Storm Water Management Program and Annual Report

Presented by:

The City of Minneapolis
and
Minneapolis Park & Recreation Board

EPA / NPDES
Environmental Protection Agency
National Pollutant Discharge Elimination System

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Table of Contents

Title Page i

Acknowledgements ii

Table of Contents iii

Introduction 1

Report Objective 1

Background 1

Program Administration 2

Stormwater Management Program Summary 2

I. Storm Drain System Operation and Quality Control 5

Program Objective 5

Program Overview 5

Previous Year Activities 6

Work Plan 6

Performance Measures 7

II. Structural Controls, Maintenance and Operation 8

Program Objective 8

Program Overview 8

Previous Year Activities 8

Work Plan 9

Performance Measures 9

III. Disposal of Removed Substances 10

Program Objective 10

Program Overview 10

Previous Year Activities 10

Work Plan 10
Performance Measures 10
IV. New Developments and Construction 11
Program Objective 11
Program Overview 11
Previous Year Activities 14
Work Plan 15
Performance Measures 16
V. Roadways 17
Program Objective 17
Program Overview 17
Previous Year Activities 18
Work Plan 19
Performance Measures 19
VI. Flood Control 20
Program Objective 20
Program Overview 20
Previous Year Activities 21
Work Plan 21
Performance Measures 22
VII. Pesticides and Fertilizers 23
Program Objective 23
Program Overview 23
Previous Year Activities 24
Work Plan 25
Performance Measures 26

VIII. Illicit Discharges and Improper Disposal to Storm Sewer System 27

Program Objective 27

Program Overview 27

Previous Years Activities 28

Work Plan 29

Performance Measures 31

IX. Storm Sewer Design for New Construction 32

Program Objective 32

Program Overview 32

Previous Year Activities 32

Work Plan 33

Performance Measures 33

X. Public Education 34

Program Objective 34

Program Overview 34

Previous Year Activities 35

Work Plan 38

Performance Measures 38

XI. Public Participation Process 39

Program Objective 39

Program Overview 39

Previous Year Activities 39

Work Plan 40

Performance Measures 40

XII. Coordination with Other Governmental Entities 41

Program Objective 41

Program Overview 41
Previous Year Activities 42
Work Plan 46
Performance Measures 46
XIII. Monitoring Results and Data Analysis 47
Stormwater Runoff Monitoring Results 47
Best Management Practices Monitoring Results 48
Minneapolis Lake Trends 50
2001 Water Resources Report 51
XIV. Storm Drain System and Drainage Areas Inventory 52
Storm Drain System Infrastructure 52
Drainage Areas and Discharges 52
Event Mean Concentration and Annual Pollutant Loadings 52
XV. Financial Statement 54
XVI. Conclusion 56
Program Assessment 56
Permit Modifications 56
Appendix A-1
Introduction A-1
Sources of Pollutants in Storm Water Runoff A-1
Storm Drain System Operation and Quality Control A-3
Sewer Maintenance Annual Report Initiative A-3
Sewer Maintenance Standard Operating Procedures A-4
Structural Controls Maintenance and Operation A-5
Grit Inspection And Cleaning Form A-5

Outfall Inspection Records Form A-6
2001 Grit Chamber Inspection and Cleaning....A-7
New Developments and Construction....A-11
Chapter 52 Erosion and Sediment Control for Land Disturbance Activities A-11
Chapter 54 Storm Water Management....A-26
Load Reduction Requirements A-36
Erosion and Sediment Control Fact Sheet A-37
Standard Erosion Control Notes A-38
Erosion Buster Site Inspection Form A-40
Erosion Control Permitting Process....A-41
Erosion Control Requirements and Fee Schedule A-42
Site Plan Check List....A-43
Flood Control....A-44
Fema Floodway Zones & Map Panels....A-44
Flood Mitigation Project Status (map)....A-45
Pesticides and Fertilizers A-46
Chapter 230 Pesticide Control....A-46
Chapter 55 Lawn Fertilizer....A-48
Illicit Discharges and Improper Disposal to Storm Sewer System....A-52
Chapter 48 Minneapolis Watershed Management Authority A-52
Chapter 511 Sewers and Sewage Disposal A-70
Chapter 53 Lubricating and Motor Oils Recycling A-76
Standard Operating Procedure for Vehicle Related Spills....A-78
Specification for Disposal of Spill Debris from Vehicle Related Spills A-79
Oil and Hazardous Materials Spill Data Form....A-88

Non-Stormwater Discharge Permits A-90
Coordination with Other Governmental Entities A-91
Watershed Management Boundaries A-91
Monitoring Results and Data Analysis A-92
Minneapolis NPDES Storm Water Monitoring Sites A-92
National Pollutant Discharge Elimination System (NPDES) Monitoring A-93
Storm Drain System and Drainage Areas Inventory A-117
Minneapolis Grit Chamber Inventory A-117
Storm Pump Stations A-120
Storm Drainage Areas By Receiving Water Body A-122
Storm Drainage Areas Characterization A-123
Minneapolis Storm Water Ponds (map) A-135
Grit Chamber Locations (map) A-136
Storm Drain System (map) A-137
Storm Drain Outfall Locations (map) A-138
Storm Water Runoff Drainage Boundaries (map) A-139
Annual and Seasonal Pollutant Load Calculation Methods A-140
2001 Annual Pollutant Loadings By Receiving Water A-145
2001 Pollutant Loadings By Outfall A-146
2001 Spring Pollutant Loadings By Outfall A-152
2001 Summer Pollutant Loadings By Outfall A-159
2001 Fall Pollutant Loadings By Outfall A-166
2001 Winter/Snowmelt Pollutant Loadings By Outfall A-173
Financial Statement A-179
Sewer Maintenance 2001 Costs and 5-Yr Budget A-179

Street Maintenance 2001 Costs and 5-Yr Budget A-180

2001 Public Education Costs A-181

Public Education 5-Yr Budget A-184

2001 NPDES Monitoring Costs.....A-185

Stormwater Monitoring 5-Yr Budget.....A-188

Flood Mitigation Program 2001 Costs and 5-Yr Budget A-189

Engineering Services 2001 NPDES costs and 5-Yr Budgets A-190

Amendment: Response To Public Comments..... B-1

Introduction

Report Objective

The objective of the Minneapolis NPDES program is to effectively mitigate the pollution effects of urbanization on stormwater runoff to the maximum extent practicable (MEP) by the implementation of approved stormwater management activities. This program will organize and supplement current City stormwater management activities to meet that objective, and provide annual documentation and analysis of those activities in order to maximize program performance. The City of Minneapolis has been developing and implementing water quality programs and practices for more than a decade, and will continue to do so within the framework of NPDES Permit No. MN0061018.

Background

All activities mandated by the Permit are currently fully implemented or scheduled for implementation by the end of 2002. Some activities are being developed as joint coordinated efforts of several departments such as those for the Illicit Discharges and Improper Disposal to Storm Sewer System and the Pesticides and Fertilizers programs. In order to prepare this year's Annual Report, departments performing permitted activities reviewed current program status and prepared documentation and cost information for submittal. Implementation of all mandated activities in the permit will be finalized this year. The Best Management Practices (BMPs) currently in use have been based on NPDES Permit Applications Part 1 and 2 (1991 - 1992). Development for these programs began in 1993, in anticipation of obtaining an NPDES stormwater permit. Some of the existing programs required additional activity tracking and revised formats for record keeping. In 2001, a great deal of progress was made in redesigning databases, forms, and other applications used for documentation of NPDES programs. Cost accounting methods in the past have not been generally focused towards effectively isolating cost reporting and budget analysis for stormwater management programs. 2001 expenditures and 5-year budgets are provided in this year's Annual Report. Coding will examined for possible revisions to improve tracking of BMP costs for effective NPDES reporting.

Program Administration

An NPDES Steering Committee (NSC) was formed to develop and direct the City's NPDES Stormwater Management Program, and coordinate completion of required permit submittals. NSC includes representatives of each City department responsible for identified program activities. Departments represented include Minneapolis Park and Recreation Board; Engineering Services, Sewer Maintenance, and Street Maintenance divisions of Public Works; Regulatory Services Environmental Management; and the Minneapolis City Attorney's Office. The responsibilities of this group will include the following activities:

- Program and Annual Report guidance, coordination, production, task assignment, submittal schedule, and procedures establishment
- Revise coding as needed for financial reporting requirements
- Propose specific Program goals
- Propose performance measures to be used to gauge effectiveness, success, or benefits of activities
- Propose permit modifications
- Propose new programs and regulatory controls
- Provide education and status updates for policy-makers on Program and Report
- Provide department representatives at public hearing, and participate in response to comments received
- Renew and amend cooperative agreement between the Joint Permittees
- Propose changes, participate in negotiations, and complete applications for new Permits

Stormwater Management Program Summary

Structural Controls Maintenance and Operation	*Responsible department:* Public Works Field Services, Sewer Maintenance	
	Activities:	*Status:*
	▪ Inspect controls (grit chambers, ponds, pump stations, other controls) at least 2 times a year.	Ongoing
	▪ Adjust frequency of inspections after 2 years as indicated to prevent pollutants being conveyed to the receiving water.	Ongoing
	▪ Inspect 20% of outfalls on a rotating basis.	Ongoing
	▪ Perform maintenance and repairs as needed or provide schedule for work required.	Ongoing
	▪ Document inspection results, date, antecedent weather conditions, sediment storage and capacity remaining	Ongoing

Storm Sewer System Operation and Quality Control	*Responsible department:* Public Works Field Services, Sewer Maintenance	
	Activities: ▪ Maintain all facilities or systems of control in good working order and operate as efficiently as possible ▪ Provide adequate operating staff to insure compliance with the conditions of this permit	*Status:* Ongoing Ongoing
Disposal of Removed Substances from Structural Controls	*Responsible department:* Public Works Field Services, Sewer Maintenance	
	Activities: ▪ Dispose of removed substances in a manner that will prevent pollution and comply with applicable regulations ▪ Document quantity of removed substances and categorize by structural control source, type of substance, and season	*Status:* Ongoing Ongoing
New Developments and Construction	*Responsible department:* Regulatory Services, Environmental Management Public Works, Engineering Services	
	Activities: ▪ Use a planning process (site plan review) to regulate construction, and require erosion control and stormwater management	*Status:* Ongoing
Roadways	*Responsible department:* Public Works Field Services, Street Maintenance	
	Activities: ▪ Sweep at least twice a year ▪ Document frequency, methods, quantity of material picked up (categorize by season and/or material), disposal of materials. ▪ Use techniques or practices to minimize runoff of deicing materials from application and handling activities. ▪ Document quantity of materials used each year. ▪ Minimize runoff of deicing materials from storage – document location and condition of all storage facilities, planned improvements.	*Status:* Ongoing Ongoing Ongoing Ongoing Ongoing
Flood Control	*Responsible department:* Public Works, Engineering Services	
	Activities: ▪ Design flood control projects to minimize the impacts on the water quality of the receiving water. ▪ When planning repairs, improvements, or changes for flood control devices; evaluate the feasibility of retrofitting the existing devices to provide additional pollutant removal from stormwater discharges.	*Status:* Ongoing Ongoing
Pesticides and Fertilizers	*Responsible department:* Minneapolis Park and Recreation Board	
	Activities: ▪ Implement city wide education program regarding the proper application of pesticides and fertilizers. ▪ Conduct a pilot project to investigate use of pesticides and fertilizers on City facilities.	*Status:* Ongoing Ongoing

Illicit Discharges and Improper Disposal to Storm Sewer System	*Responsible department:* Regulatory Services, Environmental Management Public Works Field Services, Street Maintenance Public Works Field Services, Sewer Maintenance	
	Activities:	*Status:*
	▪ Provide appropriate control measures for non-stormwater discharges	Ongoing
	▪ Conduct field screening annually in 20% of the drainage areas.	In development
	▪ Prohibit disposal of motor vehicle fluids & household chemical wastes	Ongoing
	▪ Report number of spills and unauthorized discharges that occurred and the response to the spills.	Ongoing
	▪ Educate staff regarding the duty to notify the Department of Public Safety Duty Officer.	Ongoing
	▪ Adopt notification protocol for response and containment of materials	Ongoing
Storm Sewer Design for New Construction	*Responsible department:* Public Works Engineering Services	
	Activities:	*Status:*
	▪ Design & construct new storm drains to provide capture of runoff debris.	Ongoing
Public Education	*Responsible department:* Minneapolis Park and Recreation Board	
	Activities:	*Status:*
	▪ Conduct a public education program to promote, publicize, and facilitate the proper management of stormwater discharges.	Ongoing
Public Participation Process	*Responsible department:* Public Works Engineering Services	
	Activities:	*Status:*
	▪ Adopt a process to allow for public input into the development of priorities and activities necessary to maintain compliance with this permit.	Ongoing
	▪ Conduct a public hearing or other meeting where the opportunities for public testimony is available prior to annual report submittal & notify all governmental entities with jurisdiction over activities related to stormwater management in the area.	Ongoing
	▪ Include a formal resolution from the City Council adopting the report with a summary of the public input received and the City's response	Ongoing
Coordination with Other Governmental Entities	*Responsible department:* Public Works Engineering Services Planning Department	
	Activities:	*Status:*
	▪ Submit a report by June 1, 2002 listing the other governmental entities that perform stormwater management activities in the drainage area including a summary of activities and relevance to the permit.	Completed
	▪ Submit a report submitted by June 1, 2003 describing how the different governmental entities are cooperating and coordinating efforts in managing stormwater related activities in the drainage area including goals for each cooperative effort, where and how the activity will be performed, & schedule for implementing it.	To be completed next year
Stormwater Monitoring	*Responsible department:* Minneapolis Park and Recreation Board	
	Activities:	*Status:*
	▪ Conduct runoff monitoring.	Ongoing
	▪ Provide analysis of data collected.	Ongoing

I. Storm Drain System Operation and Quality Control

Program Objective

The objective of this stormwater management program is to minimize the discharge of pollutants by proper maintenance and operation of the City's storm drain system. POLLUTANTS TARGETED: Sediment, Nutrients.

Program Overview

The Field Services - Sewer Division of the Public Works Department maintains the City's storm drain and sanitary sewer systems. Current staffing of the division is 60 permanent, full time and 2 seasonal employees. Routine operations include inspection, cleaning, repairing, and reconstruction of storm and sanitary pipes, control structures, pump stations and grit removal structures. The table below shows the base operational functions of the Division along with the corresponding staffing.

Crews	Staff/crew	Type	Tasks
4	2	Route	Daily inspection of storm and sanitary systems, respond to complaints and minor problems
5	2	Jet	Clean storm and sanitary by jetting
2	2	TV	Televise and inspect storm and sanitary
2	3	Repair	Handle minor and major repairs of storm and sanitary
2	3	Disc	Clean sanitary by discing
3	2	Vacuum	Clean grit chambers, manholes and inlets in paving areas, and assist other crews
1	2	Rodding	Clean roots in sanitary by rodding
1	2	Pond	Maintain stormwater ponds
1	3	Shop	Lift station maintenance and repairs, equipment repairs and shop work

Previous Year Activities

The City of Minneapolis Sewer Department was actively engaged in the maintenance and repair of the City's storm drain system in 2001. Some of the more noteworthy accomplishments are summarized in the following list.

- Responded to 792 complaints of plugged or backed-up catch basins.
- Responded to 63 complaints of cave-ins around catch basins and manholes.
- Completed 442 minor repairs to storm drain lines, catch basins or manholes.
- Completed 7 major repairs. These repairs included a control structure near Thomas Avenue and Lake Harriet, a storm drain outlet on the north side of Minnehaha Creek between 11th Avenue SE and E. 50th Street, and disconnecting several roof leaders.
- Repaired 124 feet of storm drain with a cured-in-place liner.
- Cleaned 7.98 miles of storm drain by jetting.
- Televised 0.97 miles of storm drain.

Work Plan

In addition to performing the day-to-day maintenance activities the Sewer Division is also heavily involved in managing the system. In an effort to maintain this part of the Division's responsibilities an annual report initiative was made, and it is hoped that it can be implemented at the end of 2003. The proposed content of the report is included in the appendix on pages A-3 and A-4.

Staffing levels are judged to be adequate at this time, but are becoming strained as additions to the infrastructure are made and Division responsibilities increased. For example: In 1999 the City and the Park and Recreation Board agreed to transfer the ownership and maintenance responsibilities of all Park Board storm drains to the Minneapolis Public Works Department. Overall, this transfer increased the Divisions storm drain maintenance responsibilities by roughly 20%. For the most part the inherited system is relatively old and has not had the benefit of regular maintenance for many years. The Sewer Division is currently completing an inventory of the system and is also in the midst of establishing a more formal inspection, cleaning and repair schedule. Overall funding to the Sewer Division has been increased in recent years. In addition to inherited systems such as the Park Board storm drains it is expected that additional resources

will be required as more grit chambers, holding ponds, pipe lines, and other structures are built to improve runoff quality and alleviate flooding problems.

Performance Measures

- Miles inspected per year
- Miles cleaned per year

II. Structural Controls Maintenance and Operation

Program Objective

The objective of this stormwater management program is to minimize the discharge of pollutants by proper operation and maintenance of stormwater structural controls. Structural controls in the context of the NPDES permit are devices in the storm drain system used to control flow rates and water quality. These structures can include grit chambers, retention/detention ponds, outlets, inlets, pump stations, and weirs. POLLUTANTS TARGETED: Sediment, Nutrients.

Program Overview

Generally, the Sewer Maintenance department inspects their structural control facilities routinely and performs maintenance as needed to ensure proper operation. Frequency of inspections and maintenance are often event-driven and based on maintenance experience and inspection results history. The number of grit chambers installed as devices for sediment, debris, and oil collection in the City is steadily increasing. These facilities are inspected in the spring and fall of each year and cleaned if needed. Sediment quantity removed, floatable amounts, presence of oil, and the date cleaned are recorded by maintenance crews on log sheets that are later compiled into a database. Ponds and pump stations are routinely inspected after any significant rainfalls or other events that might cause concern or entail a maintenance response. Catch basins are cleaned to remove accumulated sediments, trash and debris to prevent pollution of receiving waters and minimize flooding problems. Street Maintenance workers annually inspect and clean basins grates on street sweeping routes during the summer. Sewer Maintenance crews remove debris and sediments from blocked structures discovered in the course of their operations, or reported by Public Works field personnel or residents. Other controls are serviced on an as-needed basis.

Previous Year Activities

- Monitored and maintained 25 pump stations (up from 23 in 2000). See pages A-120 through A-121 in the appendix for details

- Inspected and cleaned 81 grit chambers (up from 79 in 2000). A total of 790 cubic yards of grit were removed. See pages A-5, A-7, A-117 through A-119, and A-136 in the appendix for details.
- Maintained 5 stormwater holding ponds. See page A-135 in the appendix for details (up from 3 in 2000).
- Inspected over 390 storm drain outfalls. See pages A-6 and A-138 in the appendix for details.

Work Plan

After review of current activities and record keeping practices the Division is in the process of implementing the following activities:

1. A five-year plan to survey and inspect all storm drain outfalls. This survey will commence this year and be completed in 2006. This program will include the documentation of erosion and additional protection needed as well as documentation of completed repairs or work schedule.
2. Development and use of inspection forms to document pump station and pond management activities.
3. Update and review of the Division's structural control inventory to better manage these structures as well as their inclusion in next year's annual report.

Performance Measures

- Amount of material removed
- Number of times each structure is cleaned
- Structures inspected annually

III. Disposal of Removed Substances

Program Objective

The objective of this stormwater management program is to dispose of substances removed from structural controls in a manner that will prevent pollution and comply with applicable regulations. POLLUTANTS TARGETED: Sediment, Nutrients.

Program Overview

Removed substances are screened for visual or olfactory indications of contamination. If contamination of the material is suspected, the Public Works Engineering Laboratory will select representative samples for an environmental analysis. Disposal will be in a landfill or other site as approved by the Minnesota Pollution Control Agency (MPCA) depending on the analysis.

Previous Year Activities

Operations crews removed 790 cubic yards of material from structural controls during 2001. The material removed consisted primarily of sand collected from chambers designed to retain sediment before it affects any receiving water. See pages A-7 through A-10 in the appendix for details.

Work Plan

Continue current activities with the expectation that more material will be removed as the result of additional structures constructed.

Performance Measures

- Quantity of materials removed
- Quantity of materials hauled to disposal site
- Testing results

IV. New Developments and Construction

Program Objective

The objective of this stormwater management program is to minimize the discharge of pollutants by regulating construction projects to require erosion control and stormwater management. POLLUTANTS TARGETED: Mercury, TSS, BOD5, Phosphorus, Nitrate + Nitrite.

Program Overview

Title 3, Air Pollution and Environmental Protection of the Minneapolis Code of Ordinances contains chapters with requirements for erosion control and stormwater management for new developments and land-disturbing construction activities.

Site Plan Review

Construction and new developments are controlled through the City's site plan review process. The Zoning section first checks for consistency with existing zoning ordinances. After Zoning has approved the proposed land use, City planners review the proposed plan and make a recommendation to the Planning commission. After the Commission's approval 10 sets of construction plans are submitted to Zoning who routes the plan sets through licensing, fire, and community crime prevention. Once those reviews are completed Public Works Street, Traffic, Sidewalk, Water, Right of Way, and Sewer review for compliance issues. The Sewer section of Public Works reviews compliance with the erosion control and stormwater management ordinances. The Plan Review section determines compliance with applicable state building and mechanical codes. Only when each of these reviews has been completed will the applicant be able to secure a permit.

Erosion Control

Ordinance

On May 16, 1996 the Minneapolis City Council amended Title 3 of the Minneapolis Code of Ordinances relating to Air Pollution and Environmental Protection by adding Chapter 52 entitled "Erosion and Sediment Control for Land Disturbance Activities". This ordinance regulates everyone who disturbs topsoil and is designed to insure that soil does not leave the excavation site or enter any storm drain system on either private property or the public right-of-way.

Requirements

All sites disturbing topsoil are subject to erosion control compliance under the ordinance. Sites disturbing more than five cubic yards or 500 square feet of topsoil including utility excavations and any residential or commercial demolition projects need an erosion control permit prior to commencement of work. Demolition and construction sites greater 5000 square feet require an approved erosion control plan prior to a permit being issued for the site.

Enforcement

Ongoing site inspections are by performed by Public Works and Regulatory inspectors. Violation of the ordinance is a misdemeanor, which holds a maximum penalty of $700 and/or ninety days in jail. Inspectors finding sites in violation of the ordinance may issue a warning notice, citation or a “Stop Work Order” to the permitee. Failure of the permittee to comply with the ordinance will constitute a violation pursuant to Section 52.300, and will be considered a nuisance pursuant to Laws of Minnesota for 1994, Chapter 587, Article 9, Section 4. The issuing authority may cancel the permit and proceed with the necessary restoration of the site at the expense of the owner.

All street, utility and construction projects undertaken by the Department of Public Works are exempt from the permitting requirement. Although these projects are exempt from the permitting process they are, they are required to implement the City of Minneapolis erosion control BMPs as outlined in the Design Manual.

Long-Term Stormwater Management

Ordinance

On November 24, 1999 the Minneapolis City Council amended Title 3 of the Minneapolis Code of Ordinances relating to Air Pollution and Environmental Protection by adding Chapter 54 entitled “Stormwater Management”. Chapter 54 establishes requirements for land disturbing activities on sites greater than one (1) acre; including phased or connected actions and for existing stormwater devices.

Plan Review

Stormwater management plans are required for all construction projects greater than 1 acre in size. Sites less than 1 acre are encouraged to incorporate stormwater BMPs in their design as a means of satisfying other city codes such as green space requirements. These plans are reviewed through the Public Works Site Plan Review process.

Registration

Stormwater devices will be registered with the City of Minneapolis Department of Regulatory Services, with an annual permit being required for each stormwater device registered. A maintenance and inspection program will be included in the permitting process.

Goals

The Minneapolis Stormwater Ordinance specifies that stormwater management standards be set according to the receiving water body. These standards include but are not limited to:

- Reductions of suspended solids for Mississippi River discharges
- Controlled rate of runoff for discharges to streams, areas prone to flooding, and areas with infrastructure limitations
- A reduction in nutrients for stormwater discharging to lakes and wetlands
- On-site, off-site, or regional stormwater facilities
- Maximizing infiltration by minimizing the extent of impervious surfaces
- Employing natural drainage ways and vegetation

Stormwater "Buy Out"

This option is only reserved for those sites that can demonstrate they do not have sufficient space for stormwater treatment structures. Therefore, with approval of the City Engineer, the ordinance allows developers to contribute to the construction of a regional stormwater facility in lieu of on-site treatment. The fee for contribution to a regional facility in lieu of onsite treatment is established at $15,000. Final Plan approval is conditional on payment received.

Design Manual

The Minnesota Urban Small Sites BMP Manual, *Stormwater Best Management Practices for Cold Climates*, now serves as the Minneapolis Stormwater Design Manual. This manual contains specific details on compliance with the Stormwater Management ordinance, stormwater management techniques and approved specifications for temporary and permanent erosion control. The manual incorporates a compilation of best management practices (BMPs) for stormwater management as well as a selection matrix to fit the BMP to the site. The Design Manual also includes a guide to the City's site plan approval process, erosion and stormwater ordinance summaries, City of Minneapolis contacts, stormwater load requirements, and local examples of BMPs.

Previous Year Activities

Site Plan Review

During 2001, the Minneapolis Department of Public Works, Engineering Services section took part in the preliminary review of over 250 site plans. 157 site plans received City of Minneapolis Planning Commission approval, were routed for final review, and issued construction and other permits. Increased attention to erosion control plan submittals provided for better compliance with site inspections. The site plan review process was instrumental in providing for increased erosion control implementation and the addition of stormwater management BMPs to new and existing sites.

Erosion Control

During 2001, Public Works and Regulatory staff continued to regulate erosion control through permitting and site inspections. 544 total permits were issued by Public Works and Regulatory Services.

With these permits, Public Works[1] inspectors performed over 900 erosion control and site inspections resulting in greater compliance and the following enforcement actions:

- 217 erosion compliance orders were issued
- 5 citations were issued
- 2 sites were issued stop work orders

Long-Term Stormwater Management

In it's second year on the books, the City of Minneapolis Stormwater Ordinance saw an increase in implementation of BMPs and sites captured. Sites reviewed with stormwater BMPs ranged from 0.5 acres to over 20 acres with many implementing design techniques from the *Minnesota Urban Small Sites BMP Manual.* In short time, this manual has proved to be a valuable resource in helping small urban sites address water quality and rate control issues. A summary last year's sites using stormwater management best practices is as follows:

- 50 sites captured under the ordinance
- 100 sites implementing over 200 stormwater BMPs

[1] Regulatory inspectors also performed inspections but no data was made available to include in this report.

- 2 sites exercising the "Buy-Out Option" of the ordinance

Work Plan

Site Plan Review

Public Works staff currently continues their detailed review of site plans to assure the implementation of erosion and stormwater BMPs. The Public Works site plan database is being expanded to more easily track the type, location, and number of stormwater BMPs constructed. The process in place for site plan review has worked in the best interests of water quality. Public Works will continue to review plans from a water quality perspective.

Erosion Control

Erosion control review, regulation, and inspections are continuing this year at approximately the same level as the previous year. We expect to increase our compliance this summer with the addition of a seasonal engineering technician. This technician's primary responsibilities will be to assist current staff with site inspections and enforcement of erosion control. Public Works will continue to monitor sites for erosion control compliance to determine if increased staffing will yield a higher level of compliance.

Long-Term Stormwater Management

Current activities will assure the continuation of the progressive nature of our program. In addition to implementing the ordinance to provide for increased water quality, Public Works will include the following tasks to improve our program.

Permitting

The stormwater ordinance calls for the registration of all stormwater devices and the issuance of an annual permit for each device. With limited staff available, our previous year's activities focused on the installation of these devices. By the end of 2002, Public Works staff will provide Regulatory services a detailed list of all Stormwater BMPs installed for permitting. The following data will be included each annual permit:

- Property owner data
- Site address
- Detailed description of BMP installed
- Date installed

- Location of BMP
- Maintenance plan and schedule

Once the BMP has been installed and permitted, all future responsibility for inspection and permitting will transfer to Regulatory Services staff.

Ordinance Review

After two years of experience in implementing the stormwater ordinance, Public Works staff has begun a review of the entire ordinance for modifications. We will provide a summary of proposed modifications to the ordinance including the adoption of the *Minnesota Urban Small Sites BMP Manual, Stormwater Best Management Practices for Cold Climates* in the next Annual Report.

Performance Measures

- Number of sites captured for stormwater management
- Number of sites inspected for erosion control
- Percentage of sites inspected found in compliance with erosion control requirements
- Number of stormwater BMPs installed
- Reduction in discharges to flood sensitive areas
- Dollars contributed to the construction of regional stormwater facilities

V. Roadways

Program Objective

The objective of this stormwater management program is to minimize the discharge of pollutants by proper operation and maintenance of public streets and alleys, and municipal equipment yards. POLLUTANTS TARGETED: TSS, BOD5, COD, Phosphorus and Chlorides.

Program Overview

Street Sweeping

Citywide sweeping operations occur every year in the spring and fall. All City streets and alleys are swept systematically aided by enforcement of temporary parking bans. Operational routines employ special methods to address seasonal conditions and optimize cleaning. Flusher trucks apply pressurized water to the streets to push sediment and debris to the gutters, and then street sweepers follow behind and clean the gutters. During the fall, leaves are first bunched into piles and picked up before flushing and sweeping occurs. During the summer, between the spring and fall sweep events, sweepers are assigned to maintenance districts for daily area sweeping. Downtown and other high traffic commercial areas are swept at night on a weekly basis. In addition, summer sweeping in the Chain of Lakes watershed has occurred since 1995 as part of the Clean Water Partnership project. Two sweepers are dedicated to cleaning drainage areas around the Chain of Lakes, and one sweeper is devoted to the Minneapolis Parkway System. Street sweeping techniques now utilize a combination of air regenerative and mechanical sweepers where indicated. Mechanical sweepers are best for bulk sweeping where the debris is heavy, and then air regenerative street sweepers can be used to vacuum up what the mechanical sweepers are not capable of picking up. Under the current program, each street in Minneapolis is swept a minimum of 4 to 5 times each year. Sweeper piles are hauled to a landfill in Monticello, MN to be used as daily cover. Leaves are sent to a composting facility for disposal.

Snow and Ice Control

Street Maintenance applies salt and sand to City roadways every winter for snow and ice control. Efficient application of deicing materials is implemented to reduce costs, required maintenance, and environmental damage. The most obvious costs are for the additional

materials used. Other indirect costs are greater. Catch basins and grit chambers require more frequent cleaning due to the accumulation of sand. Salt causes corrosive damage to bridges, reinforcement rods in concrete streets, metal structures and pipes in the street, and vehicles. Salt is also harmful to groundwater, surface water, plants and trees. Sand harms lakes and streams by disturbing their ecosystem and depositing pollutants that bind to sand particles in lake bottoms and stream beds. Maintenance supervisors are trained in winter maintenance techniques in sessions sponsored by the Local Road Research Board (a training partnership of Mn/DOT and the University of Minnesota). Specific topics covered include guidelines for sand and salt application rates according to conditions, techniques, and spreader calibration. Plans for future training sessions will include equipment operators. Material spreaders are calibrated annually before the winter season. Maintenance yard housekeeping practices are designed to minimize salt/sand runoff. Materials used are tallied on a daily basis.

