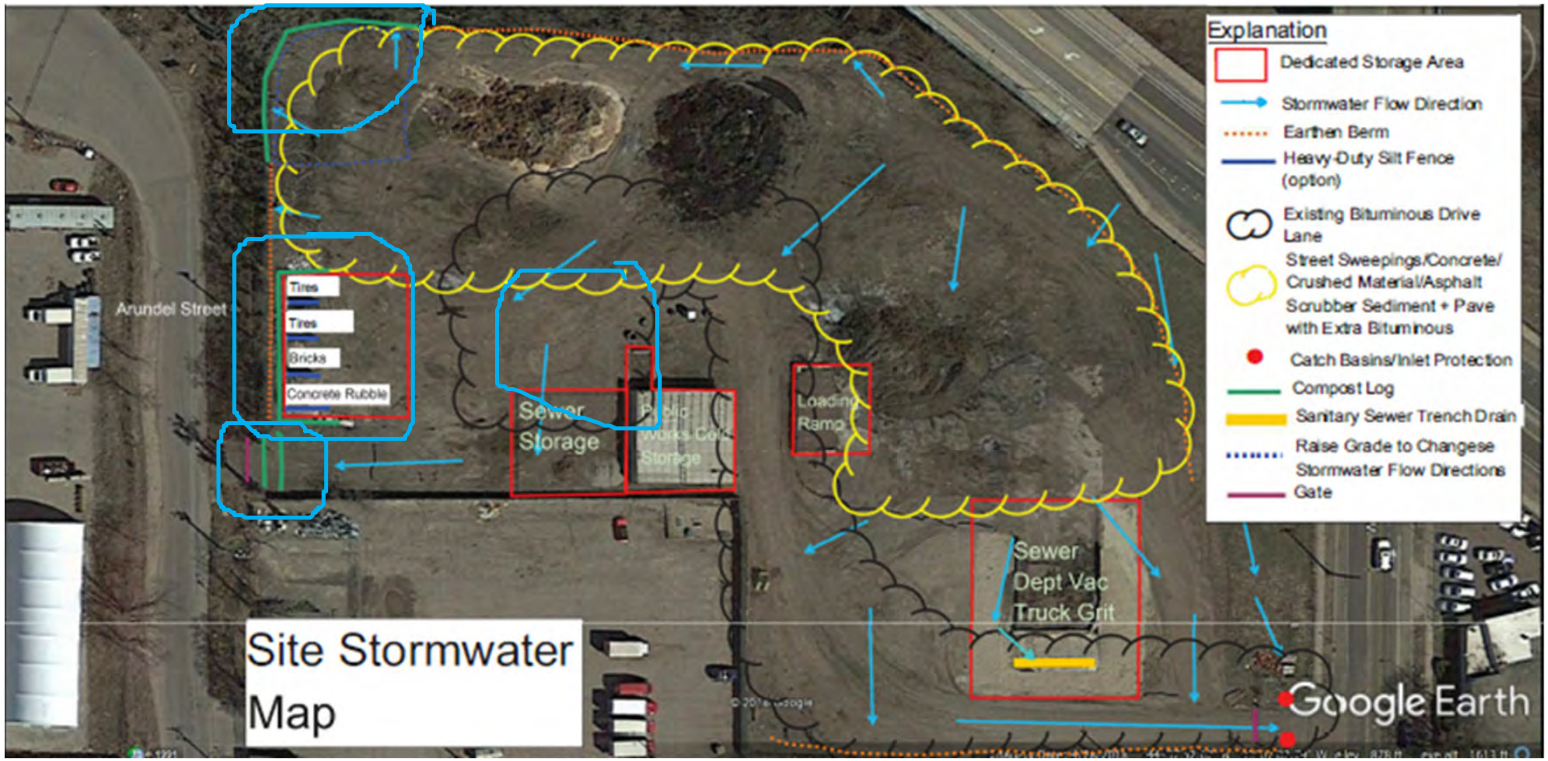

Recommended Facility Stormwater Best Management Practices (continued)