Storage of Deicing Materials

All salt stockpiles are stored under cover to minimize potential groundwater contamination and runoff. After evaluating existing storage facilities, new storage sheds were constructed in 1991 at maintenance yards located at 60th & Harriet Ave. S. and 1809 Washington Ave. These facilities were designed according to MnDOT specifications to minimize runoff. Two other salt storage facilities exist that will be abandoned or replaced in the next few years in coordination with plans to consolidate maintenance yards and built a new facility at 26th St. E. & Hiawatha Ave. to house Street Maintenance headquarters. The storage shed at 44th St. E. & Snelling Ave. S. will be abandoned after the 2001-2 winter season when that maintenance yard is closed. The temporary storage shed at 198 Aldrich Ave. N. will be abandoned in 3-5 years when the new facility at 26th St. E. & Hiawatha Ave. is completed. The new maintenance yard will employ the most effective BMPs available such as runoff collection systems installed around salt and sand stockpiles and truck washing areas.

Previous Year Activities

The 2000-2001 winter season was a heavy snow and ice year with six snow emergencies and 159 days of snow or temperatures below freezing. Quantities of salt and sand used in snow and ice control are tracked by recording amounts delivered from suppliers and estimating current balances on-hand on a daily basis. Street sweepings and leaves picked up are counted by volume (truckload). These counts are converted to weight by taking an average of a random

weighing of trucks and multiplying by number of truckloads hauled. Statistics for last year's program are as follows:

- 26,500 tons of salt applied to roadways
- 22,700 tons of sand applied to roadways
- 23,800 tons material reclaimed with street sweeping operations during spring and summer
- 3,500[2] tons of leaves collected for composting during fall citywide sweep
- Twenty staff members attended a 40-hour hazardous materials training class
- All division shift staff received their annual review of procedures to follow for the recognition and response to hazardous materials or situations

Work Plan

Ongoing activities fulfill permit requirements. Documentation of materials picked up during street sweeping is a global method. Presently, the method for tracking materials picked up by sweeping operations is to use data on how much material is hauled away. Additional education opportunities will be explored for management and maintenance workers. Management will keep abreast of new technologies for snow and ice control, and street sweeping, as they become available. Any promising technologies will be tested on a pilot basis before implementing.

Performance Measures

- Amount of material recovered as a percentage of material applied.
- Amount of salt and sand applied relative to total snowfall.
- Staff trained in application methods, calibration or other topics relevant to the objectives.
- Number of storage facilities constructed that will contain material and preventing contamination to groundwater.

[2] The fall sweep tonnage was lighter than previous years with comparable volumes due to low moisture content (dry fall season).

VI. Flood Control

Program Objective

The objective of this stormwater management program is to design flood control projects to minimize the impacts on the water quality of the receiving water. POLLUTANTS TARGETED: Volatiles, Metals, Cyanide, Phenols, TSS, BOD5, COD, Bacteria, Oil & Grease, Phosphorus, Nitrogen.

Program Overview

In July of 1997, Minneapolis experienced torrential rainstorms that severely overburdened the existing storm sewer system. The rainstorms caused flooding at locations throughout the city resulting in physical damage to homes, businesses, and automobiles. In response to the flooding, Minneapolis Public Works established the Minneapolis Flood Mitigation Program. Under the program, potential solutions and a plan for implementation were developed for each of 39 areas of the city that experienced flooding and property damage as a result of the 1997 storms. The program began in 1998 and is currently scheduled to run through 2006. New flood areas have been identified since 1997 through reports by residents or continued analysis of the system. Analysis of these areas may result in redefining problem areas and the scope of projects with recommendations to construct additional improvements. The ongoing flood mitigation program includes application of the following design features:

- Construction of dry detention basins
- Construction of stormwater ponds
- Upgrading existing storm sewers to a 10-year 1-hour design[3] and provide protection to homes during 100-year storms
- Replacing catch basin grates to provide for more inlet capacity, and construction of additional catch basin inlets to prevent run-by to in low areas
- Installation of back-up generators for existing pump stations
- Increased inspection and maintenance of inlets and drains located in flood-sensitive areas

[3] City of Minneapolis 10 year design based on a 2.29" - 1-hour rain event.

- Reducing sewer back-ups by removing cross-connections between storm and sanitary systems, reducing I&I (inflow and infiltration) and replacing standard manhole covers in low areas with watertight sealed covers.

Six of the project areas are to be mitigated with the construction of flood detention basins. Four of these will be constructed as wet ponds providing both water quality and flood control. The remaining two will be constructed as dry detention basins due to land use issues. These ponds/basins are designed to fill with storm runoff during peak rain events and empty out slowly. This stabilizes the peak flow, allowing the water to drain out over a longer period of time. They are typically in low-lying areas that cannot be easily drained to a receiving lake or stream.

Previous Year Activities

During 2001 the following Flood mitigation projects were completed with water quality impacts noted below:

Flood Project Area	Mitigation Measure	Stormwater Runoff Benefits
60th St E & 1st Ave S, Flood Area 34	Wet Ponds and associated infrastructure.	Removal of TSS, nutrients, and other pollutants as well as rate control to Minnehaha Creek watershed.
Edison High School, Flood Area 9	Dry ponds and associated infrastructure.	Rate control.
33rd Ave N, Flood Area 6	Increased pipe size and capacity from flood area to river, riverbank stabilization, and stilling basin.	Prevention of further erosion to the outfall area and reduction of sediment and floatables at outfall.
54th St & Lyndale Ave S		

Property acquisitions for water quality/flood ponds were completed in Flood Area 26 (43rd St E & Park Ave), Flood Area 12 (37th St E & Columbus Ave S), and Flood Area 37 (Logan & 27th Ave N). The construction of these projects will commence this year as scheduling permits.

Work Plan

The work plan associated for this program element will see the completion or continuation of the following flood mitigation projects with their water quality impacts noted:

Flood Project Area	Mitigation Measure	Stormwater Runoff Benefits
37th St E & Columbus Ave S, Flood Area 12	Wet Ponds and associated infrastructure	Removal of TSS, nutrients and other pollutants to receiving waters
27th & Logan Ave N, Flood Area 37		
Central Ave NE street reconstruction project		
42nd & Russell Ave N, Flood Area 1		
43rd St E & Park Ave, Flood Area 26		
44th St E & Lake Hiawatha, Flood Area 27	Upgrades in infrastructure to prevent flooding, possible wet pond and grit chambers	Final plans and stormwater improvements in design stage
Southeast Minneapolis Industrial / Bridal Veil (SEMI)	Biofilter swales, filter strips, rain gardens, and a linear urban wetland	Removal of TSS, nutrients and other pollutants to receiving waters
44th St W & Aldrich Ave S, Flood Area 19	Increased pipe capacity and reconstruction of outfall	Prevention of further erosion to the outfall area and reduction of sediment and floatables at outfall

All flood projects currently in the design phase are being analyzed to determine what water quality BMPs can be included without compromising the mitigation effects of the project. Projects scheduled for construction this year are being reviewed to determine if additional water quality BMPs can be added to the existing design that will improve the quality of the receiving waters.

Engineering Services design teams will work to seek flood mitigation solutions that incorporate water quality BMPs into their design. Balancing the needs for reducing peak flows and improving the quality of the receiving waters will be the ultimate goal for each project design. Design staff will take advantage of training opportunities on stormwater management and water quality topics.

Performance Measures

- Number of flood projects completed that include water quality improvements
- Number of staff members receiving training on stormwater management and water quality topics
- Acreage of stormwater runoff receiving treatment prior to discharge to receiving water

VII. Pesticides and Fertilizers

Program Objective

The objective of this stormwater management program is to minimize the discharge of pollutants by controlling the application of pesticides and fertilizers. POLLUTANTS TARGETED: Pesticides, Nutrients.

Program Overview

City Wide Application Education

Utility Billing Inserts

Minneapolis Park and Recreation Board (MPRB) staff develops inserts that are distributed through Utility Billing informational flyers on the adverse effects of fertilizers on water quality. This information is distributed to homes throughout Minneapolis.

Cable TV Programming

Minneapolis Park and Recreation Board staff televises programs that address water quality issues in the City of Minneapolis: "Every Curb is a Shoreline" is a 20-minute video that runs daily on Minneapolis Cable TV. This video, developed in conjunction with the University of Minnesota Extension Service, educates people about stormwater runoff, and how lawn care practices affect water quality. "Billy Bass and the Lake He Calls Home" is a 5-minute video developed by the Minneapolis Park and Recreation Board as part of an elementary school educational program. The video addresses how litter and other forms of pollution effect the lake that Billy Bass lives in and what children can do to help. This video airs daily during the after-school time slot.

Billboards and Transtop Advertising

The Minneapolis Park and Recreation Board uses graphic images in a campaign that illustrates the negative effects that fertilizing, car washing, and pet waste have on water quality. In previous years, posters have been distributed throughout Minneapolis' parks, local libraries and schools. The posters are now used for billboard and bus shelter Public Service Announcements.

Pilot Program Investigation of Use on City Owned Facilities

Minneapolis Park and Recreation Board's pilot program provides training and follow-up for other City employees involved in landscape maintenance on the use of pesticides and fertilizers. The Pesticide License Re-certification Training is a cooperative effort of the University of Minnesota Extension Service and MPRB, and includes training on principles of integrated pest management (IPM).

Integrated pest management uses a combination of approaches to keep pests below levels where they do economic damage. It incorporates the judicious application of ecological principles, management techniques, cultural and biological controls, and chemical methods. Often, IPM begins with wise pesticide and fertilizer use, and then progresses with incorporation of preventative tactics. IPM is not a predetermined set of practices, but a gradual stepwise process for improving pest management.

Previous Year Activities

Lawn Fertilizer Ordinance

On September 28, 2001 the Minneapolis City Council amended Title 3 of the Minneapolis Code of Ordinances relating to Air Pollution and Environmental Protection by adding Chapter 55, Lawn Fertilizer. This ordinance regulates the application of fertilizers and the use of phosphorus containing fertilizers. The ordinance prohibits the application of fertilizers containing phosphorus with the following exceptions:

- If the fertilizer is organic
- If the fertilizer is being applied to newly established turf
- If a soil test has been taken that indicates that the lawn needs phosphorus

The ordinance also addresses the retail sale of phosphorus-containing fertilizers and the application of lawn fertilizers.

City Wide Application Education

- Utility billing inserts were distributed to 100,000 homes in the City of Minneapolis in May 2001.

- The summer of 2001 marked the first time the Minneapolis Park and Recreation Board used graphics developed by the Washington State Department of Ecology for billboard and Transtop bus shelter Public Service Announcements.

Pilot Program Investigation of Use on City Owned Facilities

All MPRB field staff (145) and four members of the Minneapolis Public Works staff completed training in pesticide applications, turf care, water quality and exotic invasive species. All MPRB field staff are licensed non-commercial pesticide applicators, and this training provides for completion of the every two-year re-certification training requirement.

Work Plan

City Wide Application Education

The Minneapolis Park and Recreation Board will continue to expand educational programming to a citywide audience. MPRB will also continue to develop and expand public service announcements regarding the effects of pesticides and fertilizers on water quality.

Pilot Program Investigation of Use on City Owned Facilities

The work plan will requires instituting IPM practices for fertilizers and pesticides across all City departments that manage lands, with the first step being training of MPW staff and others as part of the MPRB training program. MPRB will work with MPW staff to develop and incorporate IPM into their daily work, in consultation with an MPRB horticulture staff person in the 2002 growing season. The work plan will be expanded to include documenting the use of pesticides and fertilizers on all City facilities. This information exists for MPRB facilities, but this same information will need to be generated by Minneapolis Public Works, Minneapolis Community Development Agency, Minneapolis Public Housing Authority and others.

Activities to be undertaken in 2002 also include implementation of the new Minneapolis ordinance regulating phosphorus content in fertilizer, vegetation and turf management mapping of the park system, and conversion of additional parkland from turf to native vegetation.

Performance Measures

- Estimated audience reached by educational programming
- Publications circulation
- Quantity of educational materials distributed and posters displayed
- Number of staff trained and training sessions

VIII. Illicit Discharges and Improper Disposal to Storm Sewer System

Program Objective

The objective of this stormwater management program is to minimize the discharge of pollutants by implementing a program to detect, remove, or require to obtain a separate NPDES or other permit for, illicit discharges and improper disposal into the storm sewer system. POLLUTANTS TARGETED: All Pollutants.

Program Overview

Hazardous Spills

Public Works Street Maintenance, the Fire Department, Regulatory Services Environmental Management Unit, and Emergency Communications coordinate emergency spill procedures and training.

Typical Spill Response

In the event of a spill, Environmental or Fire Department personnel act as the first responders to prevent hazardous materials from entering the storm drain system. Upon arrival, a spill kit is used to contain the spill, with Environmental Management being notified for more extensive spills. For these spills, Environmental staff monitor continued site work, maintain a site presence and follow-up after mitigation is completed. Environmental Management staff then coordinates with Street Maintenance on the final cleanup and assessment of the recovery costs. The protocol used by Street Maintenance for handling spills is documented in *Standard Operating Procedure for Vehicle Related Spills (VRS)* included in the appendix. First, the problem is assessed and a determination is made on how to proceed according to the SOP. For small spills, Street Maintenance will dispatch personnel with appropriate equipment to apply sand to the spill site. The sand will be given a period of time to absorb the spill, and then it will be removed by a street sweeper. This process will be repeated as needed. The contaminated sand is then deposited in a leak-proof container with a lockable lid at an established disposal site.

Large or Hazardous Spills

For large or extremely hazardous spills, the Fire Department's Hazardous Materials Response Team is mobilized with emergency cleanup contractors being utilized as needed.

Spills that meet the minimum reporting requirements are reported to the Public Safety Duty Officer. For these spills, a *Hazardous Material Spill Data* form is 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. Environmental Management coordinates long-term recovery projects with other regulatory agencies.

Unauthorized Discharges

Environmental Management performs pollution prevention, control and clean-up activities including enforcement activities pursuant to Chapter 48 and other applicable chapters of the Minneapolis Code of Ordinances. This specifically includes enforcement activities aimed at reducing the flow of pollutants from illegal dumping and disposal into the storm drain system. Six full-time environmental inspectors are unemployed to enforce anti-pollution laws and coordinate various anti-pollution efforts. Environmental Management responds to calls reporting unauthorized discharges and illicit connections. Complaints are received from the public, City and private contractors as well as City staff by the following means:

- Complaint forms on the City's web page
- Confidential tip line
- Sewer Maintenance crews, plumbing inspectors, and other city personnel report illicit connections directly to Environmental Management

Non-Stormwater Discharges

Environmental Management reviews non-stormwater permits and renewals while working with the MPCA permitting authority to address local concerns. Environmental Management also reviews complaints against an existing permit for alleged violations of a permit or code. If permits were violated or conditions exist that the permit should be updated, Environmental Management staff will assist MPCA permitting staff in updating or revocation of the permit.

Previous Years Activities

- 13 minor spill responses: 11 - oil or antifreeze from accidents, 2 - release of chemicals
- 40 non-stormwater discharge permits issued
- Investigated 274 water pollution complaints (illegal dumping, spills)

The Sewer Maintenance Department also responded to at least seven incidents of alleged illicit discharges to the storm drain system in 2001. These incidents included a report of a construction contractor washing equipment next to a catch basin, and resident complaints concerning alleged dumping of paint and waste oil into the storm drain system.

Work Plan

Environmental Management will continue existing programs as outlined in the program overview as well as implement the following new programs.

Facility Inspection Program

Environmental or Fire inspectors will inspect facilities storing large quantities of regulated chemicals or hazardous substances. Site plan inspections will detail the following information:

- Drainage patterns from the site to the nearest drain or water body
- Watershed destination and location of outlet
- Handling, storage, and transfer procedures as they relate to the site

Non-Stormwater Discharge Program

The discharges listed below will be investigated to determine if additional control measures are needed to minimize their impacts on receiving waters. Additional measures proposed as well as measures in place will be outlined in the 2003 Annual Report. Full implementation of these control measures will further minimize the discharge of pollutants per program objective.

a. NPDES permitted non-stormwater discharges[4]
b. Water line flushing and other discharges from a potable water distribution system
c. Landscape irrigation and lawn watering
d. Irrigation water
e. Diverted stream flows
f. Rising ground water
g. Foundation and footing drains
h. Water from basement sump pumps
i. Air conditioning condensation
j. Springs
k. Individual residential and fund raising car washings
l. Flows from riparian habitats and wetlands
m. Swimming pool discharges
n. Flows from fire fighting

Detection and Removal Screening Program

A field-screening program will be implemented to detect and investigate contaminated flows in the storm drain system. Environmental staff will select field-screening sites using the following methodology:

- The site's proximity to commercial and industrial areas
- Sites from which illicit connections could easily be discovered
- Site's proximity to facilities suspected of contributing contaminated flows
- The manhole closest to the outfall for small drainage areas
- Multiple sites will be selected for large areas
- Previous site lists will be reviewed

Sewer Maintenance crews will observe dry-weather flows at field-screening sites. Field screening will be performed annually in 20% of the drainage areas within the City. This program will be performed in conjunction with the outfall inspection outlined in the *Structural Controls Maintenance and Operation* section of this document as a way to better utilize staff resources. Field screening sites will be inspected, recording the following indicators:

[4] A listing of known industrial, commercial, or institutional facilities that discharge any flow other than stormwater to the storm drain system will be compiled. The list will include the name, location, discharge location, receiving water, discharge description, and permits issued, and will be provided in the 2003 Annual Report.

- Odor
- Color
- Clarity
- Floatables
- Deposits/stains in the manhole
- Vegetation
- Condition of manhole structure
- Presence of biological matter in flow

If evidence is found of possible illicit discharges, Environmental Management will conduct an investigation to determine the source and contaminate

Performance Measures

- Total number of illegal connections eliminated or permitted.
- Results of annual field-screening inspections, observations, and actions.
- Number of illegal connections discovered in field-screening activity as a percent of manholes inspected.
- Number of illegal connections reported to Environmental Management.
- Number of successful spill containments.

IX. Storm Sewer Design for New Construction

Program Objective

The objective of this stormwater management program is to minimize the discharge of pollutants by including measures to capture runoff debris in the design of new storm drains. POLLUTANTS TARGETED: TSS, Pesticides, and Nutrients

Program Overview

With approximately 30,000 inlet structures and 525 outfalls in Minneapolis, the storm drain design methods implemented utilize outlet control measures for water quality. This method provides for a more cost-effective and efficient means of implementing water quality measures. At this time, manufactured BMPs (grit chambers) are the preferred BMP for this function in the City of Minneapolis. The greatest constraint in a fully developed city is space, making the compact nature of manufactured BMPs the only feasible choice for most projects.

Previous Year Activities

During 2001, our operational forces' main focus was with adaptation of existing infrastructure for the Light Rail Transit (LRT) project and construction of designated projects in the Flood Mitigation Program. The storm drain designs associated with the LRT project were primarily intended to upgrade the existing storm drain infrastructure. These upgrades were done by either relocation, abandonment, or lining existing pipelines. The intended purpose of work completed being solely to assure the integrity of the of the new LRT infrastructure. Flood mitigation projects and their impacts on water quality being the second primary focus are discussed in the previous section of this document, *Flood Control*. The remaining storm sewer work completed during 2001 and the associated water quality impacts are referenced in the table below:

PROJECT AREA	PROJECT DESCRIPTION	STORMWATER RUNOFF BENEFITS
50th St E & Woodlawn Ave S	Installation of a manufactured BMP on an existing outfall.	Reduction in TSS to Minnehaha Creek Watershed at Lake Nokomis
53rd St & Woodlawn Ave S	Installation of a manufactured BMP on an existing outfall.	Reduction in TSS to Minnehaha Creek Watershed at Lake Nokomis
Near North Redevelopment	Storm drain and water quality infrastructure for new development.	Reduction in TSS, nutrients and other pollutants to the Middle Mississippi River Watershed.

Work Plan

The future focus of our operational forces will continue to be the adaptation of existing infrastructure for the Light Rail Transit (LRT) project and construction of designated Flood Mitigation Projects. Future flood mitigation projects and their impacts on stormwater runoff are discussed in the previous section of this document, *Flood Control.* The remaining storm sewer projects scheduled and their stormwater runoff impacts are referenced in the table below:

PROJECT AREA	PROJECT DESCRIPTION	STORMWATER RUNOFF BENEFITS
Powderhorn Park	Storm drain improvements, installation of manufactured BMPs, outlet reconstruction	Reduction of TSS to receiving water
Regina Field street improvements	Upgrades to existing storm drain infrastructure and inlets.	None
East 35th Street Paving Project.	Upgrades to existing storm drain infrastructure and inlets	None
East 36th Street Paving Project.	Upgrades to existing storm drain infrastructure and inlets	None
Fulton Street Renovation	Upgrades to existing storm drain infrastructure and inlets	None

Engineering Services design teams will continue to design new outlets with stormwater BMPs that will advance program objectives. Design teams will include additional BMPs on new storm drain construction projects wherever feasible to improve the overall water quality component of our infrastructure. Design staff will be instructed to take advantage of training opportunities on stormwater management and water quality topics and be responsible for staying informed about new technologies as they advance.

Performance Measures

- Number of BMPs installed on existing infrastructure
- Percentage of new storm sewer construction projects utilizing some form of stormwater BMP

X. Public Education

Program Objective

The objective of this stormwater management program is to educate the public on the sources of non-point source pollution and the effect individuals can have on water quality. POLLUTANTS TARGETED: All pollutants.

Program Overview

The Minneapolis Park and Recreation Board manages citywide education efforts, including developing materials within the Chain of Lakes Clean Water Partnership Program. The Sanitation Division of the Department of Public Works also includes water quality messages on its flyers as well as semi-annual inserts in the utility bill.

Billy Bass and Crystal Clear Educational Programming

The school educational program involves the use of two costumed characters, “Crystal Clear” and Billy Bass”. Crystal and Billy visit Minneapolis schools and community events teaching students about stormwater runoff, watersheds, the water cycle and the important role each person plays in keeping Minneapolis’ waters clean.

Billy and Crystal have developed bookmarks, which they give to students after they have attended an event. The bookmarks are attractively designed with artwork on one side and information on how to keep our lakes, rivers, and streams clean on the backside.

Interactive Stormwater Display

Minneapolis Park and Recreation Board Environmental Operations staffs an interactive display at Minneapolis community festivals and events that illustrates the connection between practices in a person’s own backyard, and the pollution of stormwater and local water bodies. Bookmarks and other water quality education materials are also distributed at these events.

Catch Basin Stenciling

The catch basin stenciling program is used in Minneapolis as a way to educate citizens about pollutants draining into storm sewers and the impact they have on local lakes and streams. As

part of the program, volunteers are educated on non-point source pollution prior to the stenciling. Stencil applications contain the message "Please Don't Pollute! Drains to River (Creek or Lake)".

Annual Earth Day Watershed Clean Up

The annual Earth Day Watershed Clean Up is an important part of the Park Board's water quality education efforts. The event is staged in collaboration with the Minneapolis Park and Recreation Board, City of Minneapolis' Solid Waste and Recycling and twelve neighborhood organizations. Music, refreshments, and interactive water quality programming are provided at each celebration site after the clean up. Programming is provided by the Science Museum of Minnesota, University of Minnesota Extension Service and Minneapolis Park and Recreation Board staff. Topics addressed in the educational programs include use of pesticides and fertilizers, composting, how water quality is measured, pond (lake, river or stream) organisms, and human impacts on water quality.

Previous Year Activities

The Minneapolis Park & Recreation Board (MPRB) continued water quality education programs throughout the City in 2001. Staff created and distributed informational materials, attended neighborhood festivals and events, and continued to expand the outreach program in Minneapolis schools.

Summary of 2001 Education Program Participants

Educational Program	Participants	
7th Annual Earth Day Watershed Cleanup	1,500	
Billy Bass and Crystal Clear	1,507	(Elementary Students)
Community Events	1,150	
Water Quality Education - Community Events	1,800	
Catch Basin Stenciled	1,000	
1,949 Catch Basins Stenciled		
Lawn Care Workshops	80*	
Water Education Teacher Training	20*	
	7,057	**Total Participants**

*Indicates workshops that were held in conjunction with the City of St. Paul.

Crystal Clear and Billy Bass

Crystal and Billy visited more than 2,600 kids, and 12 Minneapolis elementary schools and community events this past year. They participated in 14-community events citywide, including the Aquatennial parade and Earth Day. This year, two new laminated bookmarks were produced

for Crystal and Billy's program and for distribution in Minneapolis Public libraries. A Minneapolis high school student and a Nokomis East neighborhood resident developed artwork for the bookmarks.

Water Education Outreach in the Community

Environmental Operations staff attended many Minneapolis community festivals and events during 2001. This year, water quality educational displays were updated and expanded to include information that focused specifically on the neighborhood and its watershed. Bookmarks and water quality informational materials were also distributed at these events.

City Wide Public Service Announcements

This year MPRB staff worked with Clear Channel Outdoor and Transtop bus shelter advertising to develop public service announcements on water quality issues. Billboard and bus shelter advertisements were posted throughout the spring and summer informing people how individual actions directly effect water quality in Minneapolis. Clear Channel Outdoor billboards included messages on how fertilizers and car washing impact city lakes. Transtop bus shelter posters included messages on how fertilizers and pet waste impact water quality.

The graphic images used in the public service announcements were borrowed from Washington State Department of Ecology. Clear Channel Outdoor and Transtop provided public service announcement pricing for the advertising space.

Southwest Journal Newspaper Column

For the eighth consecutive year, MPRB staff wrote a monthly column for the *Southwest Journal* newspaper. The column, "Environmental Notes", is an informational column on environmental and water quality initiatives involving the Minneapolis Park and Recreation Board. The *Southwest Journal* has a circulation of 40,000 in south Minneapolis.

Catch Basin Stenciling

Friends of the Mississippi River, a non-profit environmental organization implemented the Catch Basin Stenciling program in 2001. In 2001 1,000 volunteers stenciled 1,949 storm drains. As part of the program, The Friends educate community and school volunteers on non-point source pollution prior to the stenciling.

In addition to the stenciling program in 2001, Friends of the Mississippi River implemented training workshops and community watershed workshops for Minneapolis and St. Paul. The teacher workshop was held in partnership with Cairn and Associates, an environmental education

contractor. Teachers attending the training received the Air and Waste Management Association's Environmental Resource Guide on nonpoint source pollution, developed by the Tennessee Valley Authority's Environmental Education Section. Twenty-one Minneapolis and St. Paul teachers attended the teacher's workshop

A total of six community watershed workshops were to be held, three workshops in Minneapolis and three in St. Paul. Three locations and dates were initially set up at recreation centers in Minneapolis; the Minneapolis and St. Paul workshops were combined, due to low numbers of people signing up for the workshops.

Annual Earth Day Watershed Clean-Up

The seventh annual Earth Day Watershed Clean-Up was held on Saturday, April 21, as part of the MPRB's and City of Minneapolis' efforts to inform residents of water quality issues and to involve citizens in reducing the amount of trash and litter entering local lakes and streams. This year's event expanded from twelve to fifteen different clean-up sites. Earth Day participants cleaned up shoreline and open space areas throughout the City of Minneapolis, including the Chain of Lakes, Shingle Creek, Bassett's Creek, the Minnehaha Creek corridor, the Mississippi River corridor, Grass Lake, Lake Nokomis, Lake Hiawatha, and Powderhorn Lake. More than 7,000 pounds of trash and 2,500 pounds of metals were picked up at this year's Earth Day event. Celebration parties were held at each of the clean-up sites with refreshments, live music and prizes provided by local businesses. Education is an important component of the Earth Day Watershed Clean-Up. The Science Museum of Minnesota and Hennepin County Master Gardeners were some of the participants who provided educational programs at each celebration site

Educational Partnerships

The MPRB was a partner in two water quality improvement projects - the Lakes Nokomis Hiawatha Blue Water Commission and the Chain of Lakes Clean Water Partnership. Education programs for both of these projects focussed on promoting actions area residents and businesses can take to help improve water quality. The MPRB is also an active member of "Watershed Partners", a statewide organization that promotes partnerships in water quality education activities.

Work Plan

The Minneapolis Park and Recreation Board will continue to expand educational programming to a citywide audience. A series of informational brochures on water education will be developed in 2002. The brochures will be distributed at neighborhood events and mailed upon request to residents. Informational presentations will be given to Minneapolis Park and Recreation Board field staff (maintenance and forestry) on water pollution issues.

Performance Measures

- Number of events and participants
- Quantity of educational materials distributed

XI. Public Participation Process

Program Objective

The objective of this stormwater management program is to maximize the effectiveness of the City's NPDES program by seeking input from the public. POLLUTANTS TARGETED: All pollutants.

Program Overview

Public hearings will be conducted each year at Transportation and Public Works Council subcommittee meetings. This hearing will provide an opportunity for public testimony on the Program and Annual Report prior to submittal each year. Prior to the public hearing, governmental entities that have jurisdiction over activities that relate to stormwater management in the drainage area and other interested parties are notified of the public hearing date and availability of the Annual Report. The hearing is officially noticed in *Finance and Commerce*, and publicized through City cable television public service announcements. The City Clerk's office keeps copies of the Report on hand for examination by the public prior to, and following the hearing date. The Report is also made available in electronic format (PDF) on request.

All written comments received and testimony presented at the public hearing are recorded, given due consideration, and then a response to comments is composed and appended to the Annual Report. The conclusion of this process is the presentation of the amended Annual Report to the Minneapolis City Council for approval and adoption. A notarized copy of the resolution from the Minneapolis City Council adopting the NPDES Stormwater Management Program and Annual Report is included with the Annual Report submittal to the MPCA.

Previous Year Activities

The Minnesota Center for Environmental Advocacy submitted written comments on last year's Annual Report. The response to their comments included additional information, data, and materials requested regarding BMP performance, discharge characterization, and public education. Prior to last year's public hearing, the following parties were invited to attend and/or submit written comments:

Bassett Creek Watershed Management Commission (BCWMC)

Metropolitan Council

Mississippi Watershed Management Organization (MWMO)

Minnehaha Creek Watershed District (MCWD)

Minnesota Center for Environmental Advocacy (MCEA)

Minnesota Department of Natural Resources (DNR), Division of Waters

Minnesota Environmental Partnership

Mississippi River Revival

Shingle Creek Watershed Management Commission (SCWMC)

Work Plan

The Annual Report steering committee will continue to develop processes to allow for public input into the development of priorities and activities necessary to maintain compliance with the City's permit. The current plan for this activity includes posting the Annual Reports on the City of Minneapolis web site for public access before the end of 2002.

Performance Measures

- Number of citizens attending public hearing
- Number of interested parties directly notified of public hearing and Annual Report availability

XII. Coordination with Other Governmental Entities

Program Objective

The objective of this stormwater management program is to maximize stormwater management efforts by coordinating with other governmental entities. POLLUTANTS TARGETED: All pollutants.

Program Overview

The City of Minneapolis cooperates with local watersheds, MnDOT, neighboring cities, and the Metropolitan Council in stormwater management efforts. This cooperation includes the joint review of projects and shared costs for water quality BMPs, stormwater monitoring, and water quality education.

Watershed Management Organizations and Districts

- Joint review of construction projects prior to permits being issued
- Review and permitting of new outfalls
- Cooperation with the enforcement of erosion control regulations and ordinances
- Shared costs for the construction water quality BMPs

Highway Departments

- Plan review of storm and water quality improvements associated with road projects
- Erosion control review, inspections, and enforcement
- Roadway and storm drain maintenance agreements

Neighboring Cities

- TSS removal agreements for common receiving waters
- Water quality monitoring for common receiving waters
- Joint water quality construction projects

Metropolitan Council

- Review of non-stormwater permit applications

- Inspection of existing infrastructure and regulators

Two special one-time reports are prepared to meet permit requirements for this activity. The first report due by June 1, 2002 lists other governmental entities that perform stormwater management activities in the drainage area and includes a summary of activities and relevance to the permit. The second report due by June 1, 2003 describes how the different governmental entities cooperate and coordinate efforts in managing stormwater related activities in the drainage area. This report also includes goals for each cooperative effort, where and how the activity will be performed, and a schedule for implementing it. Starting in 2004, with the completion of these two reports, coordinated activities and status of cooperative efforts shall be provided in each Annual Report.

Previous Year Activities

A report was prepared listing the other governmental entities that perform stormwater management activities in the drainage area. This report is provided below.

Stormwater management programs within Minneapolis that are provided by other agencies range from water quality education efforts to cooperative construction of stormwater facilities. The following groups have either cooperated with Minneapolis on projects or have independently facilitated stormwater management programs:

Watershed Management Organizations and Districts

Within Minneapolis four watersheds manage stormwater runoff as mandated by the Metropolitan Surface Water Management Act:

Bassett Creek Water Management Commission

Michael Welch Minneapolis Commissioner
Ed McRoberts Alternate Minneapolis Commissioner

The BCWMC is in the process of developing its Second Generation Stormwater Management Plan. Under the current plan they require stormwater management, erosion control practices and floodplain management for redevelopment projects that are 5 acres and greater in area. The specific stormwater management technique required is based on a designated level of protection for the downstream waterbody. During the 1980's the BCWMC worked with its member cities and the US Army Corps of Engineers to construction a new outlet for Bassett Creek in order to relieve severe flooding that had been occurring in Minneapolis and upstream communities.

Minneapolis contributes approximately $16,000 per year to the annual operational budget of the BCWMC.

Mississippi Watershed Management Organization

Council Member Joe Biernat Minneapolis Commissioner

The MWMO adopted its Second Generation Stormwater Management Plan in June, 2000. This plan focuses on the creation of water quality capital improvement projects and public education. Their 5-year Capital Improvement Program includes funding for stormwater quality projects in Phase 1 and 2 of the Near North Redevelopment, the South East Minneapolis Industrial (SEMI) Area, plus restoration projects along the shoreline of the Mississippi River. The first year of implementation is 2002. Public Education materials are at the initial stages of development. The MMRWMO delegates stormwater management requirements for new developments to its member cities and does not provide separate project review and approval. The MMRWMO currently receives its revenue through direct taxation against properties within their jurisdiction.

Minnehaha Creek Watershed District

Eric Evanson Executive Director

The MCWD works to protect the existing natural resources, require stormwater management practices on new construction projects, provide water quality education and fund water quality improvement projects. There is a long list of projects that they have been involved in within the City of Minneapolis:

- Minneapolis Chain of Lakes Project is a partnership among the Minnehaha Creek Watershed District (MCWD), the City of Minneapolis, the City of St. Louis Park, the Minneapolis Park and Recreation Board (MPRB), the Minnesota Pollution Control Agency, and Hennepin County that worked together under a coordinating board chaired by the Mayor of Minneapolis. The MCWD provided funding for two water quality improvement wetlands that went into operation in 1996 and 1998. Other projects coordinated by this partnership included additional street sweeping, grit chambers, public education, and alum treatment for Cedar Lake and Lake Calhoun.
- Lake Nokomis/Hiawatha Water Quality Improvement Project is another partnership between the MCWD, the City of Minneapolis and the Minneapolis Park and Recreation Board that restored three wetlands on the west side of Lake Nokomis and installed two swirl technology grit chambers on the east side of Lake Nokomis. This Water Quality Improvement Project

was initiated by a group of Minneapolis citizens that formed the Blue Water Association – a grassroots, non-profit organization to protect and improve Lake Hiawatha and Lake Nokomis.

- 60th and 1st Flood Control and Water Quality Improvement Project is a dual purpose flood mitigation/water quality improvement pond tributary to Diamond Lake. The MCWD provided $1,500,000 towards it's construction. This pond was put into operation in 2001.
- Watershed Wide Programs facilitated by the MCWD include Hydrodata Monitoring, Wetland Functions and Value Assessments, Wetland Preservation and Restoration Fund, Hydrologic/Hydraulic and Pollutant Loading Model and Public Awareness/Education,
- Cynthia Krieg Watershed Stewardship Grants have provided a total of $46,500 to Minneapolis schools, neighborhood associations and other volunteers to help implement natural resource education and public involvement programs since its creation in 1999.
- *Waters to the Sea* Interactive CD-ROM was created by the MCWD and Hamline University to teach children and adults about watersheds, Eco-systems, and water quality.
- Regulatory Programs – The District administers state mandated wetland protection rules and DNR regulations, as well as, District rules relating to erosion control, floodplain alteration, wetland protection, dredging, shoreline & streambank improvements, stream & lake crossings, and stormwater management.

Shingle Creek Watershed Management Commission

Council Member Barbara Johnson Minneapolis Commissioner

The SCWMC is at the initial stages of developing its second-generation water management plan. The current Stormwater Management plan requires erosion protection during construction plus construction of a stormwater management pond (or equivalent structure) for all new development projects greater than 5 acres. Minneapolis contributes approximately $12,000 towards the annual operating budget of the SCWMC.

Highway Departments

Hennepin County

Hennepin County has jurisdiction over 83.5 miles of roadways in Minneapolis. Capital improvement projects for these projects may include construction or improvements to stormwater drainage. Projects typically do not include provisions for stormwater management. Maintenance

of the roadways and storm drainage structures are provided by Minneapolis Public Works through an annual maintenance agreement.

Minnesota Department of Transportation

MnDOT has jurisdiction over 46.3 miles of streets and highways in Minneapolis. Street construction projects do include stormwater management facilities where required by watershed management rules. Projects that include new storm drains are typically constructed through a cooperative agreement between MnDOT and the City of Minneapolis that includes a share of Minneapolis funding equivalent to the runoff that is considered "local" by MnDOT definition.

Neighboring Cities

Most coordination and cooperation with neighboring cities is accomplished through the structure of watershed management organizations or watershed districts. However the following list describes those cooperative projects that were accomplished outside of the watershed structure:

St. Paul

Since 2001, the cities of Minneapolis and St. Paul jointly monitor stormwater runoff as mandated in the NPDES Stormwater Permits.

Brooklyn Center

In 1999 the cities of Brooklyn Center and Minneapolis completed construction of the Shingle Creek Regional Stormwater Wetland. This pond receives and treats the runoff from a 100 acre area of Minneapolis and approximately 200 acre area of Brooklyn Center, including the commercial area containing Brookdale Center.

Richfield

The residential area tributary to Grass Lake in south west Minneapolis eventually flows to Richfield Lake. A cooperative agreement set up minimum practices that Minneapolis must maintain in order to ensure that the quality of Grass Lake is maintained so that the quality of Richfield Lake is not degraded.

Regional Agencies

Metropolitan Council

Urban Small Sites Best Management Practices (BMPs) Manual was developed in partnership with the Metropolitan Council, City of Minneapolis, City of St. Paul, MPRB, The Rice Creek

Watershed District and the Six Cities WMO. The purpose of the manual is to provide detailed stormwater management BMP information for the designer, builder, and owner of small sites in fully developed areas such as Minneapolis. This manual was published in 2001.

Work Plan

A report will be prepared describing how the different governmental entities are cooperating and coordinating efforts in managing stormwater related activities in the drainage area. The report shall include goals for each cooperative effort, where and how the activity will be performed, and a schedule for implementing it. This report will be included in the 2003 Annual Report.

Performance Measures

- Completion of one-time reports
- Number of joint water quality projects completed
- Number of joint water quality education initiatives

XIII. Monitoring Results and Data Analysis

Stormwater Runoff Monitoring Results

Runoff samples were collected March through November for all parameters. One grab sample was collected in January for Site 1. The target frequency for sample collection was once a month, however, if a sample was missed for a month, more than one sample was taken the next month. The March (grab) sample was a snowmelt event. Samples taken in April were also grab samples. For detailed information on sampling events see Table 3 on page A-96 of the appendix. The parameters listed in Limits and Monitoring Requirements section of the permit were monitored for each sample collected.

Sample data for 2001 was fairly comparable to typical urban stormwater data (see Tables 8 and 9 on pages A-104 and A-105 of the appendix). Total phosphorus was slightly higher when compared to Nationwide Urban Runoff Program (NURP) data, but was more comparable to data from Bannerman et al. (1992) (the study area for Bannerman's data was nearly 100 percent residential). When compared to the NURP data, mean metal levels were all below the reported average. The all land use category average concentrations were closely related to or less than the City of Minneapolis Public Works Department and City of St. Paul reported average concentrations in the 1991/2 permit applications.

	Residential		Mixed		Commercial		Composite of all land use categories	
Parameter	MPRB[1]	NURP	MPRB[2]	NURP	MPRB[3]	NURP	MPRB[4]	NURP
TP (mg/L)	0.601	0.383	0.367	0.263	0.486	0.201	0.46	0.33
TKN (mg/L)	2.95	1.9	2.96	1.288	1.92	1.179	2.4	1.5
NO3NO2 (mg/L)	0.296	0.736	0.243	0.558	0.318	0.572	0.326	0.68
BOD (mg/L)	10	10	14.9	7.8	17	9.3	12	9
TSS (mg/L)	117	101	87	67	89	69	90	100
Cu (µg/L)	11.2	33	16.4	27	18.8	29	13.5	30
Pb (µg/L)	21.5	144	17.9	114	29.1	104	16.8	140
Zn (µg/L)	109	135	203	154	206	226	130	160

Typical median event mean concentrations found in urban stormwater as reported by the Nationwide Urban Runoff Program (USEPA, 1996). MPRB = Median values calculated by the

Minneapolis Parks & Recreation Board for the year 2001. [1] calculated from Site 1 and 2 data, [2] calculated from Site 5 data, [3] calculated from Site 4 data, [4] calculated from Sites 1-5.

The results from 2001 monitoring and typical average concentrations for urban stormwater is listed below. " -- " = not reported. [1] from USEPA (1996), [2] from CWP (1997), [3] from the Monroe study area of Bannerman *et al.* (1992), [4] from City of Minneapolis Public Works Department (1992)- average from a combination of all land uses, [5] from City of St. Paul 1994 stormwater data - average from a combination of land uses.

Parameter	NURP[1]	Maryland[2]	Bannerman *et al.*[3]	Mpls PW[4]	St. Paul[5]
TP (mg/L)	0.5	0.3	0.66	0.417	0.484
TDP (mg/L)	--	--	0.27	0.251	--
TKN (mg/L)	2.3	--	--	--	2.46
NO3NO2 (mg/L)	0.86	--	--	--	0.362
NH3 (mg/L)	--	--	--	0.234	--
Cl (mg/L)	--	230	--	--	--
BOD (mg/L)	12	--	--	14.9	25
TDS (mg/L)	--	--	--	73.3	78
TSS (mg/L)	239	80	262	77.6	129.2
Fecal Coliform/100 ml	--	3600	--	--	--
Cd (µg/L)	--	2	0.4	--	10
Cu (µg/L)	50	10	16	26.7	30
Pb (µg/L)	240	18	32	75.5	233
Zn (µg/L)	350	140	204	148	194

Best Management Practices Monitoring Results

Grit Chamber Monitoring

The grit chamber in Wirth Park was monitored in 1998 and 2001. The grit chamber was monitored by sampling stormwater entering the grit chamber (Wirth IN) and as stormwater left the grit chamber (Wirth OUT). The chemical parameters analyzed in 1998 were total phosphorus (TP), soluble reactive phosphorus (SRP), total nitrogen (TN), and total suspended solids (TSS). There were 18 samples collected for these analyses. The chemical parameters analyzed in 2001 were more extensive. They included: TP, TSS, dissolved phosphorus (TDP), total Kjeldahl nitrogen (TKN), ammonia (NH3), pH, specific conductivity (Sp. Cond.), total dissolved solids

(TDS), cadmium (Cd), copper (Cu), lead (Pb), and zinc (Zn). There were only 7 storm events collected in 2001.

Results for the Wirth grit chamber showed an increase in the mean concentration of TP from Wirth IN to Wirth OUT and small decreases in the mean concentration of TDS, TDP and TKN. All other mean concentrations increased from Wirth IN to Wirth OUT. The results showed an increase in TP and TKN and a decrease in TSS for 1998. In 2001, TSS, TP, TKN, NH_3, Cu, Pb and Zn increased from Wirth IN to Wirth OUT (Table 4). TDS, TDP and Cd decreased in 2001.

Overall, the concentrations of many of the parameters increased from Wirth IN to Wirth OUT. This is opposite of the purpose of the grit chamber. Grit chamber cleaning records from Minneapolis Public Works for the Wirth grit chamber shows that a small amount of grit has built up and been removed since 1998. This information seems to show that this style of grit chamber is ineffective for reducing the amount of nutrients, metals and chemicals at this site and may actually be increasing the amount of some water-borne pollutants entering Bassett's Creek.

Minneapolis Constructed Wetlands Monitoring

The Minneapolis Park & Recreation Board received a grant form the Metropolitan Council of the Twin Cities to monitor the effectiveness of constructed wetlands. The document providing an overview of the project and results is included in the *2001 Water Resources Report*. This document details the three-year monitoring effort for the following wetlands: 1) Cedar Meadows Wetland 2) SENA Wetland and 3) Lake Harriet Subsurface Flow (SSF) Wetland. Due to the configuration of the system piping and the sampling design, the outflow of the Twin Lakes system was also monitored (Cedar Meadows diversion). These constructed systems were monitored to determine their treatment efficiencies and flow characteristics.

Outflow concentrations for the four wetlands show that all of the systems reduced pollutant concentrations in stormwater. The systems were most effective at reducing TSS (study mean outflow = 20.5 mg/L) and TP (study mean outflow = 0.294 mg/L). Reductions for TN (study mean outflow = 1.99 mg/L and SRP (study mean outflow = 0.055 mg/L) were lower. Based solely upon concentration changes, Cedar Meadows was the most effective system. Pollutant load reduction summary expressed as percentage of inflow load and comparison to results presented by Winer, R. (2000). National Pollutant Removal Performance Database for Stormwater Treatment Practices, 2nd edition. Center for Watershed Protection.

Percent Removal Wetland/Year	Total Phosphorus	Soluble Reactive Phosphorus	Total Suspended Solids	Total Nitrogen
Cedar Meadows				
2000	64 %	87%	80%	38%
2001	69%	79%	76%	21%
Mean	66.5%	83%	78%	29.5%
Winer (2000)	56%	43%	71%	19%
Harriet SSF				
2001	32%	43%	48%	46%
Winer (2000)	64%	-10%	83%	19%

Minneapolis Lake Trends

In 2001, Minneapolis Park and Recreation Board scientists monitored 13 of the city's most heavily used lakes. The data collected were used to estimate the fertility or trophic state of the lakes. Changes in lake water quality can be tracked by looking for trends in TSI scores over time. These values are especially important for monitoring long-term trends (5-10 years). Historical trends in TSI scores are used by lake managers to assess improvement or degradation in water quality.

All the lakes in Minneapolis fall into either the mesotrophic or eutrophic category, which is as expected for lakes in a fully developed area. Most of The Chain of Lakes (Calhoun, Cedar, Harriet) are mesotrophic, with moderately clear water and some algae. Isles, Wirth, Hiawatha, Nokomis, Webber, Diamond, Loring and Powderhorn Lakes are eutrophic, with higher amounts of algae. Trends in lake water quality can be seen by using the annual average TSI score over the last 10 years.

Lakes showing water quality improvement

- Lake Calhoun
- Cedar Lake
- Lake of the Isles
- Webber Pond
- Wirth Lake

Lakes showing no significant changes in water quality

- Lake Harriet
- Lake Nokomis
- Lake Hiawatha

Lakes showing water quality degradation

- Powderhorn Lake

2001 Water Resources Report

The Minneapolis Park & Recreation Board's annual *2001 Water Resources Report* is a comprehensive technical reference of water quality information for the Twin Cities. Electronic copies of the *2001 Water Resources Report* are available on the MPRB web page at www.minneapolisparks.org. The whole report can be found in the "Caring for Our Parks - Lakes, Streams and Wetlands" section of the website. Due to the length of this document (over 300 pages), only the NPDES stormwater runoff monitoring section is included in the Appendix of this Annual Report.

XIV. Storm Drain System and Drainage Areas Inventory

Storm Drain System Infrastructure

- STORM DRAIN SYSTEM: The City of Minneapolis owns and maintains 509 miles of storm drain and 12 miles of storm tunnel infrastructure as displayed on page A-137 included in the appendix.
- STRUCTURAL CONTROLS: The City of Minneapolis owns and maintains 25 stormwater pump stations, 81 sedimentation (grit) chambers, 390 outlets, and 5 holding ponds as discussed in the *Structural Controls Maintenance and Operation* section of this document. Grit chamber, pond, outfall, and storm pump station locations and details are displayed in the appendix on pages A-117 through A-121 and A-135 through A-138.

Drainage Areas and Discharges

- DRAINAGE AREAS INVENTORY: The City of Minneapolis contributes stormwater runoff to the Minnehaha Creek, Bassett's Creek, Shingle Creek, and Mississippi watersheds. Page A-139 in the appendix shows drainage areas that have been delineated according to topographic contours and the storm drain system. The population, size of drainage area, land uses and distribution, and runoff coefficients within each drainage area are listed on pages A-122 through A-134 in the appendix.
- NON STORMWATER DISCHARGES: A list of non-stormwater discharges to the public storm system permitted through Minneapolis Environmental Management is provided on page A-90 included in the appendix.
- STORMWATER HOT SPOTS: The City of Minneapolis currently has no known stormwater hotspots identified to include in the current inventory

Event Mean Concentration and Annual Pollutant Loadings

Calculated event mean concentrations and annual pollutant loadings are included in the appendix on pages A-145 through A-178. The following formula was used to calculate the total annual pollutant load. Conversion factors were used to convert acres to square meters and adjust units on the concentration data units.

L = [(P) (Pj) (Rv) (C/1000) (A*4046.9)], where:

L = seasonal pollutant load, kilograms/season

P = seasonal precipitation, inches/season (meters/season)

Pj = correction factor for storms which do not produce runoff = 0.85

Rv = runoff coefficient

C = median event mean concentration of pollutants, mg/L

A = area, acres

Conversion factors - 4046.9 for acres to square meters; 1000 for liters to cubic meters

The flow weighted mean concentration (FWMC) expressed as a mean of all sites was used for the annual load estimation calculations as it most accurately reflects stormwater loadings on an annual basis. The seasonal loadings were calculated from the pooled data using the median event mean concentration as there were too few data points from each watershed to use FLUX to determine with a reasonable degree of accuracy a seasonal FWMC for each site. The median of the data set is a better representation of the runoff data than the mean values (Bannerman, et al, 1992). The annual load and a summation of the seasonal loads will not be equal due to this difference in calculation methods.

Season loads were calculated on the following basis:

Season	Inclusive dates	Precipitation for period
Winter/snowmelt	01/01/01 – 04/15/01	7.26 inches (0.184 m)
Spring	04/16/01 – 05/31/01	7.88 inches (0.200 m)
Summer	06/01/01 – 08/31/01	10.80 inches (0.274 m)
Fall	09/01/01 – 12/31/01	8.29 inches (0.211 m)

Further details on calculation methods can be found on page A-140 in the appendix.

XV. Financial Statement

The following table summarizes expenditures and projected costs for permitted activities:

	2001 Actuals	2002	2003	2004	2005	2006
Site Plan Review, Erosion Control, and Stormwater Management	$110,600	$108,758	$113,073	$117,558	$122,223	$127,072
Payments to WMOs & WDs and other associated costs	$47,298	$65,781	$67,827	$69,938	$72,118	$74,369
Storm drain design standards work	$7,105	$7,004	$7,281	$7,568	$7,867	$8,177
Overall program administration and reporting	$37,967	$37,632	$39,099	$40,623	$42,208	$43,854
Stormwater monitoring[5] (includes St. Paul)	$252,039	$195,092	$190,096	$171,757	$176,910	$182,217
Public Education[6]	$97,500	$100,425	$103,438	$106,541	$109,737	$113,029
Storm Drain System Operation and Quality Control[7]	$6,464,000	$6,680,544	$6,904,342	$7,135,638	$7,374,682	$7,621,733
Structural Controls Maintenance and Operation[8]	$12,122,000	$12,528,087	$12,947,778	$13,381,528	$13,829,810	$14,293,108
Roadways[9]	$4,513,728	$4,872,310	$5,023,000	$5,174,000	$5,329,000	$5,488,000
Totals	$23,652,238	$24,595,633	$25,395,932	$26,205,152	$27,064,553	$27,951,560

[5] Includes monitoring for St. Paul, MN.
[6] Includes education and training for Pesticides and Fertilizers program.
[7] Includes construction-related costs and partial costs for Disposal of Removed Substances and Illicit Discharges and Improper Disposal to Storm Sewer System.
[8] Includes construction-related costs and partial costs for Disposal of Removed Substances and Illicit Discharges and Improper Disposal to Storm Sewer System.
[9] Includes partial costs for Disposal of Removed Substances and Illicit Discharges and Improper Disposal to Storm Sewer System.

The costs reported here should be considered only an approximation to true costs associated with all permitted activities. In some cases, not all costs were available or it was not possible to separate costs for other activities from permitted activities. One goal for future Annual Reports will be to improve cost reporting to more accurately reflect overall and individual program costs. Fin

XVI. Conclusion

Program Assessment

Program strengths:

- A coordinated effort among City departments and other governmental entities
- An exchange of information among City departments, other governmental entities, environmental and citizen's groups in efforts to implement stormwater management programs
- Increased awareness and clarification of roles and responsibilities of City departments to implement stormwater management programs
- Development of uniform documentation and reporting procedures

Program weaknesses:

- Limited flexibility to modify requirements of programs to fit the specific needs of Minneapolis
- Lack of Federal or State support for funding of the stormwater management program
- Extensive amount of documentation and record-keeping associated with permit compliance

One indicator of the workload associated with this Permit is number of meetings conducted. Annual Report coordination and Program development required at least 8 meetings in 2001, and 6 in the first quarter of 2002.

Permit Modifications

Mercury Monitoring Pilot Project Status

MPRB has completed a performance evaluation of North Shore Analytical, Inc. for the mercury analysis. The lab has passed the initial evaluation and we are now prepared to start sending them samples. We will be completing construction of some of the specialized mercury sampling equipment and be ready to collect samples in early April. MPRB was unable to find a commercial source for low-level mercury performance evaluation standards, so we have

contracted with Metropolitan Council-Environmental Services to prepare performance evaluations standards.

NPDES Monitoring Site Change

As part of the approved NPDES permit monitoring in 2001 sampling was conducted at a site on East 29th Street and 31st Avenue South in Minneapolis. During the year a number of worker safety issues arose at the due primarily to high traffic volumes at this location. Moving the monitoring station to another location in this watershed would place the site on Lake Street and only increase the safety concerns.

The current location is a mixed land use watershed of 100 acres in size, while the new location (24th St E and Snelling Ave S) is a mixed land use watershed of 113 acres. Both sites are in Minneapolis, drain to the Mississippi River and have similar land use characteristics and runoff coefficients. Listed is a breakdown of the watershed characteristics.

	Outfall	Location of Outfall	Pipe Size (in)	Total (Acres)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
current site	10-630L	E 28th St @ 31st Ave S	48	100.42	0.48	0.40	0.07	0.04	0.01	0.00	0.52	1201
new site	10-500G	E 24th St @ Snelling Ave S	60	112.94	0.67	0.09	0.18	0.03	0.03	0.00	0.48	2090

SOURCES OF POLLUTANTS IN STORM WATER RUNOFF
Minneapolis Public Works

	Fossil Fuel Combustion Incinerators	Gasoline Consumption	Metal Corrosion Metal Protection	Road Salts	Tires	Asphalt	Fertilizers, Pesticides, Soil Treatments	Wood Preservatives	Paints and Stains	Plastics	Soil Erosion	Sanitary Waste	Manufacturing	Animal Waste	Atmospheric Deposition	Plant Materials
Organic Toxic Pollutants																
Volatiles	√	√		√		√	√		√	√		√	√	√	√	
Acid Compounds	√	√					√	√	√			√		√		
Base/Neutral	√					√	√	√	√	√		√	√	√		
Pesticides					√		√								√	√
Other Toxic Pollutants (Metals and Cyanide) and Total Phenols																
Antimony			√						√	√	√		√		√	
Arsenic	√						√				√		√		√	
Beryllium	√		√								√		√			
Cadimum	√		√		√		√						√		√	
Chromium			√					√	√				√			
Copper			√				√		√				√			
Lead		√	√		√				√				√		√	
Mercury	√						√		√		√		√		√	
Nickel	√	√				√							√		√	
Selenium	√								√		√		√	√	√	
Silver			√								√		√			
Thallium							√				√		√		√	
Zinc			√	√	√				√				√			
Cyanide		√	√	√												
Phenols						?		√		√						

SOURCES OF POLLUTANTS IN STORM WATER RUNOFF
Minneapolis Public Works

	Fossil Fuel Combustion Incinerators	Gasoline Consumption	Metal Corrosion Metal Protection	Road Salts	Tires	Asphalt	Fertilizers, Pesticides, Soil Treatments	Wood Preservatives	Paints and Stains	Plastics	Soil Erosion	Sanitary Waste	Manufacturing	Animal Waste	Atmospheric Deposition	Plant Materials
Other Conventional and Non-Conventional Pollutants																
Total Dissolved Solids (TDS)	√			√		√	√					√		√	√	√
Total Suspended Solids (TSS)	√		√	√	√	√	√			√	√	√	√	√	√	√
Biochemical Oxygen Demand (BOD_5)											√	√		√	√	√
Chemical Oxygen Demand (COD)									√				√		√	√
Oil and Grease		√				√							√			
Fecal Coliform											?	√		√	√	
Fecal Streptococcus											?	√		√	√	
Phosphorus, Total	√	√			?	?	√				√	√	√	√	√	√
Phosphorus, Dissolved	√	√			?	?	√				√	√		√	√	√
pH			√	√												
Total Kjehdahl Nitrogen							√					√		√	√	√
Nitrate + Nitrite		√					√				√	√	√	√	√	√
Total Ammonia and Organic Nitrogen							√					√		√	√	√
Total Residual Chlorine			√	√						√		√	√		√	

Sewer Maintenance

February 3, 2002

Annual Report Initiative:

The following is a proposed initiative to produce an annual Sewer Maintenance Report. Although perhaps long-term in reaching its final form, the initial rollout could be as early as the end of 2003. The focus of the report will be to establish an annual reporting of Department activities aimed at the following:

- Respond to the reporting requirements of the NPDES Stormwater Runoff Permit
- Measure/ monitor the Department's annual performance and efficiencies.
- Communicate/ report on the Department's short and long term maintenance plans.

The report will be broken down into several key categories. These being:

1. Introduction – Demographics and description of the Department/ Sewer System.
2. Financial Report – Funding and cost data referencing the amount expended to perform the functions categorized in the report, both in whole and by individual route area. Charts and data indicating that year's efficiencies on the major reported maintenance tasks.
3. Accomplishments – Listing of completed system upgrades, major repairs and enacted policy/ procedural initiatives.
4. Grit Chambers - Informational related to the management of the Department's grit chamber system, (i.e. completed inspections and cleaning).
5. Holding Ponds – Informational related to the management of the Department's holding pond facilities (i.e. completed inspections and cleaning).
6. Outlets – Informational related to the inspection and evaluation of the Department's outlet structures.
7. Pipelines & Tunnels – Informational related to the management of the Department's mainline storm and sanitary sewer system. This section would contain data referencing the amount of sewer line/ televised/ jet washed/ vacuum cleaned/ disced and cured-in-place lined.
8. Pump Stations – Informational related to the management of the Department's pump stations facilities. This section would contain annual inspection data.
9. Proposed Repair/ Maintenance – List of proposed both short and long-term planned maintenance and repair projects.

Department Standard Operating Procedures:

Grit Chambers:

- Grit Chamber maintenance responsibilities will be tied to area route for which they are located.
- Grit Chambers will be inspected 2 times per year. These inspections will take place May 1 – June 1 and Oct 1 to Nov 1. A single form will be established covering both inspection and cleaning.
- Grit Chamber inspection will log the date of inspection and depth of material inside the structure. Notable defects will also be listed on the inspection form.
- Grit Chambers will be cleaned annually, (except in cases where the historical annual build-up has been identified as being less than 60% of the grit chambers total volume. Grit chamber cleaning will be conducted with 80% of them being completed by June 30 and the remaining 20% completed by November 30.

Holding Ponds:

- Holding Ponds will be inspected as part of the ongoing maintenance.
- Once every two years an inspection form will be completed, reporting any notable defects and repair needs.
- Once every two years the depth of sediment in storage ponds/ wetland ponds will be measured and reported on the inspection form.

Outlets:

- Outlet maintenance responsibilities will be tied to area route for which they are located.
- Inspections will be made on a 5-year rotation basis. In turn this requires that 20% (by number) of the outlets within a single route area to be inspected yearly.
- Annual inspections will consist of completing an inspection form, reporting identified erosion and structural deficiencies. Inspectors will note observed discharge abnormalities and if deemed appropriate, reported to the Environmental Inspections Office.

Pipelines/Tunnels/ Pumping Stations:

- Mainline maintenance responsibilities will be tied to the area route for which they are located.
- Tunnels, pumping station maintenance and televising responsibilities will be tied to the department's management personnel.
- Sewer lines will be televised on a 15-year rotation cycle moving towards a 10-year cycle by the end of 2005.
- Sewer lines will be jet-washed every 3 years.
- Pump stations will be inspected annually
- Routine tunnel inspection will currently not be assigned. A complete tunnel inventory and assessment study is currently underway. The eventual result of this report will dictate the Department's inspection needs for storm and sanitary sewer tunnels.

Grit Inspection And Cleaning

Grit ID Location

Date Inspected Inspection Truck Inspector

Depth To Sediment From Invert (ft) Floatables Y/N

Inspection Comments

Outfall Inspection Records

Outfall ID

Date

Location

Truck ID

Crew Leader

Flow (Y/N) If no, skip to the next section.