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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SAINT PAUL

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

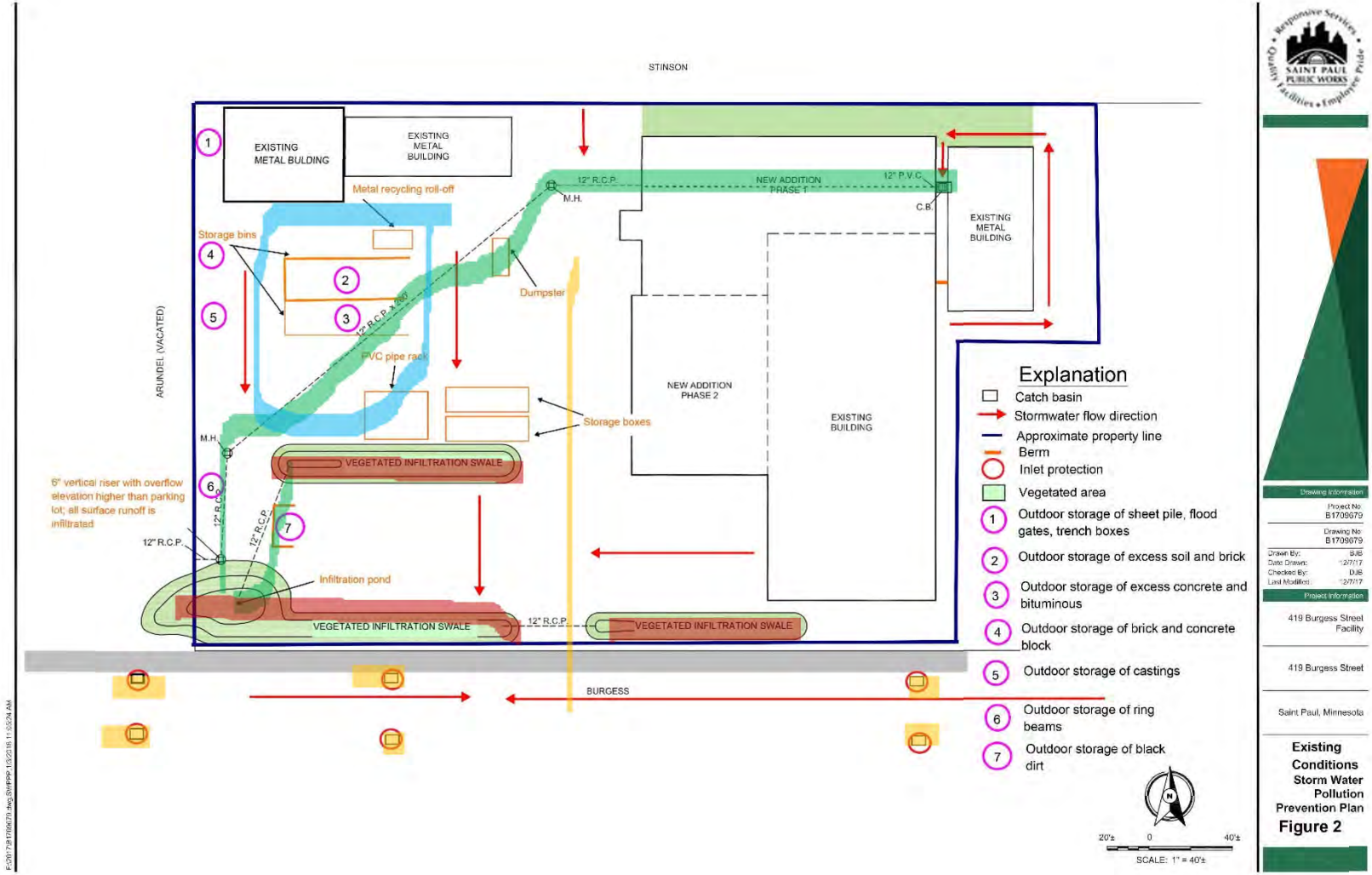
Materials Currently Exposed to Stormwater at the Facility