Foreign Odor? (Y/N) If yes, describe odor (petroleum, chemical, rotten eggs, etc

Stains or Deposits? (Y/N) If yes, describe stain or deposit (appearance, severity, etc)

Repair Or Maintenance Required (Y/N)

Comments Or Repairs Needed

2001 Grit Chamber Inspection and Cleaning

GritID	Location	FloatableAmt	% Of Capacity	CY GritQty
1	UPTON AVE N & 53RD AVE N	NONE	AVERAGE	3.5
2	RUSSELL AVE N & 53RD AVE N	NONE	SMALL	1.3
3	SHERIDAN AVE N, N OF 52ND AVE N	LARGE	AVERAGE	8.5
4	RUSSELL AVE N NORTH OF 52ND AVE N	NONE	AVERAGE	1.3
5	PENN AVE N & 52ND AVE N	NONE	SMALL	1
6	PENN AVE N & 52ND AVE N	SMALL	AVERAGE	2
7	OLIVER AVE N & 52ND AVE N	NONE	AVERAGE	2.4
8	NEWTON AVE N & SHINGLE CREEK	SMALL	AVERAGE	1.3
9	OLIVER AVE N & 51ST AVE N	NONE	AVERAGE	3.3
10	MORGAN AVE N & 51ST AVE N	SMALL	SMALL	1.1
11	KNOX AVE N & 51ST AVE N	AVERAGE	AVERAGE	5
12	KNOX AVE N & 50TH AVE N	SMALL	AVERAGE	6.5
13	IRVING AVE N & 50TH AVE N	SMALL	SMALL	1
14	JAMES AVE N NORTH OF 49TH AVE N	NONE	SMALL	0.75
15	21ST AVE N & 1ST ST N	LARGE	LARGE	92.4
16	XERXES AVE N & 14TH AVE N	SMALL	LARGE	376
17	XERXES AVE N & GLENWOOD AVE	SMALL	AVERAGE	5
19	GIRARD AVE N & CURRIE AVE N	LARGE	LARGE	24
20	BRIDAL VEIL TUNNEL OUTLET	SMALL	SMALL	0

GritID	Location	FloatableAmt	% Of Capacity	CY GritQty
22	W 22ND ST & JAMES AVE S	SMALL	AVERAGE	2.5
23	YARD SUMPS, 26TH & HIAWATHA	NONE	SMALL	0.5
24	DREW AVE S & W LAKE ST	SMALL	LARGE	5
26	W LAKE ST & ALDRICH AVE S	SMALL	SMALL	0.5
27	W 32ND ST & BRYANT AVE S	LARGE	AVERAGE	2.5
28	W 33RD ST & HOLMES	SMALL	AVERAGE	5
32	E 42ND ST & BLOOMINGTON AVE S	LARGE	LARGE	100
32	E 42ND ST & BLOOMINGTON AVE S	SMALL	AVERAGE	4
34	W 44TH ST & W LAKE HARRIET PKWY	LARGE	LARGE	18
35	E 44TH ST & OAKLAND AVE S	SMALL	AVERAGE	4
36	31ST AVE S & E 46TH ST	NONE	SMALL	2
37	46TH AVE S & GODFREY RD	NONE	NONE	0
38	W 47TH ST & YORK AVE S	SMALL	AVERAGE	
39	W 47TH ST & WASHBURN AVE S	SMALL	SMALL	1
40	W 47TH ST & LAKE HARRIET PKWY	SMALL	AVERAGE	2
42	QUEEN AVE S & LAKE HARRIET PKWY	SMALL	LARGE	18
43	16TH AVE S & E MINNEHAHA PKWY	NONE	SMALL	2
44	SHERIDAN AVE S & W 50TH ST	SMALL	AVERAGE	3.5
47	E 55TH ST & PORTLAND AVE S	SMALL	AVERAGE	1.5
48	EAST 56TH ST & PORTLAND AVE S	SMALL	AVERAGE	2
49	E 57TH ST & PORTLAND AVE S	SMALL	AVERAGE	0.5

GritID	Location	FloatableAmt	% Of Capacity	CY GritQty
51	GIRARD AVE S BETWEEN W 59TH ST & W 60TH ST	SMALL	AVERAGE	3
52	E 59TH ST & 12TH AVE S	SMALL	AVERAGE	3.5
52	E 59TH ST & 12TH AVE S	NONE	SMALL	0.25
53	GIRARD AVE S & W 60TH ST	SMALL	AVERAGE	1
57	GRASS LAKE SERVICE ROAD BEHIND #6077 JAMES AVE	SMALL	SMALL	0.5
58	GRASS LAKE SERVICE ROAD BEHIND #1416 W 61ST ST	SMALL	AVERAGE	0.5
59	W 61ST ST & GRASS LAKE SERVICE ROAD	SMALL	SMALL	0.5
61	E RIVER ROAD & CECIL ST	SMALL	LARGE	9.4
62	HIAWATHA PARK REFECTORY TURN-A-ROUND	SMALL	SMALL	0.25
62	HIAWATHA PARK REFECTORY TURN-A-ROUND	SMALL	AVERAGE	1.5
64	NORTH TRANSFER STATION	AVERAGE	AVERAGE	3
64	NORTH TRANSFER STATION	NONE	SMALL	1
65	SOUTH TRANSFER STATION	SMALL	AVERAGE	5
65	SOUTH TRANSFER STATION	NONE	NONE	0
66	MAPLE PLACE & EAST ISLAND	NONE	SMALL	1.5
67	DELASALLE DRIVE & EAST ISLAND	NONE	LARGE	4.5
68	W ISLAND - 300' S OF MAPLE PLACE	NONE	SMALL	1.2
69	EASTMAN AVE & W ISLAND	NONE	SMALL	0.5
70	ROYALSTON & 5TH AVE N	SMALL	SMALL	1.5
72	S OF 37TH AVE NE & ST ANTHONY PKWY	LARGE	LARGE	5
73	4552 KNOX AVE N (IN ALLEY BEHIND)	SMALL	AVERAGE	1.25

GritID	Location	FloatableAmt	% Of Capacity	CY GritQty
76	MARKET PLAZA & EXCELSIOR BLVD	LARGE	LARGE	19
77	ALLEY BETWEEN NICOLLET & BLAISDELL	SMALL	AVERAGE	1
78	SHINGLE CREEK WETLAND - EASTSIDE	SMALL	LARGE	13
	TOTAL			788.7

CHAPTER 52. EROSION AND SEDIMENT CONTROL FOR LAND DISTURBANCE ACTIVITIES

52.10. Purpose. The purpose of Chapter 52 is to control or eliminate soil erosion and sedimentation within the City of Minneapolis. It establishes standards and specifications for conservation practices and planning activities which minimize soil erosion and sedimentation. (96-Or-042, § 1, 5-10-96)

52.20. Scope. Chapter 52 controls land disturbances, soil storage, and erosion and sedimentation resulting from such activities and establishes procedures for issuance, approval, administration, and enforcement of a permit. (96-Or-042, § 1, 5-10-96)

52.30. Definitions. For the purposes of Chapter 52, the following terms, phrases, words, and their derivatives shall have the meaning stated below:

Applicant is any person who submits an application to the city for a permit pursuant to Chapter 52.

Architect is a person duly registered or authorized to practice architecture in the State of Minnesota.

ASTM is the American Society for Testing Materials.

Bedrock is inplace solid rock.

Bench is a relatively level step excavated into earth material on which fill is to be placed.

Best management practices (BMP) is a technique or series of techniques which are proven to be effective in controlling runoff, erosion, and sedimentation.

Borrow is earth material acquired from an off-site location for use in grading on a site.

City engineer is the city engineer/director of public works of the City of Minneapolis and his/her duly authorized designees.

Civil engineer is a professional engineer registered in the State of Minnesota to practice in the field of civil works.

Civil engineering is the application of the knowledge of the forces of nature, principles of mechanics and the properties of materials to the evaluation, design and construction of civil works for the beneficial uses of mankind.

Clearing and *grubbing* is the cutting and removal of trees, shrubs, bushes, windfalls and other vegetation including removal of stumps, roots, and other remains in the designated areas.

Demolition is any act or process of wrecking or destroying a building or structure as defined in the City of Minneapolis Building Code, Chapter 117, Wrecking.

Detention facility is a temporary or permanent natural or manmade structure that provides for the temporary storage of stormwater runoff.

Developer is any person, firm, corporation, sole proprietorship, partnership, state agency, or political subdivision thereof engaged in a land disturbance activity.

Director of inspections is the director of inspections of the City of Minneapolis and his/her duly authorized designees.

Erosion is the wearing away of the ground surface as a result of the movement of wind, water, ice, and/or land disturbance activities.

Erosion and sediment control plan (plan) is a plan which includes a set of best management practices or equivalent measures designed to control surface runoff and erosion and to retain sediment on a particular site during the period in which pre-construction and construction related land disturbances, fills, and soil storage occur, and before final improvements are completed, all in accordance with the specific requirements set forth in section 52.100 of Chapter 52.

Erosion control inspector is a Minneapolis employee who has in his/her possession a provisional certification for erosion and sediment control plan design sponsored or endorsed by the Minnesota Pollution Control Agency (MPCA) and the Minnesota Board of Water and Soil Resources (BWSR), or who has completed a training program approved by the city engineer.

Excavation is the mechanical removal of earth material.

Fill is a deposit of soil or other earth materials placed by artificial means.

Final erosion and sediment control plan (final plan) is a plan which includes permanent measures and best management practices to control surface runoff and control sediment if not included in the erosion and sediment control plan (plan).

Floodplain is the one hundred (100) year floodplain which is that area adjoining a watercourse which could be inundated by a flood that has a one (1) percent chance of being equaled or exceeded in any given year and is delineated on the Federal Emergency Management Agency Floodway Maps for Minneapolis.

General stormwater permit is the Minnesota Pollution Control Agency's (MPCA) general National Pollutant Discharge Elimination System (NPDES) construction stormwater permit covering anyone conducting a land disturbing activity which disturbs five (5) or more acres of total land area.

Grade is the vertical location of the ground surface.

(1) Existing grade is the grade prior to grading.

(2) Rough grade is the stage at which the grade approximately conforms to the approved plan.

(3) Finish grade is the final grade of the site which conforms to the approved plan.

Hennepin Conservation District (HCD) is the Hennepin Conservation District organized and operating under Minnesota Statutes, Chapter 40.

Issuing authority is the city engineer/director of public works and the director of inspections of the City of Minneapolis and their duly authorized designees.

Land disturbance activity is any land change that may result in soil erosion from wind, water and/or ice and the movement of sediments into or upon waters, lands, or rights-of-way within the City of Minneapolis, including but not limited to building demolition, clearing and grubbing, grading, excavating, transporting and filling of land. Land disturbance activity does

not include the following:

(1) Minor land disturbance activities including, but not limited to, underground utility repairs, home gardens, minor repairs, and maintenance work which do not disturb more than five hundred (500) square feet of land.

(2) Installation of fence, sign, telephone, and electric poles and other kinds of posts or poles.

(3) Emergency work to protect life, limb, or property and emergency repairs. If the land disturbing activity would have required an approved erosion and sediment control plan except for the emergency, then the land area disturbed shall be shaped and stabilized in accordance with the requirements of Chapter 52.

Landscape architect is a person duly registered or authorized to practice landscape architecture in the State of Minnesota.

Maintenance project is a non-construction related activity.

Manual of Standards is a compilation of technical standards and design specifications adopted by the City of Minneapolis Department of Public Works as being proven methods of controlling construction related surface runoff, erosion and sedimentation. This includes the Erosion and Sediment Control Manual as developed by the Hennepin Conservation District of Hennepin County, 1989, and subsequent amendments thereto, and "Protecting Water Quality in Urban Areas" prepared by the Minnesota Pollution Control Agency (MPCA), 1989, and subsequent updates.

MnDOT is the Minnesota Department of Transportation.

Outfall is the point of discharge to any watercourse from a public or private stormwater drainage system.

Owner is any person with a legal or equitable interest in the land for which an erosion control permit has been issued.

Permittee is the applicant in whose name a valid permit is duly issued pursuant to Chapter 52 and his/her agents, employees, and others acting under his/her direction.

Retention facility is a temporary or permanent natural or manmade structure that provides for the storage of stormwater runoff by means of a permanent pool of water.

Runofl is rainfall, snowmelt, or irrigation water flowing over the ground surface.

Sediment is soils or other surficial materials transported by surface water as a product of erosion.

Sedimentation is the process or action of depositing sediment that is determined to have been caused by erosion.

Select topsoil borrow is the material furnished under MnDOT specification 3877.2 designated as "B" as defined by the Soil Science Society of America.

Site is the entire area of land on which the land disturbance activity is proposed in the permit application.

Site plan is a plan or set of plans showing the details of any land disturbance activity of a site including but not limited to the construction of: structures, open and enclosed drainage

facilities, stormwater management facilities, parking lots, driveways, curbs, pavements, sidewalks, bike paths, recreational facilities, ground covers, plantings, and landscaping.

Slope is the incline of a ground surface expressed as a ratio of horizontal distance to vertical distance.

Soil is naturally occurring surficial deposits overlying bedrock.

Soils engineer (geotechnical engineer) is an engineer experienced and knowledgeable in the practice of soils engineering (geotechnical) engineering.

Soils engineering (geotechnical engineering) is the application of the principles of soils mechanics in the investigation, evaluation and design of civil works involving the use of earth materials and the inspection and/or testing of the construction thereof.

Stripping is any activity which removes or significantly disturbs the vegetative surface cover including clearing, grubbing of stumps and root mat, and topsoil removal.

Structure is anything manufactured, constructed or erected which is normally attached to or positioned on land, including buildings, portable structures, earthen structures, roads, parking lots, and paved storage areas.

Surveyor is a person duly registered or authorized to practice land surveying in the State of Minnesota.

Topsoil is the upper layer of soil.

Topsoil borrow is the material furnished under MnDOT specification 3877.2 designated as "A" as defined by the Soil Science Society of America.

Utility is the owner/operator of any underground facility including an underground line, facility, system, and its appurtenances used to produce, store, convey, transmit, or distribute communications, data, electricity, power, heat, gas, oil, petroleum products, water (including stormwater), steam, sewage, and other similar substances.

Watercourse is any natural or improved stream, river, creek, ditch, channel, canal, conduit, gutter, culvert, drain, gully, swale, or wash in which waters flow either continuously or intermittently.

Watershed is a region draining to a specific river, river system, or body of water.

Watershed District/Watershed Management Organization (WMO) is an organization which oversees the activities in a particular watershed as defined by Minnesota Statutes, Sections 103B and 103D.

Wetlands is a lowland area, such as a marsh, that is saturated with moisture, as defined in Sec. 404, Federal Water Pollution Control Act Amendments of 1987, or the Minnesota Wetland Conservation Act of 1991. (96-Or-042, § 1, 5-10-96)

52.40. Relation to other laws. Neither Chapter 52 nor any administrative decision made under it exempts the permittee or any other person from procuring other required permits or complying with the requirements and conditions of such a permit, or limits the right of any person to maintain, at any time, any appropriate action, at law or in equity, for relief or damages against the permittee or any other person arising from the activity regulated by Chapter 52. (96-Or-042, § 1, 5-10-96)

52.50. Exemptions. The following activities are exempt from obtaining a permit and from following the procedures required in Chapter 52:

(1) Cemetery graves.

(2) Emergencies posing an immediate danger to life or property, or substantial flood or fire hazards.

(3) Any activity where the total volume of material disturbed, stored, disposed of or used as fill does not exceed five (5) cubic yards or the area disturbed does not exceed five hundred (500) square feet provided it does not obstruct a watercourse, and is not located in a floodplain. (96-Or-042, § 1, 5-10-96)

52.60. Manner of work. All land disturbing or land filling activities or soil storage, whether pursuant to Chapter 52 or otherwise, shall be undertaken in a manner designed to minimize surface runoff, erosion and sedimentation. Whenever the issuing authority determines that any land disturbing activity on any private property has become a hazard to life and limb, or endangers the property of another, or adversely affects the safety, use, slope, or soil stability of a public way, publicly controlled wetland, or watercourse, then the owner of the property upon which the land disturbing activity is located, or other person or agent in control of said property, upon receipt of notice in writing from the issuing authority, shall within the period specified therein repair or eliminate such conditions.

Exempt activities under section 52.50 or the activities excluded under the definition of land disturbance activities under section 52.30 are also subject to the provisions of this section. If the city incurs costs to enforce the provisions of the section because of any activity listed in section 52.50, reimbursement of city costs associated with the correction work completed by the city must occur prior to the issuance of a letter certifying completion, when required under section 52.320. (96-Or-042, § 1, 5-10-96)

52.70. Erosion and sediment control performance standards. A construction project shall be considered in conformance with Chapter 52 if soils have been prevented from being deposited onto adjacent properties, rights-of-ways, public storm drainage system, or wetland or watercourse. The design, testing, installation, and maintenance of erosion and sediment control operations and facilities shall adhere to the standards and specifications contained in the Manual of Standards which shall be hereby incorporated into Chapter 52. In the event of conflict between provisions of said manual and of Chapter 52, Chapter 52 shall govern. A copy of the Manual of Standards and amendments shall be filed with the city engineer/director of public works. (96-Or-042, § 1, 5-10-96)

52.80. Application. A written application from the owner of the site, or his/her authorized representative, in the form prescribed by section 52.90, shall be required for each permit. The fees for said permit shall be paid pursuant to the schedules set forth in Chapter 91, Art. XIII. Plans and specifications shall be prepared or approved and signed by a civil engineer, surveyor, architect, or landscape architect. The city engineer may waive the preparation or approval and signature by the civil engineer, surveyor, architect, or landscape architect when it is self-evident that the work is simple, clearly shown, and entails no hazard or nuisance potential to adjacent property or watercourse, and does not include the placement of fill upon

which a structure may be erected. (96-Or-042, § 1, 5-10-96)

52.90. Permit application form. The following information is required on the application:

(1) Name, address, and telephone number of owner.

(2) Name, address, and telephone number of applicant, if different than owner.

(3) Names, addresses, and telephone numbers of any and all contractors, subcontractors or persons actually doing the land disturbing or land filling activities and their respective tasks.

(4) Name(s), address(es), and telephone number(s) of the person(s) responsible for the preparation of the site map and grading plan.

(5) Name(s), address(es), and telephone number(s) of the person(s) responsible for the preparation of the erosion and sediment control plan.

(6) Name(s), address(es), and telephone number(s) of the registered engineer(s) responsible for the preparation of the soils engineering and engineering geology reports, where required.

(7) Address of site.

(8) Date of the application.

(9) Signature(s) of the owner(s) of the site or an authorized representative. (96-Or-042, § 1, 5-10-96)

52.100. Erosion and sediment control plan (plan). Land disturbance activities which are in excess of either five thousand (5,000) square feet or five hundred (500) cubic yards of earth moved require an erosion and sedimentation control plan approved by the city engineer. These plans shall be drawn to an appropriate scale and shall include sufficient information to evaluate the environmental characteristics of the affected areas, the potential impacts of the proposed grading on water resources, and measures proposed to minimize soil erosion and off-site sedimentation. The owner/developer shall perform all clearing, grading, drainage, construction, and development in strict accordance with the approved plan. In addition, the following information shall be included in any plan.

(1) A letter of transmittal, which includes a project narrative.

(2) An attached vicinity map showing the location of the site in relationship to the surrounding area's watercourses, water bodies and other significant geographic features, and roads and other significant structures.

(3) An indication of the scale used.

(4) The name, address, and telephone number of the owner and/or developer of the property where the land disturbing activity is proposed.

(5) Suitable contours for the existing and proposed topography.

(6) The proposed grading or land disturbance activity including: the surface area involved, excess spoil material, use of borrow material, and specific limits of disturbance.

(7) A clear and definite delineation of any areas of vegetation or trees to be saved.

(8) A clear and definite delineation of any wetlands, natural or artificial water storage detention areas, and drainage ditches on the site.

(9) A clear and definite delineation of any one hundred (100) year floodplain on or near the site.

(10) Storm drainage system, including quantities of flow and site conditions around all points of surface water discharge from the site.

(11) Erosion and sediment control provisions to minimize on-site erosion and prevent off-site sedimentation, including provisions to preserve topsoil and limit disturbance.

(12) Design details for both temporary and permanent erosion control structures.

(13) Details of temporary and permanent stabilization measures including a construction note on the plan stating: "Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within seven (7) calendar days on all perimeter dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1); embankments of ponds, basins, and traps; and within fourteen (14) days on all other disturbed or graded areas. The requirements of this section do not apply to those areas which are shown on the plan and are currently being used for material storage or for those areas on which actual construction activities are currently being performed."

(14) A chronological construction schedule and time frame including, as a minimum, the following activities:

a. Clearing and grubbing for those areas necessary for installation of perimeter erosion control devices.

b. Construction of perimeter erosion control devices.

c. Remaining interior site clearing and grubbing.

d. Installation of permanent and temporary stabilization measures.

e. Road grading.

f. Grading for the remainder of the site.

g. Utility installation and whether storm drains will be used or blocked after construction.

h. Building, parking lot, and site construction.

i. Final grading, landscaping or stabilization.

j. Implementation and maintenance of final erosion control structures.

k. Removal of temporary erosion control devices.

(15) A statement noting that the contractor, developer, and owner shall request the erosion control inspector to inspect and approve work completed in accordance

with the approved erosion and sediment control plan, and in accordance with Chapter 52. The contractor, developer, or owner shall be required to obtain written approval by the inspector at the stages of development as outlined in section 52.250, subsections (1), (2), and (3).

(16) A signed statement on the plan by the owner, developer, and contractor that any clearing, grading, construction, or development, or all of these, will be done pursuant to the plan.

(17) The city engineer may require any additional information or data deemed appropriate and/or may impose such conditions thereto as may be deemed necessary to ensure compliance with the provisions of Chapter 52, the Manual of Standards, or the preservation of public health and safety.

(18) A description of, and specifications for, sediment retention structures.

(19) A description of, and specifications for, surface runoff and erosion control devices.

(20) A description of vegetative measures.

(21) The applicant may propose the use of any erosion and sediment control techniques in a final plan provided such techniques are proven to be as or more effective than the equivalent best management practices as contained in the Manual of Standards.

(22) Proposed conditions of the site on the 15th of each month between and including the months of April through October. (96-Or-042, § 1, 5-10-96)

52.110. Soils engineering report. A soils engineering report, when required by the city engineer, based upon his/her determination that the condition of the soils is unknown or unclear so that additional information is required to protect against erosion or other hazard, shall be based on adequate and necessary test borings, and shall contain all the information listed below. Recommendations included in the report and approved by the city engineer shall be incorporated in the grading plans and/or specifications.

(1) Data regarding the nature, distribution, strength, and erodibility of existing soils.

(2) If applicable, data regarding the nature, distribution, strength, and erodibility of soil to be placed on the site.

(3) Conclusions and recommendations for grading procedures.

(4) Conclusions and recommended designs for interim soil stabilization devices and measures, and for permanent soil stabilization after construction is completed.

(5) Design criteria for corrective measures when necessary.

(6) Opinions and recommendations covering the stability of the site. (96-Or-042, § 1, 5-10-96)

52.120. Engineering geology report. When deemed necessary by the city engineer, based upon his/her determination that the condition of the soils is unknown or unclear so that additional information is required to protect against erosion or other hazard, an engineering

geology report shall be provided based on adequate and necessary test borings, giving an adequate description of the geology of the site with conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and giving opinions and recommendations covering the adequacy of sites to be developed by the proposed land disturbing activity. Recommendations included in the report and approved by the city engineer shall be incorporated in the grading plans and/or specifications. (96-Or-042, § 1, 5-10-96)

52.130. Work schedule. When not submitted as part of a plan the applicant shall submit to the city engineer, a master work schedule showing the following information:

(1) Proposed grading schedule.

(2) Proposed schedule for installation of all erosion and sediment control measures including, but not limited to, the stage of completion of erosion and sediment control devices and vegetative measures.

(3) Schedule for construction of final improvements, if any.

(4) Schedule for installation of permanent erosion and sediment control devices where required. (96-Or-042, § 1, 5-10-96)

52.140. Permit required. Except as otherwise provided in Chapter 52, no person may grade, fill, excavate, store, stockpile or dispose of earth materials or perform any other land disturbing or land filling activity without first obtaining an erosion and sediment control permit from the director of inspections. Annual maintenance permits are available for maintenance projects greater than five hundred (500) square feet. (96-Or-042, § 1, 5-10-96)

52.150. Permit duration. Permits issued under Chapter 52 shall be valid for the period during which the proposed land disturbing or filling activities and soil storage takes place or is scheduled to take place, whichever is shorter, but in no event shall such a permit be valid for more than one (1) year. The permittee shall commence permitted activities within one hundred eighty (180) days of the scheduled commencement date for grading or the permittee shall resubmit all required application forms, maps, plans, and schedules to the issuing authority, except where an item to be resubmitted is waived by the issuing authority. (96-Or-042, § 1, 5-10-96)

52.160. Permit renewals/extensions. The permittee shall fully perform and complete all of the work required in the sequence shown on the plans within the time limit specified in the permit. Prior to the expiration of an erosion and sediment control permit, the permittee may present a written request for an extension to the director of inspections. If, in the opinion of the issuing authority, an extension is warranted, a one time no fee extension, not to exceed ninety (90) days, may be granted. The issuing authority may authorize additional extensions not to exceed a total of one (1) year at the rate of seventy-five dollars ($75.00) per extension. (96-Or-042, § 1, 5-10-96)

52.170. Permit denial. If the issuing authority determines that the erosion and sediment control plan does not meet the requirements of Chapter 52, he/she shall not issue a permit for the land disturbing activity. The erosion and sediment control plan must be resubmitted for approval before the land disturbance activity begins. All land use and building permits must be

suspended until the permittee has an approved erosion and sediment control plan. (96-Or-042, § 1, 5-10-96)

52.180. Conditions of approval. In granting any permit pursuant to Chapter 52, the issuing authority may impose such conditions as may be reasonably necessary to prevent creation of a nuisance or unreasonable hazard to persons or to a public or private property. Such conditions shall include (even if not specifically written in the permit), but need not be limited to:

(1) The granting (or securing from others) and the recording in county land records of easements for drainage facilities, including the acceptance of their discharge on the property of others, and for the maintenance of slopes or erosion control facilities.

(2) Adequate control of dust by watering, or other control methods acceptable to the issuing authority, and in conformance with applicable air pollution ordinances.

(3) Improvements of any existing grading, ground surface or drainage condition on the site (not to exceed the area as proposed for work or development in the application) to meet the standards required under Chapter 52 for new grading, drainage and erosion control.

(4) Sediment traps and basins located within a densely populated area or in the proximity of an elementary school, playground or other area where small children may congregate without adult supervision may be requested to install additional safety related devices. (96-Or-042, § 1, 5-10-96)

52.190. Liability. The permittee is responsible for safely and legally completing the project. Neither the issuance of a permit under the provisions of Chapter 52, nor the compliance with the provisions hereto or with any condition imposed by the issuing authority, shall relieve any person from responsibility for damage to persons or property resulting therefrom, or as otherwise imposed by law, nor impose any liability upon the city for damages to persons or property. (96-Or-042, § 1, 5-10-96)

52.200. Responsibility of permittee. The permittee shall maintain a copy of the permit, approved plans and reports required under the permit on the work site and available for public inspection during all working hours. The permittee shall, at all times, be in conformity with the approved grading plan, erosion and sediment control plans and also conform to the following:

(1) *General* - Notwithstanding other conditions or provisions of the permit, or the minimum standards set forth in Chapter 52, the permittee is responsible for the prevention of damage to adjacent property. No person shall grade on land in any manner, or so close to the property line as to endanger or damage any adjoining public street, sidewalk, alley or any other public or private property without supporting and protecting such property from settling, cracking, erosion, sedimentation or other damage or personal injury which might result.

(2) *Public ways* - The permittee shall be responsible for the prompt removal of, and the correction of damages resulting from any soil, miscellaneous debris or other materials washed, spilled, tracked, dumped or otherwise deposited on public streets, highways, sidewalks or other public thoroughfare, incident to the construction activity, or during transit to and from the construction-site.

(96-Or-042, § 1, 5-10-96)

52.210. Permit authorization. The issuance of an erosion and sediment control permit shall constitute an authorization to do only that work described in the permit, or shown on the approved site plans and specifications, all in strict compliance with the requirements of Chapter 52, unless each and every modification or waiver is specifically listed and given specific approval by the issuing authority. (96-Or-042, § 1, 5-10-96)

52.220. Compliance. The permittee, his/her agent, contractors and employees shall carry out the proposed work in accordance with the approved plans and specifications, and in compliance with all the requirements of the permit, including those documents referenced in section 52.70 of Chapter 52. (96-Or-042, § 1, 5-10-96)

52.230. Action upon noncompliance. (a) In the event work does not conform to the permit or to the plans and specifications or to any instructions of the issuing authority, notice to comply shall be given to the permittee in writing. After a notice to comply is given, in the determination of the issuing authority, the permittee or his/her contractor shall be required to make the corrections within the time period determined by the issuing authority. If an imminent hazard exists, the issuing authority may require that the corrective work begin immediately.

(b) If the issuing authority finds any existing conditions not as stated in the application or approved plans, he/she may stop the work on the entire project or any specified part thereof until a revised plan is submitted conforming to the currently existing conditions.

(c) Failure of the permittee to comply with the directives of this section will constitute a violation pursuant to section 52.290, and will be considered a nuisance pursuant to Laws of Minnesota for 1994, Chapter 587, Article 9, Section 4, and the issuing authority may cancel the permit and proceed with the necessary restoration of the site at the expense of the owner. The owner will be billed for the expenses incurred by the issuing authority. Failure to pay will result in the issuing authority seeking recovery of costs and damages pursuant to the conditions set forth in section 52.290. (96-Or-042, § 1, 5-10-96)

52.240. Changes to plans. All changes or modifications to the approved erosion and sediment control plans must adhere to the following conditions:

(1) All proposals to modify the approved plans must be submitted to the city engineer for his/her approval. No grading or any type of work in connection with any proposed modification shall be without prior written approval of the issuing authority.

(2) When inspection of a site indicates that the approved erosion and sediment control plan needs change, the change shall be in compliance with the erosion and sediment control criteria contained in the Manual of Standards. The erosion control inspector may approve minor modifications to approved erosion and sediment control plans in the field if documented on a field inspection report. The modification shall be noted on the approved plans, signed by the inspector, and dated. A list of allowable field modifications for use by field inspection personnel will be kept in the Manual of Standards.

(3) The permittee shall submit requests for major revisions to approved erosion and sediment control plans, such as the addition or deletion of a sediment basin, to the city engineer. This includes revisions due to plan and site discrepancies and inadequacies at controlling erosion and sediment as revealed through inspection. (96-Or-042, § 1, 5-10-96)

52.250. Inspection and supervision. The contractor and/or their agents shall conduct a pre-construction meeting on-site with the issuing authority on each site which has an approved erosion and sediment control plan. After commencing initial grading or land disturbing activities, the permittee shall obtain written inspection approvals by the issuing authority at the following stages in the development of the site, or of each subdivision thereof:

(1) Upon completion of installation of perimeter erosion and sediment controls, prior to proceeding with any other land disturbance or grading. Other building or grading inspection approvals may not be authorized until initial approval by the erosion control inspector is made.

(2) Upon completion of stripping, the stockpiling of topsoil, the construction of temporary erosion and sediment control facilities, disposal of all waste material, and preparation of the ground and completion of rough grading, but prior to placing top soil, permanent drainage or other site development improvements and ground covers.

(3) Upon completion of final grading, permanent drainage and erosion control facilities including established ground covers and planting, and all other work of the permit. The issuing authority may require additional inspections as may be deemed necessary. Work shall not proceed beyond the stages outlined above until the erosion control inspector inspects the site and approves the work previously completed. Requests for inspections shall be made at least twenty-four (24) hours in advance (exclusive of Saturdays, Sundays, and holidays) of the time the inspection is desired. Upon request for inspections, the issuing authority shall perform the inspection within forty-eight (48) hours of request. In making application for a permit covered by Chapter 52, the applicant or the landowner performing or allowing such work consents to the issuing authority having the right to enter the site for the purpose of inspecting compliance with the erosion and sediment control plan or for performing any work necessary to bring the site into compliance with the erosion and sediment control plan. This does not include consent to enter into any building which is completed and which has been secured, but does include consent to inspect any area of the property where land disturbing activity is occurring or is thought to be planned as a site of land disturbing activity. (96-Or-042, § 1, 5-10-96)

52.260. Changes during construction reports. The permittee shall submit written reports to the issuing authority under the following circumstances along with recommendations for corrective measures, if deemed necessary and appropriate, with such reports unless the recommendation requirement is waived by the issuing authority.

(1) There are delays in obtaining materials, machinery, services or manpower necessary to the implementation of the grading, or erosion and sediment control

plan as scheduled.

(2) There are delays in land disturbing or filling activities or soil storage.

(3) The work is not being done in conformance with the approved grading, or erosion and sediment control plans.

(4) There are any departures from the approved grading plan which may affect implementation of the erosion and sediment control plans as scheduled.

(5) There are any delays in the implementation of the erosion and sediment control plans.

(6) There are any other departures from implementation of the erosion and sediment control plans. (96-Or-042, § 1, 5-10-96)

52.270. Maintenance during and after construction. On any property on which grading or other work has been done pursuant to a permit granted under the provisions of Chapter 52 the permittee or owner, their agent, contractor, and employees shall, at a minimum, daily inspect, maintain and repair all graded surfaces and erosion control facilities, drainage structures or means and other protective devices, plantings, and ground cover installed while construction is active. After construction is complete, the owner or their agent shall continue to regularly inspect the vegetation until adequate turf establishment or other suitable vegetative cover is established. (96-Or-042, § 1, 5-10-96)

52.280. Security. The issuing authority may require the posting of a surety bond in a form approved by the city attorney, when in the judgment of the issuing authority the project provides potential for environmental damage. The bond shall be in such form and amount as is necessary to assure that the work, if not completed in accordance with the approved plans and specifications, will be corrected. In lieu of a surety bond, with the approval of the issuing authority, the applicant may file a cash bond or instrument of credit that has been approved by the city attorney in an amount equal to that which would be required in the surety bond. (96-Or-042, § 1, 5-10-96)

52.290. Enforcement. The issuing authority shall be responsible for the enforcement of Chapter 52.

(1) The issuing authority may post a stop-work order for the entire project or any specified part thereof if any of the following conditions exist:

a. Any land disturbance activity regulated under Chapter 52 is being undertaken without a permit.

b. The erosion and sediment control plan is not being fully implemented.

c. Any of the conditions of the permit are not being met.

(2) For the purposes of this section, a stop-work order is validly posted by posting a copy of the stop-work order on the site of the land disturbing activity in reasonable proximity to a location where the land disturbing activity is taking place. Additionally, a copy of the order, in the case of work for which there is a permit, shall be mailed by first class mail, postage pre-paid, to the address listed

by the permittee on the permit. In the case of work for which there is no permit, a copy of the order shall be mailed to the person listed as owner of the property by the city assessor on the homestead record, or if none, to the taxpayer shown by the records of the city assessor.

(3) If the permittee does not cease the activity or comply with the erosion and sediment control plan or permit conditions within one (1) day, the issuing authority may revoke the permit.

(4) If the owner or land user where no permit has been issued does not cease the land disturbance activity, the issuing authority may request the city attorney to obtain injunctive relief.

(5) The issuing authority may retract the stop-work order or the revocation.

(6) Ten (10) days after posting a stop-work order, the issuing authority may issue a notice of intent to the permittee, owner, or land user of the issuing authority's intent to perform work necessary to comply with Chapter 52. The issuing authority may go on the land and commence work after fourteen (14) days from issuing the notice of intent. The costs incurred by the issuing authority to perform this work shall be paid by the owner or permittee out of the bond referred to in section 52.280 of Chapter 52, to the extent that the amount is covered thereby, with the remainder being directly due and owing by the owner or permittee. In the event no permit was issued or no bond was posted, the cost, plus interest at the rate authorized by the issuing authority, plus a reasonable administrative fee shall be billed to the owner. If in any event the amount due is not paid, the city clerk shall enter the amount due on the tax roll and collect as a special assessment against the property using the procedures for collecting the assessment, providing for the notice of assessment, hearing thereon, and appeal as provided by section 227.100 of the Minneapolis Code of Ordinances.

(7) Compliance with the provisions of Chapter 52 may also be enforced by injunction.

(8) A notice of intent to perform work necessary to comply with Chapter 52 pursuant to subsection (6) of this section may be served in the manner specified for a stop-work order in subsection (2). (96-Or-042, § 1, 5-10-96)

52.300. Penalties. Any person, firm, corporation or agency acting as principal, agent, employee or otherwise, who fails to comply with the provisions of Chapter 52 shall be guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine of not less than one hundred dollars ($100.00) and not more than seven hundred dollars ($700.00), or by imprisonment for not more than ninety (90) days, or both, for each separate offense. Each day there is a violation of any part of Chapter 52 shall constitute a separate offense. (96-Or-042, § 1, 5-10-96)

52.310. Final reports. Upon completion of the work, the issuing authority may require a report (including as-built construction plans) from a civil engineer, surveyor, architect, or landscape architect certifying that all erosion and sediment control devices have been completed in accordance with the conditions of the permit and approved plans and specifications, and with specific listing of all approved changes and modifications. (96-Or-042, § 1, 5-10-96)

52.320. Certification of completion. Upon receipt and approval of the final reports, if required by section 52.310 and/or upon otherwise determining that all work of the permit has been satisfactorily completed in conformance with this subtitle, the issuing authority will issue a letter certifying completion. (96-Or-042, § 1, 5-10-96)

52.330. Effective date. This ordinance shall become effective on June 15, 1996. (96-Or-042, § 1, 5-10-96)

CHAPTER 54. STORM WATER MANAGEMENT

54.10. Authority. This ordinance is adopted pursuant to the authorization and policies contained in Minnesota Statutes, Chapters 103B and 462, and Minnesota Rules, Chapters 8410 and 8420. (99-Or-156, § 1, 11-24-99)

54.20. Purpose. The purpose of this ordinance is to minimize negative impacts of storm water runoff rates, volumes and quality on Minneapolis lakes, streams, wetlands, and the Mississippi River by guiding future significant development and redevelopment activity, and by assuring long-term effectiveness of existing and future storm water management constructed facilities. Chapter 54 establishes standards and specifications for conservation practices and planning activities in order to achieve policies regarding water resource management, flood control, and other community services as described in city, regional, state, and federal documents and statutes. (99-Or-156, § 1, 11-24-99)

54.30. Minneapolis Storm Water Management Design Manual (Design Manual). The Design Manual is the compilation of design performance, and review criteria approved by the city engineer and adopted by the city council for storm water management practices. In any event of apparent non-conformance, the city council shall adopt a resolution that establishes an interim design manual, design performance standards, and review criteria. In the absence of an adopted Minneapolis Storm Water Management Design Manual, the publication entitled Protecting Water Quality in Urban Areas: Best Management Practices For Minnesota prepared by the Minnesota Pollution Control Agency (MPCA), October, 1989, and subsequent updates, shall serve as the approved Design Manual. Copies of the Design Manual can be obtained from the Minneapolis Department of Public Works. (99-Or-156, § 1, 11-24-99)

54.40. Definitions. For the purposes of Chapter 54, the following terms, phrases, words, and their derivatives shall have the meaning stated below:

Applicant is any person who submits a Storm Water Management Plan pursuant to this ordinance and the person's agents, employees, and others acting under this person's direction.

Best Management Practices (BMP)--See Storm Water Management Best Management Practices.

City engineer is the city engineer/director of public works of the City of Minneapolis and duly authorized designees.

Clearing and grubbing is the cutting and removal of trees, shrub, bushes, windfalls and other vegetation including removal of stumps, roots, and other remains.

Connected actions--See phased or connected actions.

Constructed facilities--See storm water management constructed facilities.

Detention facility is a natural or built structure that provides for the temporary storage of storm water runoff and release at controlled rates.

Design Manual--See Minneapolis Storm Water Management Design Manual, Section 54.30.

Director of regulatory services is the director of regulatory services of the City of Minneapolis and duly authorized designees.

Impervious surface is one that does not allow rainfall to soak into the ground, including but not limited to the rooftops and paved areas such as roads, parking lots, driveways, sidewalks and plazas.

Issuing authority for Storm Water Management Plan approval and certification is the city engineer and for registration and maintenance is the director of regulatory services.

Land disturbing activity is any land change, including phased or connected actions, within the City of Minneapolis including, but not limited to, building demolition, clearing and grubbing, grading, excavating, transporting and filling of land, or other changes of the land surface including removing vegetative or impervious cover.

Minneapolis Storm Water Management Design Manual--See Section 54.30.

Mitigation is avoiding, minimizing, rectifying, or compensating for impacts.

Non-structural best management practices--See Best Management Practices.

Owner is any person with a legal or equitable interest in the land that includes one (1) or more storm water management constructed facilities.

Person is any individual, firm, corporation, partnership, franchisee, association or governmental entity.

Phased or connected actions are as defined by Minnesota Environmental Review Rules, as follows:

(1) *Phased action* means two (2) or more projects to be undertaken by the same proposer that the city engineer determines:

a. will have environmental effects on the same geographic area, and

b. are substantially certain to be undertaken sequentially over a limited period of time.

(2) *Connected actions:* Two (2) projects are "connected actions" if the city engineer determines they are related in any of the following ways:

a. one (1) project would directly induce the other;

b. one (1) project is a prerequisite for the other; or

c. neither project is justified by itself.

Pollution is the human-made or human-induced alteration of the chemical, physical, biological or radiological integrity of an aquatic ecosystem.

Project is an undertaking that involves land disturbing activities, including phased or connected actions.

Public waters are waters identified under Minnesota Statutes, Section 103G.005, Subdivision 15.

Receiving water body is the initial lake, stream, river, or wetland into which site runoff is

conveyed whether directly or through the public storm drain system.

Regional storm water facility is a natural or built structure or device within the project's receiving water body drainage area, when so designated by the city engineer.

Responsible party is the property owner and agents, employees, and others acting under the property owner's direction.

Retention facility is a natural or built structure that provides for the storage of storm water runoff by means of a permanent pool of water.

Runoff is rainfall, snowmelt, or irrigation water flowing over the ground surface.

Sediment is soils or other surficial materials transported by surface water as a product of erosion.

Site is the land on which the project, including phased or connected actions, is located.

Site plan is a plan or set of plans showing the details of any land disturbing activity including, but not limited to, the construction of structures, open and enclosed drainage facilities, storm water management facilities, parking lots, driveways, curbs, pavements, sidewalks, bike paths, recreational facilities, ground covers, plantings, and landscaping.

Soil is naturally occurring surficial deposits overlying bedrock.

Storm Water Best Management Practices (BMPs) are practices, techniques, or measures which are proven to be effective in managing one (1), or more than one (1), of the following: storm water runoff rate, storm water runoff volume, pollutants conveyed by storm water runoff, sediment conveyed by storm water runoff. Best management practices include, but are not limited to, official controls, structural and nonstructural best management practices, and operation and maintenance procedures. A partial list of structural best management practices and devices includes pond systems/detention basins, infiltration, bioretention and vegetated channels, grit chambers, oil/water separators, filtration systems, and diversions. A partial list of non-structural best management practices includes lawn care education, organic litter management, street sweeping, catch basin stenciling, and catch basin cleaning. BMPs are further defined in the design manual.

Storm water hotspot is a land use or activity that generates higher concentrations of hydrocarbons, trace metals or toxicants than are found in typical storm water runoff.

Storm water management is the collection, conveyance, storage, treatment and disposal of storm water runoff in a manner to minimize channel erosion, flood damage, or degradation of water quality and in a manner to protect and enhance the environment, public health, safety, and general welfare.

Storm water management devices include, but are not limited to, constructed wetlands, wet ponds, wet extended detention ponds, pocket ponds, multiple pond systems, settling basins, infiltration trenches or basins, filter systems bioretention areas, dry or wet swales, grass channels, waterways, rooftop detention, skimming devices, grit chambers, sweeping, and diversions.

Storm water management goals are based on the receiving water body and emphasize overall volume reduction, nutrient reduction for storm water discharge to lakes, rate control for storm water discharge to streams, and suspended solids removal for storm water discharge to the Mississippi River.

Storm Water Management Plan (Plan) is the set of drawings, calculations, and other documents that comprise all of the information and specifications for the drainage systems, structures, concepts and techniques that will be used to control storm water as required by this ordinance and the design manual.

Storm water pond is a facility capable of holding water on a long-term seasonal or permanent basis (retention), or a short-term basis (detention), the purpose of which is to collect runoff, nutrients, and sediment prior to releasing water into wetlands, lakes, streams, and rivers.

Storm water runoff is the direct response of a watershed to precipitation or snowmelt and includes runoff that enters a ditch, stream, storm drain or other concentrated flow.

Structural best management practices--See Storm Water Best Management Practices.

Structure is anything manufactured, constructed or erected that is normally attached to or positioned on the land, including portable structures, roads, parking lots, and paved storage areas.

Water quality refers to those characteristics of storm water runoff that relate to the physical, chemical, biological, or radiological integrity of water.

Water quantity refers to those characteristics of storm water runoff that relate to rate and volume.

Watershed is the drainage area contributing storm water runoff to a specific receiving body of water or watercourse such as a lake, creek, or river.

Wetlands are waters identified under Minnesota Statutes, Section 103G.005, Subdivision 19. (99-Or-156, § 1, 11-24-99)

54.50. Applicability. Chapter 54 establishes requirements for land disturbing activities on-sites greater than one (1) acre including phased or connected actions, and for existing storm water constructed devices.

(1) *Land-disturbing projects.* All land-disturbing projects on sites in excess of one (1) acre, including phased or connected actions, shall be served by storm water facilities, on or off site or a combination thereof, designed to meet or exceed targets according to the type of receiving water body as prescribed in the design manual. Land use and building permits will not be issued until a Storm Water Management Plan has been approved. On-site devices are subject to annual site registration, annual inspection, and adherence to maintenance rules prescribed in the design manual.

(2) *Pre-existing storm water management constructed devices.* Storm water facilities in existence prior to Chapter 54 are subject to annual site registration, annual inspection, and adherence to maintenance rules prescribed in the design manual. (99-Or-156, § 1, 11-24-99)

54.60. Exemptions. The following activities are exempt from requirements of Chapter 54:

(1) Storm water management plan requirements of Chapter 54.50(1) for any project that has received all necessary approvals from the city on or before the effective date of this ordinance.

(2) Emergency work to protect life, limb, or property.

(3) Any reconstruction project of an existing roadway, bridge, pathway or walkway where the increase in impervious surface area is one (1) acre or less.

(4) Installation of fence, sign, telephone, electric or other kinds of posts or poles. (99-Or-156, § 1, 11-24-99)

54.70. Responsibility prior to construction. Land use and building permits will not be issued until a Storm Water Management Plan has been approved.

(1) *Storm Water Management Plan application and approval.* The procedure for application for Storm Water Management Plan approval by the city engineer is contained in the design manual.

a. *Manual.*

1. *On-site management.* Measures to achieve storm water management standards should be incorporated on all sites to the greatest extent possible.

2. *Full or partial off-site management (participation in a regional facility).* When due to development density, topographic features, or soil or vegetation conditions, the responsible party may apply for approval of full or partial participation in existing regional storm water facilities within the drainage area of the same receiving water body, or regional storm water facilities within the drainage area of the same receiving water body that are substantially certain to be developed, or, if none exist, other storm water mitigation programs in the City of Minneapolis. The design manual shall provide the method for calculating cost of full or partial off-site management in lieu of full on-site management. Off-site management may not circumvent the general purposes and intent of this ordinance.

3. *Storm water management standards.*

i. *Standards according to receiving waterbody.* Storm water management standards include, but are not limited to, reduction of suspended solids discharged to the Mississippi River, controlled rate of discharge to streams, and reduction of nutrients in storm water draining to lakes or wetlands. Minimum requirements for pollutant removal including total suspended solids removal, discharge rate control, and nutrient load reduction according to type of receiving water body are prescribed in the design manual.

ii. *Storm water management devices.* When development density, topographic features, and soil and vegetation conditions are not sufficient to adequately handle storm water runoff using natural features and vegetation, constructed facilities or combinations of constructed

facilities shall be used. Types of constructed facilities include, but are not limited to, wetlands, wet-ponds, wet extended detention ponds, pocket ponds, multiple pond systems, setting basins, infiltration trenches or basins, filter systems, bioretention areas, dry or wet swales, grass channels, waterways, rooftop detention, skimming devices, grit chambers, sweeping and diversions. Suitability factors include, but are not limited to, development density, underlying soils, existing vegetation, drainage, location of utilities, aesthetic and recreational use, and management considerations.

iii. *Minimizing land disturbance.* Development shall be planned and conducted in a manner that will minimize the extent of disturbed areas, runoff velocities, erosion potential, and reduce and delay runoff volumes. Disturbed areas shall be stabilized and protected as required in Chapter 52 of this Code.

iv. *Maximizing infiltration.* To the greatest possible degree (except in the case of storm water hotspots), natural drainage ways and vegetated soil surfaces should be used to convey, store, filter, and retain storm water before discharging runoff into public waters or the public storm drain system. Opportunities for maximizing infiltration include minimizing the extent of impervious surfaces and directing runoff from impervious surfaces and from roof gutter systems onto lawns or other pervious surfaces.

v. *Rate control.* Changes in land cover effect changes in storm water runoff rates. Rate increases can degrade receiving water bodies or conveyance facilities or can cause flooding. Development should be planned in a manner that does not increase peak flows.

vi. *Ongoing maintenance.* No storm water facilities shall be approved without a maintenance plan that defines the maintenance regimen, including type and interval of maintenance and party to conduct such maintenance.

vii. *Accessibility for maintenance.* All public and private owned storm water management facilities shall provide an unobstructed access path capable of supporting light truck traffic during normal weather for the purpose of conducting inspections of the facility and maintenance thereof, unless waived by the city engineer.

viii. *Easement.* No storm water facility shall be approved unless all necessary access easements are provided to the City of Minneapolis.

ix. *Impacts on other properties.* No Storm Water

Management Plan shall be approved without written agreement among affected property owners regarding changes in drainage or other impacts or possible impacts of storm water management.

x. *Conformity with other requirements.* Storm Water Management Plans must conform to all applicable federal, state, city, and water management organization statutes, ordinances, and regulations.

4. *Conditions of approval.* In granting any approval pursuant to Chapter 54, the city engineer may impose such conditions as may be reasonably necessary to prevent creation of a nuisance or unreasonable hazard to persons or to a public or private property. Such conditions shall include (even if not specifically written in the Plan), but need not be limited to the granting (or securing from others) and recordation in county land records of easements for drainage facilities, including the acceptance of their discharge on the property of others, and for the maintenance of facilities.

5. *Denial.* If the city engineer determines that the Storm Water Management Plan does not meet the requirements of Chapter 54, the Plan will not be approved. A revised Storm Water Management Plan must be resubmitted and approved before any land disturbing activity begins. All land use and building permits must be suspended until the applicant has an approved Storm Water Management Plan.

6. *Appeal.* Any affected party may appeal any Storm Water Management Plan decision by an issuing authority to the Planning Commission. Appeal of the issuing authority's decision shall follow the procedures established in the Minneapolis Zoning Code, Section 525.160. (99-Or-156, § 1, 11-24-99)

54.80. Responsibility during construction/completion. (a) *Duration.* The applicant shall fully perform and complete all of the work within one (1) year or as otherwise specified in the Plan and approved.

(b) *Renewals/extensions.* Prior to the end of the approved schedule, the applicant may present a written request for an extension to the city engineer. If, in the opinion of the city engineer, an extension is warranted, an extension may be granted not to exceed one (1) year.

(c) *Changes to plans.* Any modifications to an approved Storm Water Management Plan must be approved by the city engineer.

(d) *Conformity with the plan.* The applicant shall, at all times, be in conformity with the approved Storm Water Management Plan.

(e) *Construction/completion final report and certification.* The applicant shall submit a final report to the city engineer for certification of completion. (99-Or-156, § 1, 11-24-99)

54.90. Responsibility following construction/completion. (a) *Duration.* An approved Storm Water Management Plan shall remain in effect unless cancellation is approved by the city engineer. All site areas used for the purpose of flood storage or treatment of storm water runoff shall be preserved and maintained for that use, including areas required for maintenance and inspection.

(b) *Changes to plans.* A responsible party can request modifications to an approved Storm Water Management Plan, and the issuing authority can order modifications to an approved Storm Water Management Plan. Any modification to an approved Storm Water Management Plan must be approved by the city engineer.

(c) *Annual notification.* The director of regulatory services shall annually notify responsible parties of storm water management devices of the need to register, that the devices are subject to annual inspection, and to conduct maintenance on a one (1) year interval or in accordance with maintenance plans on file.

(d) *Annual site registration.* Any person(s), organization, company, group, or any other entity, public or private, in control of storm water management devices installed under this ordinance or existing prior to this ordinance shall register that site annually with the director of regulatory services, remit an annual registration fee at the rate of eighty dollars ($80.00) per storm water management device, plus forty dollars ($40.00) for each additional device, and confirm that site has been inspected, maintained and is functioning satisfactorily.

(e) *Annual inspection of storm water facilities.* All storm water management devices are subject to annual inspection by the director of regulatory services. If the city engineer or director of regulatory services deems that devices are not functioning satisfactorily, a notice of noncompliance may be issued and procedures followed as described in Section 54.90(f)(2).

(f) *Maintenance of storm water constructed facilities.*

(1) *Regular maintenance.* Regular maintenance of storm water management constructed facilities in accordance with the approved Plan shall be required unless the Plan is modified and approved by the city engineer (54.90(2)). All facilities shall be maintained in proper condition for sustained use, consistent with the performance standards for which they were originally designed.

a. All settled materials from ponds, sumps, grit chambers, and other devices, including settled solids, shall be removed and properly disposed of.

b. All planted materials integral to storm water facility performance, safety, and/or aesthetic quality shall be maintained in proper condition consistent with design performance standards, including replacement when necessary.

(2) *Action upon non-compliance.* In the event maintenance does not conform to the approved Plan or to any instructions of the issuing authority, notice to comply shall be given to the responsible party in writing. After a notice to comply is given, in the determination of the issuing authority, the responsible party shall be required to make the corrections within the time period determined by the issuing

authority. If an imminent hazard exists, the issuing authority may require that the corrective work begin immediately. Failure of the responsible party to comply with the directives of Section 54.90(f)(1) will constitute a violation pursuant to Section 54.90(f)(2), and the issuing authority may proceed with the necessary maintenance of the site at the expense of the responsible party. The responsible party will be billed for the expenses incurred by the issuing authority. Failure to pay will result in the issuing authority seeking recovery of costs and damages pursuant to the conditions set forth in Section 54.120. (99-Or-156, § 1, 11-24-99)

54.100. Liability. The responsible party is responsible for safe and legal compliance with Chapter 54. Neither approval under the provisions of Chapter 54, nor the compliance with the provisions hereto or with any condition imposed by the issuing authority, shall relieve any person from responsibility for damage to persons or property resulting therefrom, or as otherwise imposed by law, nor impose any liability upon the city for damages to persons or property. (99-Or-156, § 1, 11-24-99)

54.110. Administration and enforcement. The issuing authority shall be responsible for the administration and enforcement of Chapter 54. Land use and building permits will not be issued until a Storm Water Management Plan has been approved. The issuing authority may post a stop work order if any land disturbing activity regulated under Chapter 54 is being undertaken without an approved Storm Water Management Plan or if any of the conditions of the Storm Water Management Plan are not being met. (99-Or-156, § 1, 11-24-99)

54.120. Penalties. Any person, firm, corporation or agency acting as property owner, responsible party, or otherwise, who fails to comply with the provisions of this Chapter 54 shall be guilty of a misdemeanor. (99-Or-156, § 1, 11-24-99)

54.130. Interpretation. In their interpretation and application, the provisions of this ordinance shall be held to be minimum requirements and shall be liberally construed in favor of the city and shall not be deemed a limitation or repeal of any other powers granted by state statutes. (99-Or-156, § 1, 11-24-99)

54.140. Severability. If any section, clause, provision or portion of this chapter is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of the chapter shall not be affected thereby. (99-Or-156, § 1, 11-24-99)

54.150. Disclaimer. This chapter does not imply that areas will be free from flooding or flood damages. This chapter does not create liability on the part of the city or its officers or employees for any flood damage that may result from reliance on this chapter or any administrative decisions made under it. (99-Or-156, § 1, 11-24-99)

54.160. Abrogation and greater restrictions. It is not intended by this chapter to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter imposes greater restrictions, the provisions of this chapter shall prevail. All other ordinances inconsistent with this ordinance are hereby repealed to the extent of the inconsistency only. (99-Or-156, § 1, 11-24-99)

54.170. Relation to other laws. Neither Chapter 54 nor any administrative decision made under it exempts the applicant or any other person from procuring other required permits or complying with the requirements and conditions of such permits, or limits the right of any person to maintain, at any time, any appropriate action, at law or in equity, for relief or damages against the applicant or any other person arising from activity regulated by Chapter 54.
(99-Or-156, § 1, 11-24-99)

54.180. Effective date. This ordinance shall become effective on January 1, 2000.
(99-Or-156, § 1, 11-24-99)

Load Reduction Requirements

Receiving Waters	Total Discharge Requirements
All receiving waters	70% removal of total suspended solids
Brownie Lake	10% phosphorus load reduction
Cedar Lake	40% phosphorus load reduction
Lake of the Isles	20% phosphorus load reduction
Lake Calhoun	30% phosphorus load reduction
Lake Harriet	20% phosphorus load reduction
Powderhorn Lake	30% phosphorus load reduction
Lake Hiawatha	42% phosphorus load reduction
Lake Nokomis	25% phosphorus load reduction
Loring Park Pond	0% phosphorus load increase
Webber Pond	0% phosphorus load increase
Wirth Lake*	30% phosphorus load reduction
Spring Lake	30% phosphorus load reduction
Crystal Lake**	30% phosphorus load reduction
Diamond Lake	30% phosphorus load reduction
Grass Lake	30% phosphorus load reduction
Birch Pond	0% phosphorus load increase
Ryan Lake	30% phosphorus load reduction
Other wetlands	30% phosphorus load reduction
Mississippi River	70% removal of total suspended solids
Minneapolis streams	No increase in rate of runoff from site

*Wirth Lake is not within the City limits of Minneapolis.
**Crystal Lake is in Robbinsdale but receives run-off from Minneapolis.

City of Minneapolis

Erosion and Sediment Control Fact Sheet

SITE ADDRESS	PERMIT#

PLAN PREPARERS

EROSION AND SEDIMENT CONTROL PLAN PREPARERS NAME		PHONE#	
STREET ADDRESS	CITY	STATE	ZIP
SOILS ENGINEERING REPORT PREPARERS NAME		PHONE#	
STREET ADDRESS	CITY	STATE	ZIP
ENGINEERING GEOLOGY REPORT PREPARERS NAME		PHONE#	
STREET ADDRESS	CITY	STATE	ZIP

CONTRACTORS

CONTRACTOR NAME		PHONE#	
STREET ADDRESS	CITY	STATE	ZIP
RESPONSIBLE FOR			
SUBCONTRACTOR NAME		PHONE#	
STREET ADDRESS	CITY	STATE	ZIP
RESPONSIBLE FOR			
SUBCONTRACTOR NAME		PHONE#	
STREET ADDRESS	CITY	STATE	ZIP
RESPONSIBLE FOR			
SUBCONTRACTOR NAME	PHONE#		
STREET ADDRESS	CITY	STATE	ZIP
RESPONSIBLE FOR			

OWNER/APPLICANT

PROPERTY OWNERS NAME		PHONE#	
STREET ADDRESS	CITY	STATE	ZIP
APPLICANTS NAME		PHONE#	
STREET ADDRESS	CITY	STATE	ZIP
APPLICANTS SIGNATURE		DATE	

PERMIT FEE ($)	UTILITIES -	LINEAL FEET @ $0.10
PUBLIC WORKS APPROVAL		

City Of Minneapolis Engineering Services

STANDARD EROSION CONTROL NOTES

Revised 6/6/01

1) Install silt fence at the locations shown on the plans prior to beginning construction. Install silt fence with post spacing of 4 feet or less. Drive posts at least 2 feet into the ground. Anchor the silt fence fabric in a trench (at least 6 inches deep and 6 inches wide) dug on the up slope side of the support posts. Lay the fabric in the trench and then backfill and compact. Make any splices in the fabric at a fence post. At splices, overlap the fabric at least 6 inches, fold it over, and securely fasten it to the fence post. Silt fence supporting posts shall be 2-inch square or larger hardwood, pine, or standard T- or U-section steel posts. Posts shall have a minimum length of 30 inches plus burial depth.
2) Remove all temporary synthetic, structural, non-biodegradable erosion and sediment control devices after the site has undergone final stabilization.
3) Before beginning construction, install a TEMPORARY ROCK CONSTRUCTION ENTRANCE at each point where vehicles exit the construction site. Use 2 inch or greater diameter rock such as MnDOT CA-1 or MnDOT CA-2 coarse aggregate. Place the aggregate in a layer at least 6 inches thick across the entire width of the entrance. Extend the rock entrance at least 50 feet into the construction zone. Use a geotextile fabric beneath the aggregate in order to prevent migration of soil into the rock from below.
4) Remove all soils and sediments tracked or otherwise deposited onto public and private pavement areas. Removal shall be on a daily basis throughout the duration of the construction. Clean paved roadways by shoveling or sweeping. Street washing is allowed only after shoveling or sweeping has removed sediment.
5) CONTRACTOR MUST NOTIFY CITY OF MINNEAPOLIS ENGINEERING AND DESIGN (612-673-2406) 48 HOURS PRIOR TO ANY LAND DISTURBANCES.
6) Maintain all temporary erosion and sediment control devices in place until the contributing drainage area has been stabilized. Inspect all temporary erosion and sediment control devices on a daily basis. Remove accumulated sediment deposits from behind erosion and sediment control devices as needed. Do not allow sediment to accumulate to a depth of more than one-half of the height of the erosion and sediment control devices. Immediately replace deteriorated, damaged, or rotted erosion control devices.
7) Temporarily or permanently stabilize all denuded areas which have been finish-graded, and all denuded areas in which grading or site building construction operations are not actively underway against erosion due to rain, wind and running water within 14 days. Use seeding and mulching, erosion control matting, and/or

sodding and staking in green space areas. Use early application of gravel base on areas to be paved.