- 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

BRAUN INTERTEC



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

2021 Water Quantity & Quality Monitoring Program

SAINT PAUL
MINNESOTA

Figure 1-1

2021 Monitoring Site Locations

N
W E
S

0 2,500 5,000 10,000
Feet

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

Legend

- Raingarden/Infiltration Basin
- Infiltration Trench
- Pervious Pavement
- Capitol Region Watershed District
- Lower Mississippi River WMO
- Mississippi WMO
- Ramsey/Washington/Metro WD
- 2020 Monitoring Locations
- 2021 Monitoring Locations
- Rain Gauge Locations

Outfalls

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

wsb

12. City-wide Loading Assessment

12.1. 2021 Pollutant Loading Calculations

Monitoring of major outfalls within the City of Saint Paul was completed by Capitol Region Watershed District (CRWD) in 2021. 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	88.6	2.2	0.42	0.45	163.9	59.4
Q1 (Jan-Mar)	440.0	3.6	0.54	0.78	227.2	71.3
Q2 (Apr-Jun)	33.7	2.3	0.43	0.45	195.5	71.4
Q3 (Jul-Sep)	20.4	1.9	0.36	0.36	137.4	52.4
Q4 (Oct-Dec)	102.6	1.4	0.57	0.45	122.2	43.1

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	198853	4910	934	1001	367841	133275
Beaver Lake	21821	539	102	110	40364	14625
Belt Line	570900	14098	2680	2875	1056061	382630
Crosby	289619	7152	1360	1459	535743	194109
Davern	274497	6778	1289	1382	507770	183974
Downtown	149809	3699	703	754	277121	100406
East Kittsondale	190398	4532	863	747	308190	118153
Fish Creek	7964	197	37	40	14732	5338
Goodrich/Western	97011	2396	455	489	179453	65019
Griffith/Pt. Douglas	93427	2307	439	471	172822	62617
Hidden Falls	65989	1630	310	332	122068	44227
Highwood	186953	4617	878	942	345829	125300
Lake Como	233129	5757	1095	1174	431247	156248
Lake Phalen	146525	3618	688	738	271045	98205
Mississippi River Blvd.	531584	13127	2496	2677	983334	356279
MRWMO	36224	895	170	182	67008	24278
Phalen Creek	226734	4292	781	844	361245	119124
Pigs Eye	399676	9870	1877	2013	739329	267872
Riverview	193009	4766	906	972	357032	129359
St. Anthony Hill	616176	15216	2893	3103	1139815	412975
St. Anthony Park	311400	7306	1203	1859	558390	219637
Trout Brook	89389	4067	993	670	285181	91275
Urban	62059	1532	291	313	114798	41593
West Kittsondale	267613	6608	1257	1348	495035	179360
West Seventh	98275	2427	461	495	181791	65866

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

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	193919	1566	240	344	100148	31407
Beaver Lake	20572	166	25	37	10625	3332
Belt Line	538241	4347	665	955	277972	87175
Crosby	245321	1981	303	435	126695	39733
Davern	232512	1878	287	413	120080	37658
Downtown	133935	1082	166	238	69170	21692
East Kittsondale	171790	1622	215	239	73959	30143
Fish Creek	7767	63	10	14	4011	1258
Goodrich/Western	86732	700	107	154	44792	14047
Griffith/Pt. Douglas	91108	736	113	162	47053	14756
Hidden Falls	55896	451	69	99	28867	9053
Highwood	182314	1472	225	324	94155	29528
Lake Como	197471	1595	244	350	101983	31983
Lake Phalen	138143	1116	171	245	71343	22374
Mississippi River Blvd.	450276	3636	557	799	232543	72928
MRWMO	30683	248	38	54	15846	4970
Phalen Creek	184841	1157	230	292	112173	32210
Pigs Eye	389760	3148	482	692	201290	63126
Riverview	188220	1520	233	334	97206	30485
St. Anthony Hill	550885	4449	681	978	284502	89222
St. Anthony Park	194500	1164	139	422	64688	17522
Trout Brook	21816	668	124	63	45075	12920
Urban	60519	489	75	107	31255	9802
West Kittsondale	226680	1831	280	402	117068	36714
West Seventh	87862	710	109	156	45376	14230