8) Perform all erosion control practices in accordance with the methods outlined in the best management practices handbook: "Protecting Water Quality in Urban Areas," published by the Minnesota Pollution Control Agency.
9) Install inlet protection at all catch basin inlets, which receive runoff from the disturbed areas. Catch basin inserts or staked silt fence is the best option. NOTE: HAY BALES OR FABRIC UNDER THE GRATES ARE NOT EFFECTIVE AND ARE NOT AN ACCEPTABLE FORM OF INLET PROTECTION.
10) Unless otherwise noted, the appropriate dates for spring seeding/sodding are from April 15 through June 1. Fall sodding is generally acceptable from August 15 through November 1; fall seeding from August 15 through September 15. Seeding must take place prior to September 15. After September 15, wait until November 1 to perform dormant seeding.
11) In areas that are to be seeded, apply MnDOT Standard Spec. 3882 Type 1 mulch uniformly over the soil surface by hand or machine within 24 hours after seeding in accordance with MnDOT Standard Spec. 2575.3. Immediately after placement, anchor all mulch material into the soil by crimping (straight discing) in a direction perpendicular to that of the overland stormwater flow.
12) Locate soil or dirt stockpiles containing more than 10 cubic yards of material with a down slope drainage length of no less than 25 feet from the toe of the pile to a roadway or drainage channel. If remaining for more than seven days, stabilize the stockpiles by mulching, vegetative cover, tarps, or other means. Control erosion from all stockpiles by placing silt fence barriers around the piles. During street repair, cover construction soil or dirt stockpiles located closer than 25 feet to a roadway or drainage channel with tarps, and protect storm sewer inlets with block and rock sediment filters or silt fence.
13) Cover all denuded areas, which will not be paved with a minimum of 4 inches topsoil immediately after final sub-grade completion. Seed and mulch, or sod and stake these areas within 72 hours after completion of final grading work (weather permitting). Use topsoil that meets the requirements of MnDOT 3877 for topsoil borrow modified to contain no more than 35% sand.
14) Construct all proposed side slopes with grades not exceeding 3:1 (3 horizontal to 1 vertical).
15) Protect all culverts, flared end sections, and ditches with silt fence supported by snow fence, wire mesh, or stiff plastic mesh reinforcement until paving and turf establishment operations have been completed. Support posts should be driven at leas 2 feet into the ground. Posts shall be 4-inch diameter wood posts, or standard steel fence posts weighing not less than 1.3 lbs. per lineal foot, with a minimum length of 30 inches plus burial depth.

City of Minneapolis

Erosion Buster Site Inspection Form

EROSION ID	DATE	TIME

PROJECT

LOCATION

Site Status ☐ Open ☐ Closed ☐ Completed

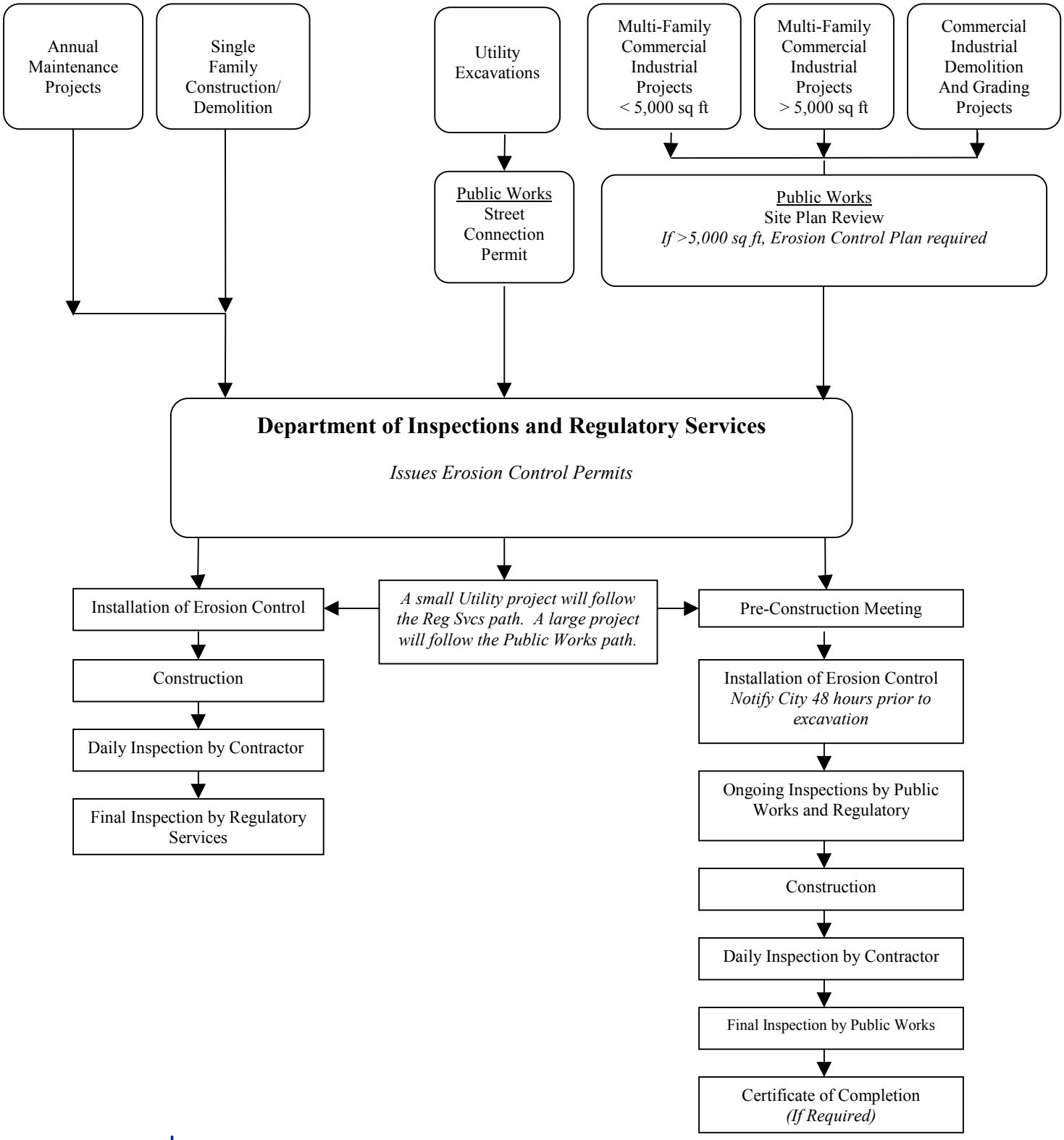
Please check items that apply:

- ☐ Failed silt fence
- Poor or no rock construction entrance
- ☐ No inlet protection
- ☐ Clean streets or sidewalks
- ☐ Site in compliance
- ☐ _____

Return to Paul Chellsen, City of Lakes Building - Room 300

CITY OF MINNEAPOLIS SECTION

EROSION CONTROL PERMITTING PROCESS



CITY OF MINNEAPOLIS SECTION

EROSION CONTROL REQUIREMENTS AND FEE SCHEDULE

CATEGORY/SIZE of PROJECT	PERMIT REQUIRED		PLAN REQUIRED		FEE	APPLY ACCEPTED EROSION CONTROL PRACTICES
Detached Garage <680 sq. ft.	NO		NO		NO FEE	***YES***
Single family construction <500 sq. ft.	NO		NO		NO FEE	***YES***
Single-family construction >500 sq. ft.		***YES***	NO		$75.00/3,000 sq. ft. $25.00/ea. additional 1,000 sq. ft.	***YES***
Single family demolition		***YES***	NO		$75.00	***YES***
Multi-family, Comm./Ind. <500 sq. ft. **	NO		NO		NO FEE	***YES***
Multi-family, Comm./Ind. >500 sq. ft. **		***YES***	NO		$250.00	***YES***
Multi-family, Comm./Ind. >5,000 sq. ft. **		***YES***		***YES***	$250.00	***YES***
Multi-family, Comm./Ind. Demo. <5,000 sq. ft.		***YES***	NO		$150.00	***YES***
Multi-family, Comm./Ind. Demo >5,000 sq. ft.		***YES***		***YES***	$150.00	***YES***
Utilities <500 sq. ft. or 5 cubic yards	NO		NO		NO FEE	***YES***
Utilities >500 sq. ft. or 5 cubic yards		***YES***	NO		$ .10/lin. ft. $25.00 minimum	***YES***
Maintenance projects		***YES***	NO		$250.00	***YES***

* Area is based on building footprint * Area is based on ground area disturbed

ACTIVITIES EXEMPT FROM PERMITTING PROCESS

- utility repairs
- home gardens
- minor repairs
- maintenance work <500 sq. ft.
- installation of any poles, posts, signs, fences
- emergency work or repairs
- cemetery graves
- any activity disturbing <5 cu. yds. or <500 sq. ft.

CITY OF MINNEAPOLIS SECTION
SITE PLAN REVIEW

Minneapolis Engineering Services, Sewer Site Plan Check List

Site plans will **not** be approved without the following items
(Additional items may be required depending on the site)

- Complete site drainage including roof drains indicated by arrows, contours or elevations. *(Water may not run over the public sidewalk or onto adjacent properties.)*
- All proposed or existing sanitary sewer service line(s), including size and material.
- All proposed or existing storm drains and roof connections include size, material and location. *(Any existing storm/roof connections to the sanitary sewer must be removed.)*
- Erosion Control Plan, (*see City of Minneapolis Erosion and Sediment Control Plan 52.100)*
- Storm drains and sanitary sewers in the public right-of-way adjacent to site.
- Any necessary watershed compliance or approvals, Sites > 1 acre will be to comply with the *Minneapolis Stormwater Management Ordinance*. All sites are encouraged to implement Stormwater BMP's as possible.
  See HTTP://www.metrocouncil.org/environment/Watershed/bmp/manual.htm

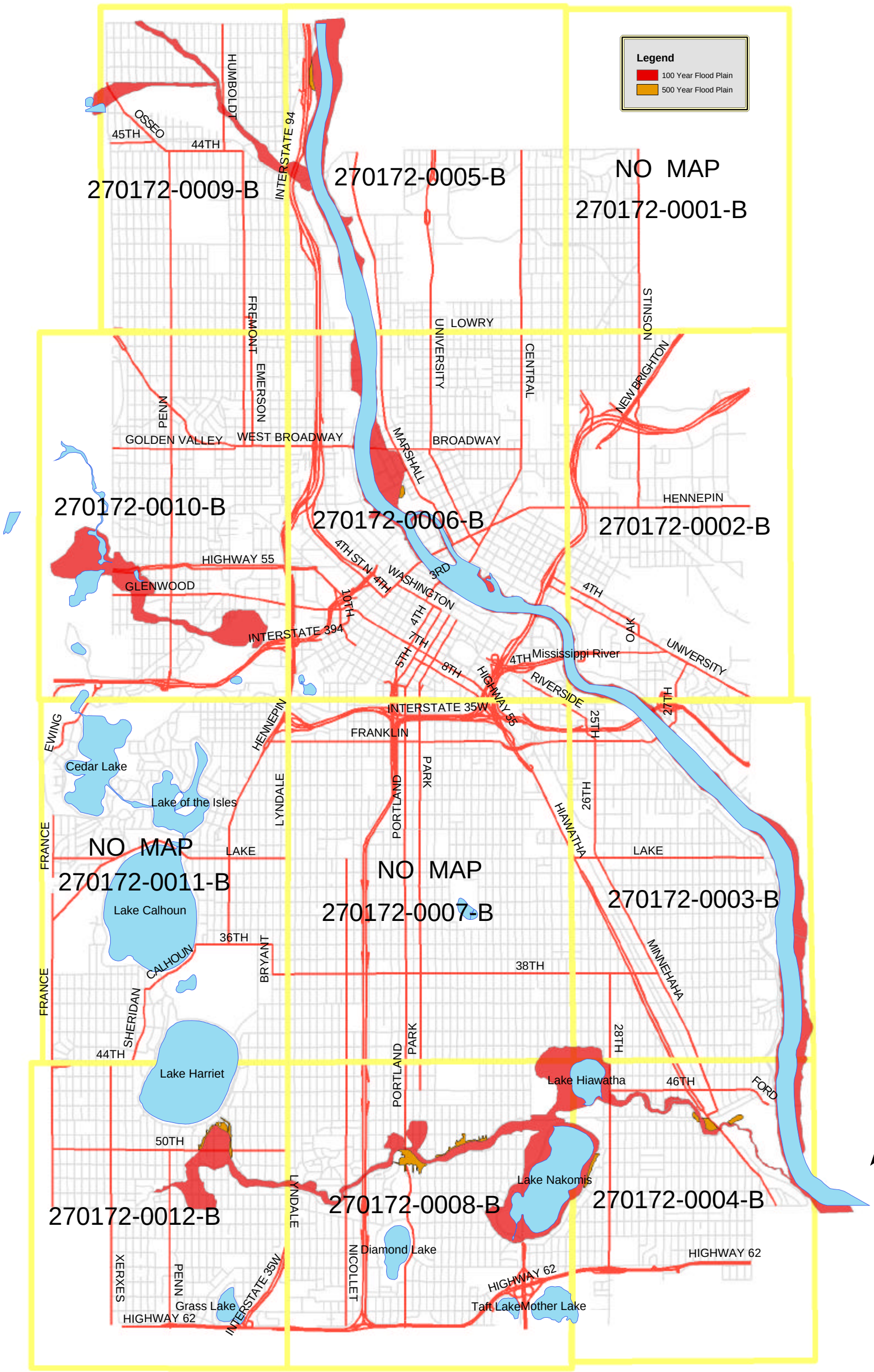
For further information contact:
Paul Chellsen, Engineering Technician III
Minneapolis Sewer Design
(612)-673-2406 or cellular (612)-597-4468
paul.chellsen@ci.minneapolis.mn.us

minneapolis
city of lakes

City of Minneapolis

FEMA FLOODWAY ZONES & MAP PANELS

500 Year Flood Plain



CITY OF MINNEAPOLIS PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
APRIL 2002

GIS Minneapolis

Notice

The City of Minneapolis provides access to geospatial data and applications to City staff and designated external individuals and agencies, for the conduct of City business only.

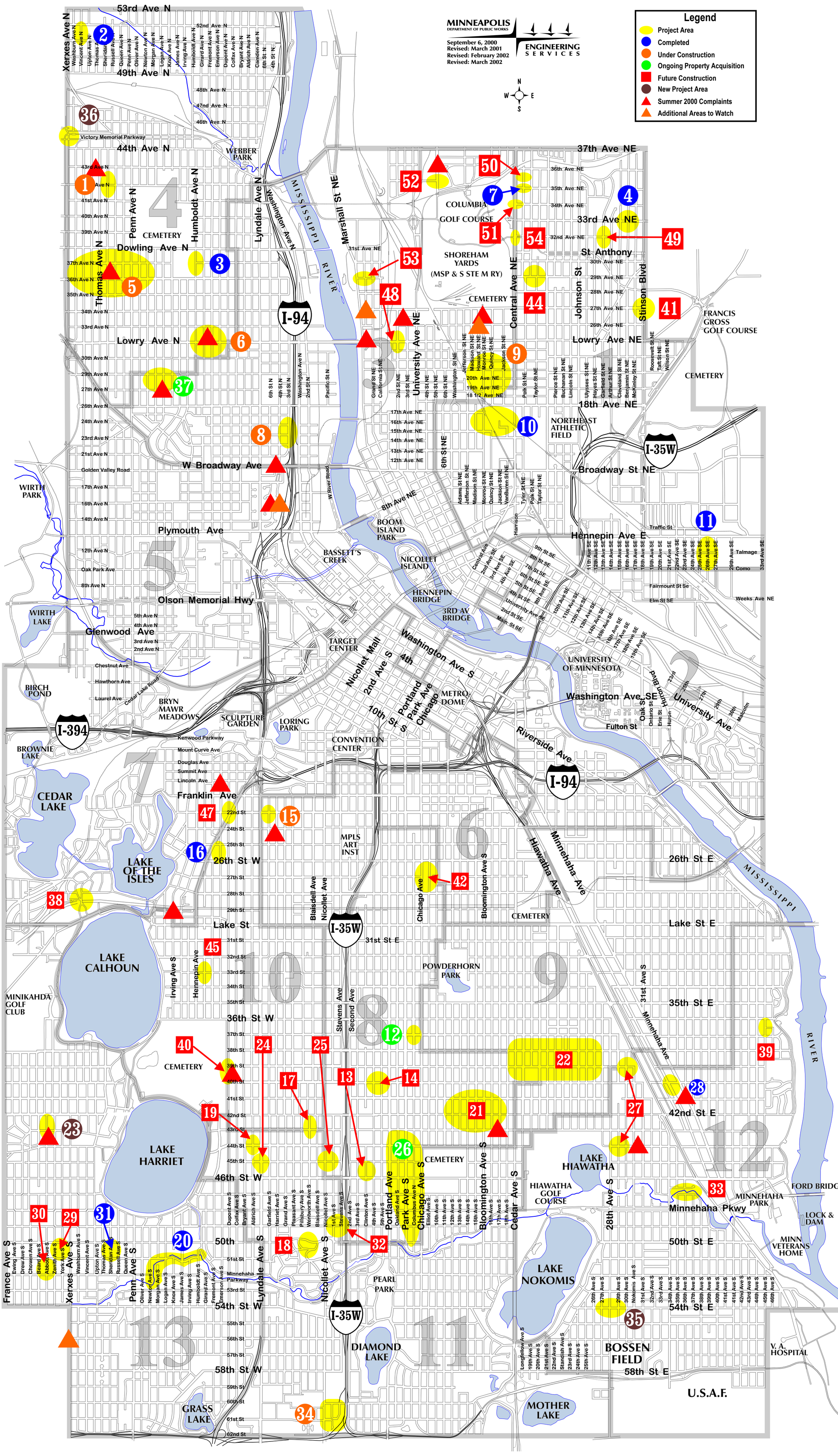
This application and the data products it produces should be used in accordance with all applicable City policies and regulations regarding appropriate use of facilities and computer resources, and especially regarding confidentiality and appropriate use of City data.

The data and applications are provided as working tools only. While they are the best available resources for the stated purpose, the user is advised that there may be problems with data quality and accuracy. The user is advised to read and understand the instructions for the application and all available metadata describing the data to be used.

24 x 36 Ad Hoc 1.mxt

A-45

Flood Mitigation Project Status



Problem Areas:

1	42ND AVE N & RUSSELL AVE N
2	51ST AVE N & VINCENT AVE N
3	37TH & HUMBOLDT AVE N
4	33RD & BENJAMIN NE
5	35TH AVE N TO DOWLING AVE WASHBURN - MORGAN AVES N
6	30TH AVE N TO 33RD AVE N DUPONT TO IRVING AVES N
7	35TH AVE & POLK ST NE
8	3RD ST N AT 23RD AVE N
9	EDISON HIGH SCHOOL AREA
10	18TH & QUINCY NE
11	TALMAGE & HOOVER NE
12	3700 BLOCK OF COLUMBUS S
13	CLINTON AVE S FROM 45TH TO 46TH STS E
14	40TH ST E FROM 4TH TO 5TH AVE S
15	22ND ST W & GARFIELD AVE S
16	26TH ST W & EMERSON AVE S
17	43RD ST W & WENTWORTH AVE S
18	50TH & WENTWORTH AVE S
19	44TH ST W & ALDRICH AVE S
20	MINNEHAHA CREEK - HUMBOLDT TO NEWTON AVES S
21	BLOOMINGTON HOLDING POND AREA
22	SIBLEY FIELD
23	43RD ST W & ABBOTT AVE S
24	45TH ST W & LYNDALE AVE S
25	45TH ST W - NICOLLET TO 1ST AVE S
26	E 43RD ST TO M'HAHA CREEK PORTLAND TO CHICAGO AVE S
27	29TH AVE S & E 44TH ST, 30TH AVE S & E 39TH ST
28	E 40TH ST & SNELLING AVE
29	50TH TO 51ST STS - ZENITH TO YORK AVES
30	51ST ST W & ABBOTT AVE S
31	50TH TO 51ST STS W & SHERIDAN AVE S
32	49TH ST E & STEVENS AVE S
33	MINNEHAHA CREEK - 34TH AVE S TO 38TH AVE S
34	60TH ST E - NICOLLET TO STEVENS AVES
35	54TH ST E & 28TH AVE S
36	VICTORY MEMORIAL PARKWAY & XERXES AVE N
37	KNOX-MORGAN AVES N 27TH -29TH AVES N
38	DEAN PARKWAY
39	46TH AVE S 36TH TO 37TH STS E
40	38TH ST W & KINGS HIGHWAY
41	STINSON BLVD & 27TH AVE NE
42	27TH ST E & 10TH AVE S (ABBOT HOSPITAL)
43	MISCELLANEOUS ALLEYS (CITYWIDE)
44	29TH & TAYLOR STS NE
45	33RD ST W & GIRARD AVE S
47	22ND ST W & EMERSON AVE S
48	2ND ST NE & LOWRY AVE NE
49	32ND AVE NE & GARFIELD ST NE
50	3542 POLK ST NE & 3547 TYLER ST NE (ALLEY)
51	34TH AVE NE & CENTRAL AVE NE
52	5TH ST NE & 35TH AVE NE
53	RANDOLPH ST NE & 29TH AVE NE (CHURCH)
54	ST ANTHONY PKWY NEAR CENTRAL AVE NE (SHOREHAM HOLDING BASIN)

NOTE: SUBJECT TO CHANGE

CHAPTER 230. PESTICIDE CONTROL

230.10. Definitions. The following words and phrases when used herein shall have the meanings respectively ascribed to them in this section.

Lawn. Any yard, lawn, park, golf course, athletic field, landscaped area containing grass, plants, trees or other vegetation, or other similar property whether privately or publicly owned.

Person. Any firm, corporation, business, governmental unit or agency thereof, or any educational institution of any kind whether public or private, and any employee thereof.

Pest. Any insect, rodent, nematode, fungus, weed, terrestrial or aquatic plant, animal life, or other organism declared to be a pest by the Minnesota Commission of Agriculture.

Pesticide. Any dry or liquid substance or mixture of substances available from any source whatever, including but not limited to wholesale or retail purchase by any person as defined by this section, intended to prevent, destroy or repel any pest or intended for use as a plant regulator, defoliant or desiccant; or any chemical, mixture, or combination of chemicals registered or required to be registered as a pesticide with the U.S. Environmental Protection Agency, EPA, or successor in interest, the State of Minnesota Department of Agriculture, or any government agency of the State of Minnesota. (87-Or-078, § 1, 5-8-87)

230.20. Licensing. All persons and employees of a person engaged in the business of pesticide application shall be trained and qualified in the methods of handling and applying pesticides. All such persons and employees shall be licensed by the State of Minnesota pursuant to the applicable requirements of Minnesota Statute Chapter 18A and rules promulgated thereunder by the commissioner of agriculture, and further must comply with the applicable licensing requirements of Chapter 325 of this Code. All pesticides shall be applied pursuant to the applicable requirements of Minnesota Statute Chapter 18A and rules promulgated thereunder by the commissioner of agriculture. (87-Or-078, § 1, 5-8-87)

230.30. Warning flags required for pesticide application. (a) All persons who apply pesticides outdoors are required to post or affix warning flags on the street frontage of the property so treated. Persons who apply pesticides in parks, golf courses, playgrounds, athletic fields or other similar property must, in addition, post or affix warning flags at or near the entrances to such property.

(b) Warning flags must project a minimum of eighteen (18) inches above the top of the grass line. The warning flags must be of a material rain-resistant for at least a forty-eight-hour period and must remain in place forty-eight (48) hours from the time of initial application.

(c) The following information must be printed on the flag in contrasting colors in capitalized letters measuring at least one-half ($^1/_2$) inch, or in such other format as may be approved by the commissioner of health. The flag shall provide the following information:

(1) The name of the company applying the pesticide; if not applied by a company, the name of the person, firm, corporation, business, governmental unit or agency

thereof, or educational institution.

(2) The date of application.

(3) The following language: "This lawn chemically treated. Keep children and pets off for forty-eight (48) hours," or a universally accepted symbol approved by the commissioner of health which is recognized as having the same meaning or intent. In addition, the flag may include the name of the pesticide used.

(d) The flag shall be posted on the lawn or yard no closer than two (2) feet from the sidewalk or right-of-way and no further than five (5) feet from the sidewalk or right-of-way. In the case of parks, golf courses, playgrounds, athletic fields or other similar property, such warning flags shall also be posted immediately adjacent to areas within such property where pesticides have been applied. (87-Or-078, § 1, 5-8-87)

230.40. Violation. A violation of this chapter is a misdemeanor. (87-Or-078, § 1, 5-8-87)

230.50. Enforcement. This chapter shall be enforced jointly by agents of the health department and department of inspections pursuant to rules and administrative procedures for such enforcement promulgated under the authority of the city council. (87-Or-078, § 1, 5-8-87)

230.60. Severability. If any provision of this chapter is held to be invalid, the remaining portions shall not be invalidated. (87-Or-078, § 1, 5-8-87)

CHAPTER 55. LAWN FERTILIZER

55.10. Purpose. The city and the park board have conducted studies and have reviewed existing data to determine the current and predicted water quality of various lakes within the city. Data indicates that lake water quality may be maintained and improved if the city is able to regulate the amount of lawn fertilizer and other chemicals entering the lakes and other surface water as a result of stormwater runoff or other causes. The purpose of this ordinance is to define regulations that will aid the city in managing and protecting its water resources. (2001-Or-113, § 1, 9-28-01)

55.20. Definitions. For the purpose of this chapter, certain terms and words are defined as follows:

Commercial applicator is a person who is engaged in the business of applying fertilizer for hire.

Fertilizer means a substance containing one (1) or more recognized plant nutrients that is used for its plant nutrient content and designed for use or claimed to have value in promoting plant growth. Fertilizer does not include animal and vegetable manures that are not manipulated, marl, lime, limestone, and other products specifically exempted by rule by the Minnesota Commissioner of Agriculture.

Noncommercial applicator is a person who applies fertilizer during the course of gainful employment, but who is not a commercial lawn fertilizer applicator. (2001-Or-113, § 1, 9-28-01)

55.30. Authority to administer. The authority to administer and enforce the provisions of this chapter of the Minneapolis Code of Ordinances on behalf of the city is vested in the Minneapolis Watershed Management Authority located in the environmental management section of the department of operations and regulatory services. The Minneapolis Watershed Management Authority, hereafter referred to as the "authority," shall have full authority to administer this chapter in addition to all authority given to it pursuant to section 48.70 and other sections of this Code. (2001-Or-113, § 1, 9-28-01)

55.40. Regulations for commercial lawn fertilizer applicators. (a) *License required.* No person shall engage in the business of commercial lawn fertilizer applicator within the city unless a license has first been obtained from the authority as provided herein.

(b) *License application procedure.* Applications for a commercial lawn fertilizer applicator license shall be submitted to the authority. The application shall consist of the following:

(1) *Application form.* Application forms shall be provided by the authority on a form prepared by the authority from time to time. Applicants shall completely fill out such form.

(2) *Product material safety data sheet.* A copy of the product material safety data sheet, including product chemical analysis for the intended lawn fertilizer, shall be submitted to the city along with the application form and, thereafter, at least seven (7) days before any fertilizer composition changes are implemented.

(3) *Minnesota state licenses.* A copy of all licenses required of the applicant by the State of Minnesota regarding the application of fertilizers.

(4) *The license fee as established in this code or by separate resolution of the city council.* The license shall expire on December 31 each year. The license fee shall not be prorated.

(c) *Conditions of license.* Commercial lawn fertilizer applicator licenses shall be issued subject to the following conditions that shall be specified on the license form:

(1) Random sampling. Commercial lawn fertilizer applicators shall permit the city to sample any commercial lawn fertilizer applications to be applied within the city at any time after issuance of the initial license.

(2) The commercial lawn fertilizer license or a copy thereof shall be in the possession of any party employed by the commercial lawn fertilizer applicator when making lawn fertilizer applications within the city.

(3) Possession of product material safety data sheet. A copy of the product material safety data sheet for the lawn fertilizer being used shall be in the possession of any party employed by the commercial lawn fertilizer applicator when making lawn fertilizer applications within the city.

(4) State regulations. Licensee shall comply with the provisions of the Minnesota fertilizer and soil conditioner laws contained in Minnesota Statutes, Chapter 18C and amendments to or revisions thereof and all other law. (2001-Or-113, § 1, 9-28-01)

55.50. General regulations on fertilizer application. (a) *When to apply fertilizer.* Commercial applicators and noncommercial applicators shall not apply lawn fertilizer when the ground is frozen or when conditions exist which can be reasonably anticipated to promote or create runoff.

(b) *Cost of sample analysis.* The cost of analyzing fertilizer samples taken from commercial applicators shall be paid by the commercial applicators if the sample analysis shows that phosphorus content exceeds the levels authorized by this chapter.

(c) *Fertilizer content.* No person or commercial or noncommercial applicator, including homeowners or renters, shall apply any lawn fertilizer, liquid or granular, within the City of Minneapolis which contains any amount of phosphorus or compound containing phosphorus, such as phosphate, except:

(1) The naturally occurring phosphorus in unadulterated natural or organic fertilizing products such as yard waste compost; or

(2) As otherwise provided in section 55.60.

(d) *Impervious surfaces and drainage ways.* No person shall apply fertilizer to impervious surfaces, areas within drainage ditches, or waterways.

(e) *Buffer zone.* Fertilizers shall not be applied:

(1) Below the ordinary high water level of a lake as established by the Minnesota Department of Natural Resources; or

(2) Within ten (10) feet of any wetland as defined in section 52.30 of this Code, or within ten (10) feet of protected waters as defined in section 551.460 of this Code. (2001-Or-113, § 1, 9-28-01)

55.60. Exemption and notice requirement. The prohibition against use of fertilizer containing any quantity of phosphorus under section 55.50 shall not apply to:

(1) Newly established or developed turf and lawn areas during the first growing season; or

(2) Turf and lawn areas which soil tests confirm are below phosphorus levels established by the University of Minnesota Extension Service. The lawn fertilizer application shall not contain an amount of phosphorus exceeding the amount of phosphorus or the appropriate application rate recommended in the soil test evaluation.

Phosphorus applied as lawn fertilizer pursuant to the aforementioned exemption shall be watered into the soil so that it is immobilized and generally protected from loss by runoff.

Any person or commercial or noncommercial applicator, including a homeowner or renter, shall notify the authority at least twenty-four (24) hours prior to applying lawn fertilizer containing phosphorus. Such notice shall be in writing and shall contain the reason for using the fertilizer containing phosphorus and the amount of phosphorus contained in the lawn fertilizer to be applied. (2001-Or-113, § 1, 9-28-01)

55.70. Sale of fertilizer containing phosphorus. Effective January 1, 2002, no person, firm, corporation, franchise, or commercial establishment shall sell any lawn fertilizer, liquid or granular, within the city of Minneapolis that contains any amount of phosphorus or other compound containing phosphorus, such as phosphates, except:

(1) Effective January 1, 2002, small quantities of such fertilizer may be sold for use as provided in section 55.60. Displays of lawn fertilizers containing phosphorus shall be limited to ten (10) percent of the quantity of non-phosphorus lawn fertilizer on display at any given time.

(2) Effective January 1, 2002, displays of such fertilizer must be clearly marked as containing phosphorus and must be separated from the display of other fertilizers by no less than eight (8) feet.