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

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	22040	1518	281	295	127991	46757
Beaver Lake	2552	176	32	34	14819	5414
Belt Line	66766	4600	850	894	387716	141640
Crosby	31705	2184	404	424	184113	67260
Davern	30049	2070	383	402	174500	63748
Downtown	16159	1113	206	216	93838	34281
East Kittsondale	10927	1772	325	277	134710	55330
Fish Creek	883	61	11	12	5126	1873
Goodrich/Western	10464	721	133	140	60766	22199
Griffith/Pt. Douglas	10355	713	132	139	60134	21968
Hidden Falls	7224	498	92	97	41950	15325
Highwood	20721	1428	264	277	120331	43959
Lake Como	25521	1758	325	342	148202	54141
Lake Phalen	17136	1181	218	229	99510	36353
Mississippi River Blvd.	58193	4009	741	779	337931	123453
MRWMO	3965	273	51	53	23028	8413
Phalen Creek	7719	861	150	191	62654	25113
Pigs Eye	44299	3052	564	593	257250	93978
Riverview	21393	1474	272	286	124229	45383
St. Anthony Hill	66464	4579	846	890	385961	140999
St. Anthony Park	42770	1996	320	462	204440	71069
Trout Brook	20711	1084	269	169	77410	25208
Urban	6878	474	88	92	39944	14592
West Kittsondale	29296	2018	373	392	170123	62149
West Seventh	10600	730	135	142	61558	22488

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

Subwatershed	CI	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	14310	1317	251	251	96428	36790
Beaver Lake	1555	143	27	27	10481	3999
Belt Line	40695	3745	715	714	274226	104625
Crosby	22851	2103	401	401	153984	58749
Davern	21658	1993	380	380	145944	55682
Downtown	11358	1045	199	199	76536	29201
East Kittsondale	5317	980	182	188	81703	28833
Fish Creek	573	53	10	10	3862	1473
Goodrich/Western	7355	677	129	129	49562	18909
Griffith/Pt. Douglas	6723	619	118	118	45304	17285
Hidden Falls	5207	479	91	91	35085	13386
Highwood	13453	1238	236	236	90657	34588
Lake Como	18394	1693	323	323	123950	47290
Lake Phalen	10445	961	183	183	70382	26853
Mississippi River Blvd.	41942	3860	736	736	282632	107832
MRWMO	2858	263	50	50	19260	7348
Phalen Creek	6253	2050	346	268	176292	56646
Pigs Eye	28761	2647	505	505	193811	73944
Riverview	13889	1278	244	244	93594	35709
St. Anthony Hill	46715	4299	820	820	314797	120104
St. Anthony Park	51793	3969	704	892	278316	51793
Trout Brook	35340	2008	482	377	125182	39235
Urban	4466	411	78	78	30094	11482
West Kittsondale	21115	1943	371	371	142284	54285
West Seventh	7451	686	131	131	50207	19156

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

Subwatershed	Cl	TKN	Total P	NO2+NO3	TSS	VSS
Battle Creek	45792	619	253	200	54544	19222
Beaver Lake	4858	66	27	21	5786	2039
Belt Line	127102	1717	701	556	151392	53353
Crosby	66441	898	367	290	79138	27890
Davern	62972	851	347	275	75006	26434
Downtown	35785	484	197	156	42624	15021
East Kittsondale	2364	158	141	43	17818	3846
Fish Creek	1834	25	10	8	2185	770
Goodrich/Western	23173	313	128	101	27602	9727
Griffith/Pt. Douglas	21515	291	119	94	25626	9031
Hidden Falls	15138	205	84	66	18031	6355
Highwood	43052	582	238	188	51280	18072
Lake Como	53482	723	295	234	63702	22450
Lake Phalen	52547	710	290	230	62590	22058
Mississippi River Blvd.	121950	1648	673	533	145255	51191
MRWMO	8310	112	46	36	9898	3488
Phalen Creek	27921	225	55	93	10126	5155
Pigs Eye	92039	1244	508	402	109628	38635
Riverview	44447	601	245	194	52941	18657
St. Anthony Hill	147186	1989	812	643	175315	61784
St. Anthony Park	22338	177	40	84	10946	22338
Trout Brook	11522	307	118	61	37514	13912
Urban	14291	193	79	62	17022	5999
West Kittsondale	61393	830	339	268	73125	25771
West Seventh	23475	317	130	103	27961	9854