(3) Effective January 1, 2002, for each sale of such fertilizer, the seller shall, at the time of the sale, provide the buyer with a copy of this chapter of the Minneapolis Code of Ordinances, or a summary prepared by Minneapolis regulatory services. (2001-Or-113, § 1, 9-28-01)

55.80. Conflict. In the event that the provisions of this chapter shall conflict with any Minnesota statute or any federal statute, the Minnesota statute or federal statute shall govern to the extent of any direct conflict. In the event that any conduct prohibited by this chapter is affirmatively and specifically authorized by a valid permit issued by a duly authorized official of the State of Minnesota or a duly authorized official of the United States of America, then the affirmative and specific authority granted in such permit shall govern to the extent of any direct

conflict with this chapter. (2001-Or-113, § 1, 9-28-01)

55.90. Violations. Any person who violates any provision of this chapter shall be guilty of an ordinance violation and be subject to a fine of up to three hundred dollars ($300.00) and punishment for failure to pay the fine as provided in section 1.40 of this Code. Any holder of a commercial applicator license, in addition to the fine, may have his or her applicator license revoked for repeat violations of this chapter. (2001-Or-113, § 1, 9-28-01)

CHAPTER 48. MINNEAPOLIS WATERSHED MANAGEMENT AUTHORITY*

***Editor's note--**Ord. No. 2000-Or-016, § 1, adopted April 7, 2000, repealed Ch. 48, §§ 48.10--48.110, which pertained to water pollution. Ord. No. 2000-Or-017, § 1, adopted April 7, 2000, amended the Code by adding provisions designated as a new Ch. 48 to read as herein set out. See the Code Comparative Table.

48.10. Definitions. (a) The words used in this chapter shall have the meanings given in Minnesota Statutes and Minnesota Rules, except where the context clearly shows otherwise. Wherever the word "agency" or "Minnesota Pollution Control Agency" is used in Minnesota Rules as incorporated into this chapter by section 48.20, it shall be held to mean the City of Minneapolis. Wherever the word "director" is used in Minnesota Rules, as incorporated into this chapter by section 48.20, it shall be held to mean the director of operations and regulatory services or the director's authorized agent. State definitions shall include, but shall not be limited to the following:

Abate means to lower, depreciate, reduce, or eliminate contaminants or lower, depreciate, reduce, or eliminate actions that may lead to pollution.

Aboveground storage tank means any one (1) or a combination of containers, vessels, and enclosures, including structures and appurtenances connected to them, that is used to contain or dispense regulated substances, and that is not an underground storage tank.

Dilution means the act of thinning down or weakening a concentration of a substance by mixing or adding a liquid, solid, semisolid, or gas.

Discharge means the addition of any pollutant to the waters of the state or to any disposal system.

Disposal system means a system for disposing of sewage, industrial waste and other wastes, and includes sewer systems and treatment works.

Facility means all buildings, equipment, structure, and other stationary items that are located on a single site or on contiguous or adjacent sites and which are owned or operated by the same person (or by any person which controls, is controlled by, or under common control with, such person). It shall include manmade structures as well as all natural structures in which chemicals are purposefully placed or removed through human means such that it functions as a containment structure for human use. For purposes of emergency release notification, the term includes motor vehicles, rolling stock, and aircraft.

Flammable liquid shall have the meaning given by the U.S. Occupational Health and Safety Administration (OSHA) which defines a flammable liquid as "any liquid having a flash point below one hundred (100) deg. F. (37.8 deg. C.), except any mixture having components with flash points of one hundred (100) deg. F. (37.8 deg. C.) or higher, the total of which make up ninety-nine (99) percent or more of the total volume of the mixture. Flammable liquids shall be known as Class I liquids."

Hazard means anything capable of causing, or contributing to an adverse effect or event. The hazard associated with a suspected toxic substance is contingent on both its level of

toxicity and degree of exposure to the substance.

Industrial waste means any liquid, gaseous or solid waste substance resulting from any process of industry, manufacturing trade or business or from the development of any natural resource.

Leak means the uncontrolled passage or escape of liquid or gaseous substances through a break or flaw in a container or system.

Other wastes mean garbage, municipal refuse, decayed wood, sawdust, shavings, bark, lime, sand, ashes, offal, oil, tar, chemicals, dredged spoil, solid waste, incinerator residue, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, cellar dirt or municipal or agricultural waste, and all other substances not included within the definitions of sewage and industrial waste set forth in this chapter which may pollute or tend to pollute the waters of the state.

Pollutant means any "sewage," "industrial waste," or "other wastes," as defined in this chapter, discharged into a disposal system or to waters of the state.

Pollution of water, water pollution, pollute the water means: (a) the discharge of any pollutant into any waters of the state or the contamination of any waters of the state so as to create a nuisance or render such waters unclean, or noxious, or impure so as to be actually or potentially harmful or detrimental or injurious to public health, safety or welfare, to domestic, agricultural, commercial, industrial, recreational or other legitimate uses, or to livestock, animals, birds, fish or other aquatic life; or (b) the alteration made or induced by human activity of the chemical, physical, biological, or radiological integrity of waters of the state.

Regulated substance means a hazardous material or petroleum.

Remediation means cleanup or any other set of actions, methods, or controls, such as biological, chemical, thermal or physical, used to treat, remove, contain or substantially reduce the amounts of toxic materials in water, air, soil, or other media.

Risk means the predicted probability or actual frequency of an occurrence of an adverse effect or event.

Sewage means the water-carried waste products from residences, public buildings, institutions or other buildings, or any mobile source, including the excrementitious or other discharge from the bodies of human beings or animals, together with such ground water infiltration and surface water as may be present.

Sewer system means pipelines or conduits, pumping stations, and force mains, and all other constructions, devices, and appliances appurtenant thereto, used for conducting sewage or industrial waste or other wastes to a point of ultimate disposal.

Site means any tract or parcel of land, and including all buildings or structures on such lands.

Site Sanitary Sewer System Plan means the system by which materials and or domestic waste are convened from the facility to the public sanitary sewer system. Identification of this system shall include any pretreatment methods, the purpose and capacity of the pretreatment, and identification of the connection point to the public sanitary sewer system.

Site Surface Water Drainage System Plan means the system by which local stormwater is collected at the facility site and conveyed to the public storm drain system. Identification of

the system shall include, but not be limited, to the identification of any manmade or natural detention, pretreatment systems or other methods used for the purposes of: pretreatment of stormwater prior to discharge to the public storm drain system and or the collection, retention, and holding of released chemicals from the facility. Such system plans shall also include identification of the connection point to the public storm drain system.

Spill means to cause or allow either unintentionally or through unauthorized acts of third persons, the release of liquid, solid, semisolid, or gaseous substances from a container or system to the land, water, air, or other media so as to be lost or wasted, and regardless of the amount recovered.

Standards means effluent standards, effluent limitations, standards of performance for new sources, water quality standards, pretreatment standards, and prohibitions.

Tank is a stationary device designed to contain an accumulation of regulated substances and constructed of nonearthen materials, such as concrete, steel, and plastic, that provide structural support.

Underground storage tank means any one (1) or a combination of containers including tanks, vessels, enclosures, or structures and underground appurtenances connected to them, that is used to contain or dispense an accumulation of regulated substances and the volume of which, including the volume of the underground pipes connected to them, is ten (10) percent or more beneath the surface of the ground.

Waters of the state means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

Water refers to "waters of the state," as defined in this chapter.

Watershed means all lands enclosed by a continuous hydrologic drainage divide and lying upslope from a specified water body or point.

(b) Other words and abbreviations used herein which are not specifically defined in applicable federal, state or city law shall be construed in conformance with the context, in relation to the applicable section of the statutes pertaining to the matter at hand, in conformance with the principles set forth in Chapter 3 of this Code, and in conformance with professional usage. (2000-Or-017, § 1, 4-7-00; 2001-Or-114, § 1, 9-28-01)

48.20. State standards and regulations. (a) Minnesota Rules (1997), Chapters 4725, 7035, 7037, 7041, 7042, 7044, 7045, 7048, 7050, 7056, 7060, 7080, 7100, 7105, and 7151, and subsequent updates, are made part of this chapter as if fully set forth herein.

(b) Three (3) copies of the adopted state standards and regulations marked "Official Copy" shall be filed in the Office of the City Clerk and Office of the Minneapolis Watershed Management Authority in the Environmental Management Section of the Department of Operations and Regulatory Services, and remain on file for use and examination by the public. The clerk shall furnish copies of these adopted state standards and regulations at cost to any person upon request. (2000-Or-017, § 1, 4-7-00)

48.30. Compliance with other codes and laws. Compliance with the provisions of this chapter does not release a person from any responsibility to comply with any other law or regulation, whether federal, state, or local. (2000-Or-017, § 1, 4-7-00)

48.40. Conflict in orders. In the event of a conflict between an order of the city or an ordinance of the city and a valid order of a federal or state agency, the order of the federal or state agency shall govern to the extent of the conflict. (2000-Or-017, § 1, 4-7-00)

48.50. Violations. Any person who violates any provision of this chapter shall be penalized as prescribed in section 1.30(a) of this Code of Ordinances. (2000-Or-017, § 1, 4-7-00)

48.60. Minneapolis watershed management authority. The authority to administer and enforce the provisions of this chapter of the Minneapolis Code of Ordinances on behalf of the city is vested in the Minneapolis Watershed Management Authority located in the Environmental Management Section of the Department of Operations and Regulatory Services. The Minneapolis Watershed Management Authority is hereafter referred to as the "authority." The authority shall have full jurisdiction to regulate and control watershed pollution as now or hereafter provided in this Code. The authority shall be under the supervision of the director of operations and regulatory services. The director of operations and regulatory services shall designate the technical, professional, and support staff that shall constitute the Minneapolis Watershed Management Authority. (2000-Or-017, § 1, 4-7-00)

48.70. Powers and duties of the Minneapolis watershed management authority. Under direction of the city council, the authority shall interpret, execute, and enforce the provisions of this chapter. Powers and duties of the authority shall include, but shall not be limited to the following:

(a) The authority shall observe or monitor the quality of the water, land and air resources within the city, identify areas of concern in regard to environmental pollution, and take the necessary and proper corrective steps, as provided in this Code, to protect, preserve or improve the quality of the water, land or air resources;

(b) The authority shall assist, support, cooperate, or coordinate with state and federal agencies to protect, preserve, or improve the health and safety of the citizenry, and the quality of the water, land or air resources within the city;

(c) The authority shall work, along with other government agencies, to provide that all laws, regulations, and standards for water pollution, land pollution, and air pollution are fully enforced to protect, preserve, or improve the health and safety of the citizenry, and the quality of the water, land or air resources within the city;

(d) The authority shall initiate, coordinate, and engage in pollution abatement activities, as authorized by this Code, to protect the environment, and public health and safety from significant, immediate, or long-term threats of environmental pollution;

(e) The authority shall conduct investigations of complaints, and suspected

violations of environmental pollution, and retain copies of complaints, suspected violations or violations on file for a reasonable amount of time, and initiate appropriate corrective actions against such complaints, or violations to protect, preserve, or improve the quality of the water, land or air resources within the city;

(f) The authority shall, as provided by law, inspect property, structures, and facilities within the city, and collect samples of any waste discharge, spill, leak, water, soil, air, or other media at such property, structure, or facility to assure conformity to federal, state, and local laws, regulations, and standards;

(g) The authority shall review, approve or issue plans, applications, permits, notices, certificates, or fee statements, as provided by this Code, and retain copies of plans, applications, permits, notices, certificates, fee statements, receipts, or other records on file for a reasonable amount of time.

(h) The authority may offer information, technical assistance, and educational opportunities to those interested in preventing or reducing environmental pollution;

(i) The authority may organize, coordinate, and facilitate projects, programs, or other efforts that are designed to protect, preserve, or improve the quality of the water, land or air resources within the city;

(j) The authority shall inspect plans for the installation, storage, or removal of aboveground storage tanks, and issue or suspend permits or registrations for aboveground storage tanks, as provided by this Code. (2000-Or-017, § 1, 4-7-00)

48.80. Pollutants prohibited. Pollutants and levels of pollutants prohibited by this chapter shall include those prohibited by federal and state laws, regulations, and standards. Materials, substances, or wastes, or any by-products of such materials, substances, or wastes that have the potential to act as a pollutant, shall include, but shall not be limited to the following: garbage, municipal refuse, decayed wood, sawdust, shavings, bark, lime, sand, ashes, offal, oil, tar, chemicals, dredged spoil, solid waste, incinerator residue, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, cellar dirt, municipal waste, agricultural waste, sewage or industrial waste, and all other substances not included within the definitions of sewage and industrial waste. (2000-Or-017, § 1, 4-7-00)

48.90. Dilution prohibited. It shall be unlawful for any person to attempt to dilute any quantity of discharge to meet compliance standards or to lessen the perceived hazard of a leak or spill. (2000-Or-017, § 1, 4-7-00)

48.100. Public nuisance prohibited. No person who owns, manages, controls, participates or has direct involvement in the operation of a device, event, practice, or site shall deliberately, inadvertently, or through an unauthorized act of third person, perform an action or allow or cause a discharge, spill or leak of any pollutant, or material or substance, which by its nature, size, quantity, concentration, location, duration or interaction with other materials, contributes to the physical, chemical, biological, aesthetic, or other alteration of waters of the state, land, air or other media upon discharge, spill, or leak, thereby contributing to one or more of the following:

(a) Rendering harm to the environment;

(b) Rendering harm to the health and safety of living organisms;

(c) Creating objectionable odors in the atmosphere;

(d) Intruding upon the aesthetic quality of the environment;

(e) Impeding the effectiveness of disposal systems;

(f) Damaging property;

(g) Interfering unreasonably with the enjoyment of life or property; or

(h) Impairing the usefulness of such waters of the state, land, air, or other media for domestic, industrial, commercial, agricultural, or recreational applications, or other legitimate uses.

(i) Such conduct shall constitute a public nuisance for the purposes of this Code. (2000-Or-017, § 1, 4-7-00)

48.110. Lawful entry. (a) No person shall in any manner hinder, obstruct, delay, resist, prevent, or in any way interfere or attempt to interfere with the city or authorized personnel engaging in the performance of any such duty herein enjoined by refusing to permit such personnel to perform their duty or refusing such personnel lawful entrance to any premises when entry was legally made as a result of consent, pursuant to a search warrant, pursuant to the open fields doctrine, pursuant to the emergency entry doctrine, or pursuant to other legal means.

(b) If the city or authorized personnel determines that the risk posed by a violation or suspected violation of this chapter presents a substantial and imminent threat to the environment or public health and safety which requires swift corrective actions, and the city or authorized personnel determines that the urgency and necessity of the situation makes it not reasonably possible to obtain either consent or a search warrant to allow entry to timely take such corrective action, including, but not limited to abatement of environmental pollution, the city or authorized personnel shall have the right to make entry to the premises which is reasonable under the circumstances for the purpose of taking such swift corrective action. (2000-Or-017, § 1, 4-7-00)

48.120. Investigation of environmental contamination. To determine or confirm the constitution, quantity, or concentration of waste being discharged, spilled or leaked into the air, water, land, other media, or disposal systems of the city, and the cause and extent of any environmental contamination, the authority may require persons who own, manage, control, or have direct involvement in the operation of a device, event, practice, or site wherein a discharge, leak or spill of pollutants has occurred to furnish any or all sampling reports, records, data files, or other information related to the spilled, leaked or discharged material or processes, including maintenance records for all equipment involved in all discharge activities, spills or leaks, and to conduct an investigation into the cause or extent of any environmental contamination. The authority shall specify exact reporting requirements and due dates in compliance directives or orders. Persons shall have a thirty-day period to submit complete, accurate, legible, and organized reports to the authority. Any failure to do so is a violation of this chapter. (2000-Or-017, § 1, 4-7-00)

48.130. Aboveground storage of regulated substances. (a) *Annual registration.* No person shall allow or maintain any aboveground storage tank of two hundred fifty (250) gallons or more in size, or allow or maintain any aboveground storage of regulated substance of two hundred fifty (250) gallons or more in total quantity, without first having registered such tank or storage with the authority and having paid the required registration fees. The applicant shall pay to the authority an annual registration fee of forty dollars ($40.00) for each aboveground storage tank of two hundred fifty (250) gallons or more in size. Excluding aboveground storage tanks of two hundred fifty (250) gallons or more in size and the contents of such tanks, persons that store regulated substance(s) in quantities of two hundred fifty (250) gallons or more, regardless of the number of storage containers, shall pay to the authority an annual registration fee of forty dollars ($40.00). Registrations shall be filed annually by October first. If registration is not postmarked or received on or before October first of each year, the owner shall pay double the fees herein provided for such registration. All aboveground storage tanks located on residentially zoned property are exempt from annual registration.

(b) *Flammable liquids.* Outside aboveground storage of a flammable liquid(s) in excess of five hundred (500) gallons shall not be allowed within three hundred (300) feet of a residential structure.

(c) *Permits required for tank installation or tank removal.* No person shall install or remove any aboveground storage tank of two hundred and fifty (250) gallons or more in size without first having filed a tank installation application or tank removal application, and having obtained a tank installation permit or tank removal permit from the authority. Applicants shall pay a one hundred dollar ($100.00) processing fee to the Authority for each aboveground storage tank of two hundred fifty (250) gallons or more in size that is to be installed or removed. This processing fee does not include the fee for annual registration of aboveground storage tanks, as required in paragraph (a) of this section. All aboveground storage tanks located on residentially zoned property that are five hundred (500) gallons or less in size are exempt from tank installation or tank removal permitting requirements. (2000-Or-017, § 1, 4-7-00)

48.140. Registration of contaminated sites. (a) Any person(s) in control of any contaminated site within the City of Minneapolis shall register that site annually with the authority.

(b) A contaminated site for the purpose of this section is any parcel of land where soils and/or groundwater have been contaminated by various substances and which has been reported to the Minnesota Pollution Control Agency (MPCA) or the United States Environmental Protection Agency (U.S. EPA) as a contaminated site. These sites shall include but shall not be limited to those sites which have been administratively listed pursuant to Minnesota Statutes Chapter 115C, the Petroleum Tank Release Cleanup Act; Minnesota Statutes Chapter 115B, the Minnesota Environmental Response and Liability Act; those sites administratively listed pursuant to the Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended (42 U.S.C., Section 9601 et. seq.), those sites participating in the MPCA administered Voluntary Investigation and Cleanup Program, those sites administratively listed as a result of soil or groundwater contamination with the Minnesota Department of Agriculture, and those sites which are administratively placed on the federal superfund list known as CERCLIS.

(c) Except where specifically noted in this section, any person(s) in control of any contaminated site shall pay a fee for each site registered. The fee for a site listed on the CERCLIS shall be one thousand dollars ($1,000.00) per year. The fee for a site listed pursuant to Chapter 115C, the Petroleum Tank Release Cleanup Act, shall be three hundred dollars ($300.00) per year. Registration fees are not required for those sites participating in the MPCA administered Voluntary Investigation and Cleanup Program, and for those sites that have been a contaminated site within the meaning of this section for less than one year. In all other cases, the registration fee shall be five hundred dollars ($500.00) per year. Applicants shall file registrations annually by October first. If registration is not postmarked or received by the authority on or before October first of each year, the applicant shall pay double the fees herein provided for such registration.

(d) Annual registration is not required for sites where remediation has been certified complete by the MPCA or U.S. EPA. It shall be the responsibility of all person(s) in control of such sites to provide the authority with documentation stating that MPCA or U.S. EPA has determined the site closed and sufficiently remediated so that no further cleanup actions are required. If a closed file is reopened by the MPCA or U.S. EPA the site shall again be registered.

(e) Each day of failure to register shall constitute a separate violation of this Code.

(f) Government units are exempt from annual registration fees. (2000-Or-017, § 1, 4-7-00)

48.150. Annual registration fees. The fees for the Annual Chemical Inventory Registration required by section 48.170 of this chapter shall be five hundred dollars ($500.00) per site. (2001-Or-114, § 2, 9-28-01)

48.160. When annual registration must be filed. Registration of an Annual Chemical Inventory Registration Facility as defined in section 48.170 of this chapter must be obtained annually. If registration is not postmarked or received on or before expiration of the current registration, the applicant must pay double the fees otherwise provided for such registration under the provisions of this Code. (2001-Or-114, § 3, 9-28-01)

48.170. Annual chemical inventory registration. (a) Any owner or operator of land, buildings, or structures where a daily inventory of chemicals is maintained exceeding minimum thresholds as identified in section 48.180 shall obtain an Annual Chemical Inventory Registration for their facility.

(b) The fees for an Annual Chemical Inventory Registration shall be as established in section 48.150 of this chapter.

(c) Local units of government shall be exempt from the fee required by this section, but must register their site.

(d) State and federal agencies are exempt from fee and registration requirements but are requested to register their sites.

(e) Each registration application shall include the following information:

(1) Identification of local site contact responsible for the Annual Chemical Inventory Registration at the facility site.

(2) Identification of a twenty-four-hour contact responsible for the Annual Chemical Inventory Registration at the facility site.

(3) Identification of all chemicals identified in 48.180.

(4) Listing of storage quantities and capacity of storage of all chemicals identified in 48.180.

(5) Identification of site sanitary sewer systems and the drainage path of this system to Metropolitan Council Interceptor.

(6) Site map identifying storage areas, buildings, site access, local streets and site surface water drainage system and the drainage path to the nearest outfall to waters of the State.

(7) Such other information relating to chemical storage on the site and the identification of the persons involved as the Director of Operations and Regulatory Services or their designee may, from time to time, prescribe on a written application form. (2001-Or-114, § 4, 9-28-01)

48.180. Minimum thresholds for annual chemical inventory registration. An annual chemical inventory registration pursuant to this chapter shall be obtained when any of the following amounts are met or exceeded or the specified condition is met:

(1) Any chemical for which a Material Safety Data Sheet (MSDS) is required by the United States Occupational Safety and Health Administration (OSHA) and which is stored in amounts equal to or greater than ten thousand (10,000) pounds. The amount of a chemical stored means the total amount of the chemical present at any one (1) time at a facility regardless of location, number of containers, or method of storage.

(2) Any chemical identified as an extremely hazardous substance as listed in the table in this chapter and stored in quantities greater than the threshold quantity as defined in the table in this chapter. The amount of an extremely hazardous substance stored means the total amount of an extremely hazardous substance present at any one (1) time at a facility at concentrations greater than one (1) percent by weight, regardless of location, number of containers, or method of storage. The amount of an extremely hazardous substance, when part of a mixture or solution, shall be determined by multiplying its weight percent (when greater than one (1) percent) by the mass, in pounds, in the vessel to yield the actual quantity of the extremely hazardous substance. (2001-Or-114, § 5, 9-28-01)

48.190. Extremely hazardous substances. For the purposes of this chapter the following are extremely hazardous substances and have the threshold quantity as listed.

The List of Extremely Hazardous Substances and Their Threshold Quantities

[Alphabetical Order]

TABLE INSET:

CAS No.	Chemical Name	Threshold Quantity* (pounds)
75-86-5	Acetone Cyanohydrin	500
1752-30-3	Acetone Thiosemicarbazide	500
107-02-8	Acrolein	500
79-06-1	Acrylamide	500
107-13-1	Acrylonitrile	500
814-68-6	Acrylyl Chloride	100
111-69-3	Adiponitrile	500
116-06-3	Aldicarb	100/500
309-00-2	Aldrin	500
107-18-6	Allyl Alcohol	500
107-11-9	Allylamine	500
20859-73-8	Aluminum Phosphide	500
54-62-6	Aminopterin	500
78-53-5	Amiton	500
3734-97-2	Amiton Oxalate	100/500
7664-41-7	Ammonia	500
300-62-9	Amphetamine	500
62-53-3	Aniline	500
88-05-1	Aniline, 2, 4, 6-Trimethyl-	500
7783-70-2	Antimony Pentafluoride	500
1397-94-0	Antimycin A	500
86-88-4	ANTU	500
1303-28-2	Arsenic Pentoxide	100/500
1327-53-3	Arsenous Oxide	100/500
7784-34-1	Arsenous Trichloride	500
7784-42-1	Arsine	100
2642-71-9	Azinphos-Ethyl	100/500
86-50-0	Azinphos-Methyl	10/500
98-87-3	Benzal Chloride	500
98-16-8	Benzenamine,3-(Trifluoromethyl)-	500
100-14-1	Benzene, 1-(Chloromethyl)-4-Nitro-	500
98-05-5	Benzenearsonic Acid	10/500
3615-21-2	Benzimidazole, 4, 5-Dichloro-2-(Trifluoromethyl)-	500
98-07-7	Benzotrichloride	100
100-44-7	Benzyl Chloride	500
140-29-4	Benzyl Cyanide	500
15271-41-7	Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-((((Methylamino)Carbonyl)Oxy)Imino (1s-(1-alpha, 2-beta, 4-alpha, 5-alpha, 6E))-	500

CAS No.	Chemical Name	Threshold Quantity* (pounds)
534-07-6	Bis(Chloromethyl)Ketone	10/500
4044-65-9	Bitoscanate	500
10294-34-5	Boron Trichloride	500
7637-07-2	Boron Trifluoride	500
353-42-4	Boron Trifluoride Compound With Methyl Ether (1:1)	500
28772-56-7	Bromadiolone	100/500
7726-95-6	Bromine	500
1306-19-0	Cadmium Oxide	100/500
2223-93-0	Cadmium Stearate	500
7778-44-1	Calcium Arsenate	500
8001-35-2	Camphechlor	500
56-25-7	Cantharidin	100/500
51-83-2	Carbachol Chloride	500
26419-73-8	Carbamic Acid, Methyl-, O-(((2,4- Dimethyl-1, 3-Dithiolan-2- yl)Methylene)Amino)-	100/500
1563-66-2	Carbofuran	10/500
75-15-0	Carbon Disulfide	500
786-19-6	Carbophenothion	500
57-74-9	Chlordane	500
470-90-6	Chlorfenvinfos	500
7782-50-5	Chlorine	100
24934-91-6	Chlormephos	500
999-81-5	Chlormequat Chloride	100/500
79-11-8	Chloroacetic Acid	100/500
107-07-3	Chloroethanol	500
627-11-2	Chloroethyl Chloroformate	500
67-66-3	Chloroform	500
542-88-1	Chloromethyl Ether	100
107-30-2	Chloromethyl Methyl Ether	100
3691-35-8	Chlorophacinone	100/500
1982-47-4	Chloroxuron	500
21923-23-9	Chlorthiophos	500
10025-73-7	Chromic Chloride	1/500
62207-76-5	Cobalt,((2, 2'-(1,2-Ethanediylbis (Nitrilomethylidyne)) Bis(6-Fluorophenolato)) (2-)-N,N',O,O')-.	100/500
10210-68-1	Cobalt Carbonyl	10/500
64-86-8	Colchicine	10/500
56-72-4	Coumaphos	100/500
5836-29-3	Coumatetralyl	500
95-48-7	Cresol, o-	500
535-89-7	Crimidine	100/500

CAS No.	Chemical Name	Threshold Quantity* (pounds)
2636-26-2	Cyanophos	500
675-14-9	Cyanuric Fluoride	100
66-81-9	Cycloheximide	100/500
108-91-8	Cyclohexylamine	500
17702-41-9	Decaborane (14)	500
8065-48-3	Demeton	500
919-86-8	Demeton-S-Methyl	500
10311-84-9	Dialifor	100/500
19287-45-7	Diborane	100
111-44-4	Dichloroethyl ether	500
149-74-6	Dichloromethylphenylsilane	500
62-73-7	Dichlorvos	500
141-66-2	Dicrotophos	100
1464-53-5	Diepoxybutane	500
814-49-3	Diethyl Chlorophosphate	500
71-63-6	Digitoxin	100/500
2238-07-5	Diglycidyl Ether	500
20830-75-5	Digoxin	10/500
115-26-4	Dimefox	500
60-51-5	Dimethoate	500
2524-03-0	Dimethyl Phosphorochloridothioate	500
77-78-1	Dimethylsulfate	500
75-78-5	Dimethyldichlorosilane	500
57-14-7	Dimethylhydrazine	500
99-98-9	Dimethyl-p-Phenylenediamine	10/500
644-64-4	Dimetilan	500
534-52-1	Dinitrocresol	10/500
88-85-7	Dinoseb	100/500
1420-07-1	Dinoterb	500
78-34-2	Dioxathion	500
82-66-6	Diphacinone	10/500
152-16-9	Diphosphoramide,Octamethyl-	100
298-04-4	Disulfoton	500
514-73-8	Dithiazanine Iodide	500
541-53-7	Dithiobiuret	100/500
316-42-7	Emetine, Dihydrochloride	1/500
115-29-7	Endosulfan	10/500
2778-04-3	Endothion	500
72-20-8	Endrin	500
106-89-8	Epichlorohydrin	500
2104-64-5	EPN	100/500
50-14-6	Ergocalciferol	500

CAS No.	Chemical Name	Threshold Quantity* (pounds)
13194-48-4	Ethoprophos	500
538-07-8	Ethylbis (2-Chloroethyl)Amine	500
371-62-0	Ethylene Fluorohydrin	10
75-21-8	Ethylene Oxide	500
107-15-3	Ethylenediamine	500
151-56-4	Ethyleneimine	500
542-90-5	Ethylthiocyanate	500
22224-92-6	Fenamiphos	10/500
115-90-2	Fensulfothion	500
4301-50-2	Fluenetil	100/500
7782-41-4	Fluorine	500
640-19-7	Fluoroacetamide	100/500
144-49-0	Fluoroacetic Acid	10/500
359-06-8	Fluoroacetyl Chloride	10
51-21-8	Fluorouracil	500
944-22-9	Fonofos	500
50-00-0	Formaldehyde	500
107-16-4	Formaldehyde Cyanohydrin	500
23422-53-9	Formetanate Hydrochloride	500
2540-82-1	Formothion	100
17702-57-7	Formparanate	100/500
21548-32-3	Fosthietan	500
3878-19-1	Fuberidazole	100/500
110-00-9	Furan	500
13450-90-3	Gallium Trichloride	500
77-47-4	Hexachlorocyclopentadiene	100
4835-11-4	Hexamethylenediamine,N,N'-Dibutyl-	500
302-01-2	Hydrazine	500
74-90-8	Hydrocyanic Acid	100
7647-01-0	Hydrogen Chloride (gas only)	500
7664-39-3	Hydrogen Fluoride	100
7722-84-1	Hydrogen Peroxide (Conc 52%)	500
7783-07-5	Hydrogen Selenide	10
7783-06-4	Hydrogen Sulfide	500
123-31-9	Hydroquinone	500
13463-40-6	Iron,Pentacarbonyl-	100
297-78-9	Isobenzan	100/500
78-82-0	Isobutyronitrile	500
102-36-3	Isocyanic Acid, 3, 4- Dichlorophenyl Ester	500
465-73-6	Isodrin	100/500
55-91-4	Isofluorphate	100
4098-71-9	Isophorone Diisocyanate	100