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

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

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

Reporting Year	Data Entry Date	Entered by	Notes
2019	4/10/2020	St. Paul Sewers	
2020	3/1/2021	St. Paul Sewers	
2021	4/1/2022	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		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		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		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		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		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		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		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		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		44.9643	-93.1517	Lat-long	Permittee (you)	NA	2007	Hubbard/Griggs Trench at Griggs and Englewood		X				
MN0061263-11	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		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		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		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		44.9285	-93.1517	Lat-long	Permittee (you)	NA	2007	Jeffersn/Griggs Trench at Palace and Griggs		X				
MN0061263-15	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		44.9283	-93.1503	Lat-long	Permittee (you)	NA	2007	Jeffersn/Griggs Trench at Palace and Edgecumbe		X				
MN0061263-16	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		44.9301	-93.1543	Lat-long	Permittee (you)	NA	2007	Jeffersn/Griggs Trench at Syndicate and Juliet		X				
MN0061263-17	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		44.9311	-93.1543	Lat-long	Permittee (you)	NA	2007	Jeffersn/Griggs Trench at Syndicate and Wellesley		X				
MN0061263-18	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		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		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		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		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		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		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		44.9473	-93.0543	Lat-long	Permittee (you)	NA	2008	Earl/McLean Trench at Frank and Thorn		X				
MN0061263-25	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		44.9493	-93.0414	Lat-long	Permittee (you)	NA	2008	Earl/McLean Trench at Etna and Burns		X				
MN0061263-26	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		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		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		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		44.9215	-93.1287	Lat-long	Permittee (you)	NA	2008	Seventh/Kay Trench at Bay and Butternut		X				
MN0061263-30	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		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		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		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		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		44.978	-93.1359	Lat-long	Permittee (you)	NA	2009	Victoria/Arlington Trench at Como Lake Dr and Maryland	X					
MN0061263-35	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		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		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		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		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		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		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		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		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		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		44.961	-93.1543	Lat-long	Permittee (you)	NA	2011	Blair/Grimes Trench at Syndicate and Blair		X				
MN0061263-45	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		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		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		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		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		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		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		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		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		44.9694	-93.1985	Lat-long	Permittee (you)	NA	2013	Hampden Park Trench		X				
MN0061263-54	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		44.9761	-93.0929	Lat-long	Permittee (you)	NA	2014	Trout Brook Nature Sanctuary (South of Maryland)		X				
MN0061263-55	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		44.9741	-93.0931	Lat-long	Permittee (you)	NA	2014	Trout Brook Nature Sanctuary (at Magnolia Ave)		X				
MN0061263-56	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		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		44.9483	-93.1165	Lat-long	Permittee (you)	NA	2014	Wiseltern Ave Trench at Wiseltern and Marshall		X				
MN0061263-58	St. Paul	MN0061263	2019	Infiltrator	Infiltration trench	Complete columns H through K		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		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		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		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		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		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		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		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		44.9756049	-93.1356788	Lat-long	Permittee (you)	NA	2017	Como Park I45 at Rose	X					
MN0061263-67	St. Paul	MN0061263	2019	Manufactured_device	Gross pollutant trap	No ID information needed		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		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		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		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		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		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		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		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		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		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		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		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		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		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		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		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		44.989	-93.114	Lat-long	Permittee (you)	NA	2020	Wheelock Parkway Sreet Project		x				
MN0061263-84	St. Paul	MN0061263	2020	Infiltrator	Tree trench/tree box/planter	Complete columns H through K		44.964	-93.206	Lat-long	Permittee (you)	NA	2020	Weyerhauser Development		x				
MN0061263-85	St. Paul	MN0061263	2020	Filter	Bioretention with underdrain (rain garden)	Complete columns H through K		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		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		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		44.959	-93.082	Lat-long	Permittee (you)	NA	2021	Tedesco-Payne		X				

Cumulative Reductions Spreadsheet

Category 1: Summary of quantitative reductions (Annual Pollutant Load Reduction).											Optional	
Permittee	**MS4 ID**	**TMDL project**	Units	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	Calculation method	Notes
St. Paul	**MN0061263**	Como Lake - Phosphorus	pounds reduced	30	30	30						
St. Paul	**MN0061263**	South Metro Mississippi River TMDL (Metro) - TSS	pounds reduced	247,689	247,705	262,072						
St. Paul	**MN0061263**	Battle Creek; Como Lake; Kasota Ponds North; Kasota Ponds West; Mallard Marsh - Chloride	pounds reduced	0	0	0						
St. Paul	**MN0061263**	Battle Creek -TSS	pounds reduced	4,497	4,497	4,497						
St. Paul	**MN0061263**	Fish Creek - E. coli	pounds reduced	0	0	0						
St. Paul	**MN0061263**	Wakefield Lake - Phosphorus	pounds reduced	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	13	13	13					
St. Paul	**MN0061263**	South Metro Mississippi River TMDL (Metro) - TSS	64	68	92					
St. Paul	**MN0061263**	Battle Creek; Como Lake; Kasota Ponds North; Kasota Ponds West;	0	0	0					
St. Paul	**MN0061263**	Battle Creek -TSS	3	3	3					
St. Paul	**MN0061263**	Fish Creek - E. coli	0	0	0					
St. Paul	**MN0061263**	Wakefield Lake - Phosphorus	0	0	0					

Non-implemented activities (BMP Inventory)

Permittee	MS4 ID	BMP description	Status	Reporting year	Notes (Optional)	Place an "X" in a cell if the activity applies to the TMDL shown in the column: Como Lake - Phosphorus	South Metro Mississippi River TMDL (Metro) - TSS	Battle Creek; Como Lake; Kasota Ponds North; Kasota Ponds West; Mallard Marsh - Chloride	Battle Creek - TSS	Fish Creek - E. coli	Wakefield Lake - Phosphorus
St. Paul	MN0061263	Griggs Scheffer Phase II	Under construction	2022	2 Infiltration Trenches		X				
St. Paul	MN0061263	Wabasha St	Under construction	2022	Filtration		X				
St. Paul	MN0061263	Prior Ave	Under construction	2022	Infiltration Trench		X				
St. Paul	MN0061263	Wheelock Phase V	Under construction	2022	Infiltration Trench		X				
St. Paul	MN0061263	Bush/Desoto	Planned	2023	CDS Structures/Infiltration Pond		X				
St. Paul	MN0061263	Ford Site	Under construction	2023	CDS Structures/Filtration Basins/Filtration Cartridges		X				
St. Paul	MN0061263	Flandrau/Case	Planned	2023	Iron Enhanced Filtration		X				
St. Paul	MN0061263	Edgcumbe Rd	Planned	2023	Filtration		X				
St. Paul	MN0061263	Shepard Ponds	Planned	2023	CDS Structures/Infiltration Pond		X				
St. Paul	MN0061263	Kellogg/Third St Bridge	Planned	2023	Filtration		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	Planned	2024	CDS Structures/Filtration Basins/Filtration Cartridges		X				

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 8 BMPs throughout the year in 2022. These BMPs will be combined with various pretreatment structures to reduce the loading of TSS into the Mississippi River.
Shepard Ponds: In 2022, the City of Saint Paul will pursue performance monitoring to determine retrofit opportunities to improve and increase the effectiveness of Shepard Ponds.
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.