CAS No.	Chemical Name	Threshold Quantity* (pounds)
541-25-3	Lewisite	10
58-89-9	Lindane	500
7580-67-8	Lithium Hydride	100
109-77-3	Malononitrile	500
12108-13-3	Manganese, Tricarbonyl Methylcyclopentadienyl	100
51-75-2	Mechlorethamine	10
950-10-7	Mephosfolan	500
1600-27-7	Mercuric Acetate	500
7487-94-7	Mercuric Chloride	500
21908-53-2	Mercuric Oxide	500
10476-95-6	Methacrolein Diacetate	500
760-93-0	Methacrylic Anhydride	500
126-98-7	Methacrylonitrile	500
920-46-7	Methacryloyl Chloride	100
30674-80-7	Methacryloyloxyethyl Isocyanate	100
10265-92-6	Methamidophos	100/500
558-25-8	Methanesulfonyl Fluoride	500
950-37-8	Methidathion	500
2032-65-7	Methiocarb	500
16752-77-5	Methomyl	500
151-38-2	Methoxyethylmercuric Acetate	500
80-63-7	Methyl 2- Chloroacrylate	500
74-83-9	Methyl Bromide	500
79-22-1	Methyl Chloroformate	500
60-34-4	Methyl Hydrazine	500
624-83-9	Methyl Isocyanate	500
556-61-6	Methyl Isothiocyanate	500
74-93-1	Methyl Mercaptan	500
3735-23-7	Methyl Phenkapton	500
676-97-1	Methyl Phosphonic Dichloride	100
556-64-9	Methyl Thiocyanate	500
78-94-4	Methyl Vinyl Ketone	10
502-39-6	Methylmercuric Dicyanamide	500
75-79-6	Methyltrichlorosilane	500
1129-41-5	Metolcarb	100/500
7786-34-7	Mevinphos	500
315-18-4	Mexacarbate	500
50-07-7	Mitomycin C	500
6923-22-4	Monocrotophos	10/500
2763-96-4	Muscimol	500
505-60-2	Mustard Gas	500

CAS No.	Chemical Name	Threshold Quantity* (pounds)
10102-43-9	Nitric Oxide	100
98-95-3	Nitrobenzene	500
1122-60-7	Nitrocyclohexane	500
10102-44-0	Nitrogen Dioxide	100
62-75-9	Nitrosodimethylamine	500
991-42-4	Norbormide	100/500
0	Organorhodium Complex (PMN-82-147)	10/500
630-60-4	Ouabain	100/500
23135-22-0	Oxamyl	100/500
78-71-7	Oxetane, 3, 3- Bis(Chloromethyl)-	500
2497-07-6	Oxydisulfoton	500
10028-15-6	Ozone	100
1910-42-5	Paraquat Dichloride	10/500
2074-50-2	Paraquat Methosulfate	10/500
56-38-2	Parathion	100
298-00-0	Parathion-Methyl	100/500
12002-03-8	Paris Green	500
19624-22-7	Pentaborane	500
2570-26-5	Pentadecylamine	100/500
79-21-0	Peracetic Acid	500
594-42-3	Perchloromethylmercaptan	500
108-95-2	Phenol	500
4418-66-0	Phenol, 2, 2'- Thiobis (4-Chloro-6-Methyl)-	100/500
64-00-6	Phenol, 3-(1- Methylethyl)-, Methylcarbamate	500
58-36-6	Phenoxarsine, 10, 10'-Oxydi-	500
696-28-6	Phenyl Dichloroarsine	500
59-88-1	Phenylhydrazine Hydrochloride	500
62-38-4	Phenylmercury Acetate	500
2097-19-0	Phenylsilatrane	100/500
103-85-5	Phenylthiourea	100/500
298-02-2	Phorate	10
4104-14-7	Phosacetim	100/500
947-02-4	Phosfolan	100/500
75-44-5	Phosgene	10
732-11-6	Phosmet	10/500
13171-21-6	Phosphamidon	100
7803-51-2	Phosphine	500
2703-13-1	Phosphonothioic Acid,Methyl-O-Ethyl O-(4-(Methylthio) Phenyl) Ester.	500
50782-69-9	Phosphonothioic Acid, Methyl-, S-(2-(Bis (1Methylethyl) Amino)Ethyl) O- Ethyl Ester	100
2665-30-7	Phosphonothioic Acid,Methyl-,	500

CAS No.	Chemical Name	Threshold Quantity* (pounds)
7723-14-0	Phosphorus	100
10025-87-3	Phosphorus Oxychloride	500
10026-13-8	Phosphorus Pentachloride	500
7719-12-2	Phosphorus Trichloride	500
57-47-6	Physostigmine	100/500
57-64-7	Physostigmine, Salicylate (1:1)	100/500
124-87-8	Picrotoxin	500
110-89-4	Piperidine	500
23505-41-1	Pirimifos-Ethyl	500
10124-50-2	Potassium Arsenite	500
151-50-8	Potassium Cyanide	100
506-61-6	Potassium Silver Cyanide	500
2631-37-0	Promecarb	500
106-96-7	Propargyl Bromide	10
57-57-8	Propiolactone, Beta-	500
107-12-0	Propionitrile	500
542-76-7	Propionitrile, 3- Chloro-	500
70-69-9	Propiophenone, 4- Amino-	100/500
109-61-5	Propyl Chloroformate	500
75-56-9	Propylene Oxide	500
75-55-8	Propyleneimine	500
2275-18-5	Prothoate	100/500
129-00-0	Pyrene	500
140-76-1	Pyridine, 2-Methyl- 5-Vinyl-	500
504-24-5	Pyridine, 4-Amino-	500
1124-33-0	Pyridine, 4-Nitro-,l-Oxide	500
53558-25-1	Pyriminil	100/500
14167-18-1	Salcomine	500
107-44-8	Sarin	10
7783-00-8	Selenious Acid	500
7791-23-3	Selenium Oxychloride	500
563-41-7	Semicarbazide Hydrochloride	500
3037-72-7	Silane, (4- Aminobutyl) Dietho xymethyl-	500
7631-89-2	Sodium Arsenate	500
7784-46-5	Sodium Arsenite	500
26628-22-8	Sodium Azide (Na (N3))	500
124-65-2	Sodium Cacodylate	100/500
143-33-9	Sodium Cyanide(Na(CN))	100
62-74-8	Sodium Fluoroacetate	10/500
13410-01-0	Sodium Selenate	100/500
10102-18-8	Sodium Selenite	100/500
10102-20-2	Sodium Tellurite	500

CAS No.	Chemical Name	Threshold Quantity* (pounds)
3569-57-1	Sulfoxide, 3- Chloropropyl Octyl	500
7446-09-5	Sulfur Dioxide	500
7783-60-0	Sulfur Tetrafluoride	100
7446-11-9	Sulfur Trioxide	100
7664-93-9	Sulfuric Acid	500
77-81-6	Tabun	10
7783-80-4	Tellurium Hexafluoride	100
107-49-3	TEPP	100
13071-79-9	Terbufos	100
78-00-2	Tetraethyllead	100
597-64-8	Tetraethyltin	100
75-74-1	Tetramethyllead	100
509-14-8	Tetranitromethane	500
10031-59-1	Thallium Sulfate	100/500
6533-73-9	Thallous Carbonate	100/500
7791-12-0	Thallous Chloride	100/500
2757-18-8	Thallous Malonate	100/500
7446-18-6	Thallous Sulfate	100/500
2231-57-4	Thiocarbazide	500
39196-18-4	Thiofanox	100/500
297-97-2	Thionazin	500
108-98-5	Thiophenol	500
79-19-6	Thiosemicarbazide	100/500
5344-82-1	Thiourea, (2-Chlorophenyl)-	100/500
614-78-8	Thiourea, (2-Methylphenyl)-	500
7550-45-0	Titanium Tetrachloride	100
584-84-9	Toluene 2, 4-Diisocyanate	500
91-08-7	Toluene 2, 6-Diisocyanate	100
110-57-6	Trans-1, 4-Dichlorobutene	500
1031-47-6	Triamiphos	500
24017-47-8	Triazofos	500
76-02-8	Trichloroacetyl Chloride	500
115-21-9	Trichloroethylsilane	500
327-98-0	Trichloronate	500
98-13-5	Trichlorophenylsilane	500
1558-25-4	Trichloro (Chloromethyl) Silane	100
27137-85-5	Trichloro (Dichlorophenyl) Silane	500
998-30-1	Triethoxysilane	500
75-77-4	Trimethylchlorosilane	500
824-11-3	Trimethylolpropane Phosphite	100/500
1066-45-1	Trimethyltin Chloride	500
639-58-7	Triphenyltin Chloride	500

CAS No.	Chemical Name	Threshold Quantity* (pounds)
81-81-2	Warfarin	500
129-06-6	Warfarin Sodium	100/500
28347-13-9	Xylylene Dichloride	100/500
58270-08-9	Zinc, Dichloro (4, 4-Dimethyl-5 ((((Methylamino) Carbonyl) Oxy) Imino)Pentane nitrile)-, (T-4)-	100/500
1314-84-7	Zinc Phosphide	500

*Extremely Hazardous Substances that are solids are subject to either two (2) threshold quantity numbers. The lower quantity only applies if the solid exists in powdered form and has a particle size less than one hundred (100) microns; or is handled in solution or in molten form; or meets the criteria for a National Fire Protection Association (NFPA) rating of two (2), three (3) or four (4) for reactivity. If the solid does not meet any of these criteria, it is subject to the upper threshold quantity as shown in the table.

The one hundred (100) micron size may be determined by multiplying the weight percent of solid with a particle size less than one hundred (100) microns in a particular container by the quantity of solid in the container.

The amount of solid in a solution may be determined by multiplying the weight percent of solid in the solution in a particular container by the quantity of solution in the container.

The amount of solid in molten form must be multiplied by 0.3 to determine whether the lower threshold quantity is met. (2001-Or-114, § 6, 9-28-01)

CHAPTER 511. SEWERS AND SEWAGE DISPOSAL*

***Cross reference(s)--**Fires in sewers or drains, § 385.30.

State law reference(s)--Sewage disposal generally, M.S. Ch. 444.

ARTICLE I. GENERALLY

511.10. Rainwater drainage to sanitary sewers prohibited. No rainwater pipes, leaders or conductors from any building, grounds or premises shall be connected with any sewer, sewer pipe or sewer connection in any sewer district in which the sewers are provided for disposal of sewage alone and otherwise known and designated as a separate or sanitary system. (Code 1960, As Amend., § 614.010)

511.20. Discharging sewage to watercourses. No person shall, directly or indirectly, discharge, permit or allow to be discharged, any sewage or commercial or industrial waste from any premises within the city into the Mississippi River or into any stream or watercourse within or adjacent to the boundaries of the city. The term "commercial or industrial waste" shall not include cooling or condenser water when discharged by separate outlet and when such water does not come in contact with any commercial or industrial process. (Code 1960, As Amend., § 614.020)

511.30. Discharging unpolluted water to watercourse. No person shall build or repair any ditch, or lay or repair any pipe or conduit, for the purpose of discharging storm, surface, cooling or condenser water into the Mississippi River or any stream or watercourse within or adjacent to the boundaries of the city. (Code 1960, As Amend., § 614.030)

511.40. Disposing of wastes from outside city. No person shall bring into the city the contents of any cesspools, privy vaults, septic tanks or other containers located outside the city and discharge into, dump or place such contents into any of the sewers of the city. This section shall not limit or affect the rights of any municipality or other persons having a valid contract with the city for the disposal of sewage. (Code 1960, As Amend., § 614.040)

511.50. Removal of manhole covers. No person shall take off or remove the cover from any sewer or water manhole in the streets or use such manhole for any purpose whatever, without first obtaining a permit therefor from the city engineer. (Code 1960, As Amend., § 614.050)

511.60. Fish in sewers. No person shall leave, deposit, place, permit to be run, or cause to be placed, left, deposited or run into any sewer in a street or alley, through a manhole or other hole or conduit leading into such sewer from the surface of the street or alley, any live fish. (Code 1960, As Amend., § 583.115; Ord. of 6-14-74, § 1)

511.70. Supervision of work on sewer pipes. The work of laying, relaying or repairing any

sewer pipe or making any sewer connection with any main sewer for any private person, within the limits of any street, avenue, alley or public ground in the city, shall be done under the directions of the city engineer or some person under the direction of the city engineer, and every person doing any such work shall do the same according to the directions of the city engineer or of such person under the city engineer's directions. (Code 1960, As Amend., § 611.030; Pet. No. 251069, § 27, 12-15-89)

511.75. Assessments for repairs to water or sewer service line. See section 509.465.

Editor's note--The provisions of § 511.75 have been added by the editor, pursuant to instruction by the city.

511.80. Rules for sewer connections. The following rules must be observed and carried out in all work relating to sewer connections:

(a) Connections with sewers must be made with the slant already put in by the city. Deviations from this requirement may be made if the city engineer gives written consent before any such change is made.

(b) Any new connections must be made within the middle third of the interior height of the sewer connected with.

(c) All connection pipes must be laid in a true line from the sewer to the curb.

(d) All joints of sewer pipe must be made in the best manner and to the satisfaction of the city engineer.

(e) After the pipe is properly laid and inspected, the refilling must proceed at once and it must be thoroughly tamped, and so done that there shall be no surplus earth left.

(f) Should there be a deficiency of earth to fill the excavation, then the plumber or person doing such work must supply such deficiency with clean sand or other approved material.

(g) No rock of any sort larger than four (4) inches in anydirection may be put into any excavation.

(h) Right-of-way restoration shall be done in accordance with section 430.70. Such restoration shall assure that the general area is returned to the same condition that existed before the commencement of the work and that the work is performed in accordance to the standards and with the materials specified by the city engineer.

(i) All work must be done under the supervision of an inspector named by the city engineer.

(j) Any sanitary sewer pipe installed between the city sewer main and the property line must be laid at a depth of not less than nine (9) feet as measured to the top of the pipe at the curb line. Any sanitary sewer pipe installed between the property line and the building line must be laid at a depth of not less than seven (7) feet as measured to the top of the pipe at the building line. (Code 1960, As Amend., § 611.090; 98-Or-136, § 1, 11-13-98)

511.90. Inspection of drain pipes. All drain pipes for public sewers, or for private drains, shall be subject to the inspection of the city engineer or the city engineer's assistant. (Code 1960, As Amend., § 611.180; Pet. No. 251069, § 28, 12-15-89)

511.100. Notice when connection ready for inspection. The person who is to make the connection with any sewer or drain shall give notice at the office of the city engineer when such work is ready for inspection. (Code 1960, As Amend., § 611.200; 98-Or-136, § 2, 11-13-98)

511.110. Underground connection required. All new buildings adjacent to streets, avenues or alleys where sewers are laid shall be provided with underground drain connections with the sewer, for the purpose of carrying off the waters or liquids that would otherwise be discharged on the sidewalks, or in the gutters, of the street or alleys, by the conductors and downspouts of the building, or by the pipes, draining sinks or other receptacles of water within the premises; and every owner of any such building shall provide for and construct such underground sewer connection. The city council may relieve any person from the requirements of this section.

The director of inspections shall give notice to all parties affected by this section to comply with the provisions set forth herein to make underground connections with the public sewer within thirty (30) days thereafter; any person failing to make such connection within thirty (30) days after being so notified shall be guilty of a breach of this section. (Code 1960, As Amend., § 611.210; 98-Or-136, § 3, 11-13-98)

511.120. Responsibility of user. No proprietor, occupant, lessee or tenant of any building shall knowingly use or cause to be used, in any form, any sewer or drain not constructed substantially as herein provided, without the written permission of the city engineer. (Code 1960, As Amend., § 611.230)

511.130. Substances prohibited. No person shall place, throw or deposit in any catch basin, sewer or drain, butchers' offal, garbage, dead animals, ashes, shavings, gas drippings or solid refuse of any kind. (Code 1960, As Amend., § 611.250)

511.140. Duty to clean building sewer. The owner, agent or occupant of any house, store or other building in which any drain pipe, soil pipe or passage exists in connection with any sewer or cesspool, shall make and keep such drain pipe, soil pipe or passage adequate for its proper purposes and free of any obstruction to the passage of such materials that may or should be put or discharged into the same. (Code 1960, As Amend., § 775.060)

511.150--511.160. Reserved.

ARTICLE II. COMMERCIAL GARBAGE GRINDERS

511.170. Definitions. As used in this article, the term "garbage grinder" shall mean any mechanical device used for the grinding, shredding or macerating of any kind of material or waste preparatory to disposal thereof into the city's sanitary sewage system. The term "commercial garbage grinder" shall mean a garbage grinder intended for installation and

service in any kind of a building or structure other than a one-family and not to exceed a four-family dwelling. (Code 1960, As Amend., § 615.010)

511.180. Permit and approval required. No person shall install a commercial garbage grinder without first having obtained a permit from the director of inspections to do so, and no such permit shall be issued until a written approval for such installation shall first have been obtained from the city engineer and filed with the director of inspections. (Code 1960, As Amend., § 615.020)

511.190. Application for permit. Any person desiring to install a commercial garbage grinder shall first make application in writing to the city engineer upon a form provided by him for that purpose, which application shall state the name and address of the applicant, the address of the premises in which such installation is desired, a general description of the premises, together with an accompanying plat or drawing of the existing sewage system within the premises affected. (Code 1960, As Amend., § 615.030)

511.200. Action on application. Upon the filing of such application and the payment of the fees herein provided for, the city engineer shall, within a reasonable time, cause the premises and their available sewer system to be inspected and surveyed. The city engineer shall then solely determine what changes or alterations in the sewer system shall be necessary before issuing an approval of the application. No such approval shall be issued where the capacity of the public sewer system within the particular sewer district is insufficient, or where the additional demand and service caused by the use of such commercial garbage grinder is likely to impair the efficiency of the sewer system. (Code 1960, As Amend., § 615.040; 98-Or-136, § 4, 11-13-98)

511.210. Appeal from denial. Any person whose application for the city engineer's approval of the installation of a commercial garbage grinder shall have been denied may appeal to the city council within ten (10) days after such denial by filing with the city clerk a written instrument stating that the applicant appeals from the city engineer's decision denying the applicant's request for the installation of a commercial garbage grinder, and serve a copy upon the city engineer, who shall forthwith file with the city clerk as part of such appeal a copy of the record of the inspection and survey of the premises as well as of the engineer's findings and determination. Said appeal shall be read by the city clerk at the next regular city council meeting, and in the absence of any action by the city council to the contrary, shall automatically be referred to the appropriate standing committee, which at its next regular meeting, or at such subsequent meeting as the committee shall determine, shall hear said appeal and make its recommendation to the city council, either sustaining or overruling the decision of the city engineer. (Code 1960, As Amend., § 615.050)

511.220. Fee. A fee in the amount of forty dollars ($40.00) shall accompany the application for the city engineer's approval of the installation of any commercial garbage grinder to cover all expense in connection with such application and survey of the premises involved as well as the public sewer affected by the installation so applied for, and no part of said fee shall be refunded whether such application is approved or denied.

In a dwelling occupied by more than four (4) families, one fee of forty dollars ($40.00)

shall be paid to cover expenses for the installation of all such garbage grinders unless such dwelling has, in addition to the individual dwelling units, a restaurant or other commercial occupancy which would use a garbage grinder, in which case an additional fee of forty dollars ($40.00) shall be paid for the commercial occupancy. (Code 1960, As Amend., § 615.060; 85-Or-050, § 1, 2-22-85)

511.230. Discharge of solids into sewers. No person shall cause to be deposited or discharged into the city's sanitary sewer, by means of any garbage grinder as herein defined, any solids such as glass, metal, crockery, sand, gravel, clay, concrete, shellfish shells, wood, plastic and other materials of an accumulative, obstructive and nonfloating tendency or nature. (Code 1960, As Amend., § 615.070)

511.240. Sufficient water required. No garbage grinder of any kind shall be used or operated without a free and sufficient flowage and flushing of water. (Code 1960, As Amend., § 615.080)

511.250--511.270. Reserved.

ARTICLE III. SEWER RENTAL RATES

511.280. Definitions.

Operation and maintenance: Activities required to provide for the dependable and economical functioning of the sanitary sewer system, throughout the design or useful life, whichever is longer of the sanitary sewer system, and at the level of performance for which the sanitary sewer system was constructed. Operation and maintenance includes replacement.

Replacement: Obtaining and installing of equipment, accessories, or appurtenances which are necessary during the design life or useful life, whichever is longer, of the sanitary sewer system to maintain the capacity and performance for which such system was designed and constructed.

Sewer utility charge: The aggregate of all charges, including charges for billing, metering, operation, maintenance, replacement, debt service, and other sewer related charges that are billed periodically to users of the city's wastewater disposal system. (88-Or-099, § 1, 5-27-88; 98-Or-136, § 5, 11-13-98)

511.290. Sewer utility charges. For the purpose of paying the cost of operation and maintenance of the stormwater drainage system and sewage disposal system, including the sewage treatment works and sewer system; for the cost of construction of such sewage disposal system, including the principal and interest on bonds sold for such construction; and for paying Minneapolis' share of the Metropolitan Council Environmental Services' annual budget as provided in Chapter 473, Minnesota Statutes, a sewer utility charge shall be levied and assessed against every lot, parcel of land, building or premises now or hereafter having connection to the Minneapolis Sewer System or otherwise discharging domestic sewage, commercial or industrial wastewater, or other liquid, gaseous, or solid wastes either directly or indirectly to the Minneapolis Sanitary Sewer System. Such sewer utility charges shall be based on the volume of such sewage into the city sewer system as measured or as determined by the

volume of water use. (88-Or-099, § 1, 5-27-88; 98-Or-136, § 6, 11-13-98)

511.300. Allocation of funds. In accordance with regulations established pursuant to the Clean Water Act and Minnesota Rule 7075, the city shall allocate sufficient revenue to the "sewer rental fund" of the public works department to ensure adequate operation, maintenance, and replacement of its sewer system. (88-Or-099, § 1, 5-27-88)

511.310. Sewer rental rates established. Sewer rental rates shall be set by city council resolution to be effective beginning January 1, 1999, and as revised thereafter.

The same administrative procedures for payments, delinquencies and service termination shall be applied to sewer rental charges as are applied for water use under Chapter 509 of the Minneapolis Code of Ordinances.

Pursuant to Minnesota Laws 1973, Chapter 320, whenever payment remains in default for sewage disposal services furnished to real property by the city, the city council may annually levy an assessment equal to such unpaid costs including penalty and interest against each property so served and upon which the utility charge is unpaid. (98-Or-136, § 8, 11-13-98)

511.315. Reserved.

Editor's note--Ord. No. 99-Or-078, § 1, adopted June 25, 1999, repealed § 511.315, which pertained to sewer rental rate established through December 31, 1998. See the Code Comparative Table.

CHAPTER 53. LUBRICATING AND MOTOR OILS RECYCLING*

***Editor's note--**Section 1 of 77-Or-190, enacted Sept. 9, 1977, added provisions to the Code designated Ch. 46, §§ 46.10--46.60, which provisions, with permission of the city, have been redesignated Ch. 53, §§ 53.10--53.60, for purposes of classification.

53.10. Purpose and policy. The purpose of this chapter is to protect the public health, safety and welfare; to provide for the upgrading of the ecology and environment; to prevent water pollution; to provide for adequate safeguards for the proper disposal of new and used motor oil and other waste lubricating materials; and to aid and assist in the energy conservation program of the United States and the State of Minnesota. (77-Or-190, § 1, 9-9-77)

53.20. Findings. The council finds that there exists in the city many instances where oils and other like chemical substances are allowed to fall upon the ground, streets and alleyways of the city to the detriment of the public health and safety and adding to the degrading of the environment. Such conditions adversely affect the public's health and safety and lead to the continuation, extension and aggravation of the energy crisis now prevalent throughout the land and to the potential pollution of underground water supplies and the city's sewer system. Adequate protection of the public health, safety and welfare, therefore, requires the establishment and enforcement of specifically designated locations for the collection of such waste materials, including new and used motor oils and other like substances. (77-Or-190, § 1, 9-9-77)

53.30. State standards and regulations. (a) *Adopted.* There is hereby adopted as an ordinance of the City of Minneapolis, Minnesota Statutes, Section 325E.10 et seq., entitled "Motor Oil Recycling" as fully as if set forth herein and shall be in force and effect as an ordinance of the city.

(b) *Statute to be filed.* A copy of Minnesota Statutes, Section 325E.10 et seq., marked "Official Copy" shall be filed in the office of the city clerk and remain on file in said office for use and examination by the public. The clerk shall furnish copies of said statute at cost to any person, upon request.

(c) *Definitions.* The definitions contained in subdivisions 2, 3 and 4 of Minnesota Statutes, Section 325E.10, shall be those definitions intended to be used throughout this chapter. Wherever the word "state" is used in said statute, the words "City of Minneapolis" shall be used in its place and thus give its proper intended usage. (77-Or-190, § 1, 9-9-77; Pet. No. 250650, § 19, 10-27-89)

53.40. Oil collection stations; liability for maintenance. No person shall dispose of, cause to be disposed of, or allow to be disposed of, any new or used motor oils or other like substances in any place within the city, except in city-operated oil collection stations or those privately maintained by gasoline service stations and the like. The owner or operator of oil collection stations and gasoline service stations shall operate and maintain their facilities in such a manner so as to prevent any pollution of the premises by any oil or like substance.

(77-Or-190, § 1, 9-9-77; 79-Or-248, § 1, 12-14-79)

53.50. Exception; permit, fee. This chapter is in no way intended, nor shall it be construed, to hinder or interfere with the proper application of oil on private roadways or parking lot surfaces as a means of dust pollution control. Whenever such oils or other like substances are used on such surfaces for dust suppression control, the person intending to use such substances shall first secure from the director of inspections a permit to so do. The cost of such permit shall be fifteen dollars ($15.00) per application. (77-Or-190, § 1, 9-9-77)

53.60. Violations. A violation of any provision of this chapter shall be and constitute a misdemeanor, punishable as provided in section 1.30. (77-Or-190, § 1, 9-9-77)

CITY OF MINNEAPOLIS
PUBLIC WORKS DEPARTMENT
Street Maintenance Division
Standard Operating Procedure for Vehicle Related Spills (VRS)
(Preliminary S.O.P. #1: June 2, 1999)

The purpose of this document is to provide detailed standard operating procedures for the clean up of VRS sites and the management/disposal of the impacted spill debris.

DEFINITION of TERMS:

MPCA: Minnesota Pollution Control Agency

MEM: Minneapolis Environmental Management (also historically known as Minneapolis Pollution Control)

MSMD: Minneapolis (Public Works) Street Maintenance Division

VRM: Vehicle Related Material: Petroleum products or other vehicle fluids that are inherently related to vehicular operations. This does not include materials that are being transported by a vehicle, unless the material is clearly labeled as being one of the aforementioned products.

VT: Volumetric Threshold: Minnesota has a 5 gallon minimum quantity for reporting petroleum spills. Spill of all other chemical or material in any quantity is reportable.

Spill debris: Sand that has been placed to absorb VRM and subsequently recovered for disposal.

Scenario Number 1: MPCA informs MEM of a VRS

The driver of a vehicle involved in a spill is responsible for notifying the MPCA Duty Officer, if the VT is exceeded. The Duty Officer will immediately notify the MPCA Emergency Response Unit. If the spill is of the size and nature that the Emergency Response Unit determines should be handled by MEM, the MPCA will notify MEM and provide them with the details relating to the spill incident. The MEM representative will make a determination based on the information provided by the MPCA on how to proceed, and if appropriate (typically VRM in manageable quantities), contacts MSMD.

The MSMD will dispatch personnel with appropriate equipment to apply sand to the spill site. The sand will be given a period of time in which to absorb the VRM. The sand (spill debris) will then be removed by means of a street sweeper, and deposited at the established disposal site in a designated VRM spill debris pile. If a secondary sanding is required, the procedure will remain the same.

June, 1999

SPECIFICATION FOR DISPOSAL OF SPILL DEBRIS FROM VEHICLE RELATED SPILLS

City of Minneapolis
Department of Public Works

DEFINITIONS:

- **VRM:** Vehicle Related Material: Petroleum products and other vehicle fluids that are inherently related to vehicular operations. This does not include materials that are being transported by a vehicle, unless the material is clearly labeled as being one of the aforementioned products.

- **SPILL DEBRIS:** Sand that has been placed to absorb VRM and subsequently recovered for disposal.

- **CONTRACT PERIOD:** The contract period shall be from July 1, 1999 to June 30, 2000.

SCOPE:

These specifications cover the loading, transportation and disposal of spill debris from a central site located within the City of Minneapolis. The "Contractor" for the purposes of this specification, refers to a permitted landfill facility that has been approved by the appropriate regulatory agencies.

GENERAL:

The City of Minneapolis expects to generate an estimated 500 cubic yards of spill debris during the contract period. This quantity is only an estimate of the City's requirement for said contract period, and may be increased or reduced in any amount without any adjustment in unit price. The primary source of this material is from the results of clean-up operations following vehicular collisions or accidental discharge from vehicles.

The spill debris will consist primarily of sand used to absorb VRM from City streets, as well as plastic sheeting used during the storage process. The Contractor will be required to transport and dispose of all such materials that have been stored at the City facility. The only acceptable disposal method for the spill debris shall be placement into or used as daily cover at a certified and fully permitted landfill facility.

SCOPE OF SERVICES:

The Contractor shall:

- Provide a 20 cubic-yard leak-proof roll-off container with a counter-balanced lockable lid for the duration of the contract period at the City of Minneapolis Royalston Site (north quadrant of Holden Street and Royalston Avenue in Minneapolis), or any other designated site within the City of Minneapolis. The City of Minneapolis will provide Contractor access to this container throughout the contract period.
- When the container is filled with spill debris, the City of Minneapolis will mechanically blend the material in the container and perform sampling and laboratory analysis in accordance with Minnesota Pollution Control Agency Guidance Documents. Any additional analyses required by the Contractor shall be stated in the proposal.
- The City of Minneapolis will forward all pertinent analytical laboratory results to the Contractor.
- The Contractor shall state in the proposal, the length of time needed, following receipt of the laboratory test results, before the full container is transported to the Contractors facility.
- The City of Minneapolis will contact the Contractor, once the roll-off container is full and sampling/ analyses has begun. It shall be the responsibility of the Contractor to provide a replacement container for subsequent and interim spill debris storage. There must be, at all times, adequate space in a container available for the storage of spill debris at the City of Minneapolis facility.

The Contractor shall obtain all proper permits and manifests for the loading, transporting, and disposal of the spill debris. The contractor shall load and haul all such material to an approved disposal site. The disposal method shall be approved by the appropriate regulatory agency(s). The Contractor shall provide documentation of all required approvals to the City of Minneapolis prior to acceptance of the material. The Contractor shall also provide the City with any and all documentation required by regulatory agencies, following the disposal of the spill debris.

CONTENT OF PROPOSALS:

The following required information shall accompany each bid:

- Location of landfill site.
- Cost per ton of material for disposal, utilizing the aforementioned 20 cubic-yard roll-off container.
- Cost per ton of material for disposal when the material is stockpiled without the use of a roll-off container. (Minimum stockpile being 10 tons)
- The cost per ton for Superfund/CERCLA indemnification (include limits).

- Cost per day for a 20 cubic-yard leak-proof roll-off container with a counter-balanced lockable lid at the Minneapolis site.
- Cost for the option, at the sole discretion of the city, of extending this agreement for each of two additional years.
- List of subcontractors and functions.
- Qualification and experience of Contractor and all subcontractors

The bid will be based on a per ton (2000 pound) basis, which will include all transportation, permitting and regulatory cost. All loads shall be weighed on scales certified by the State of Minnesota

GENERAL TERMS AND CONDITIONS:

The following are the general terms and conditions, supplemental to those contained elsewhere in these specifications, which responding Contractors must comply with in order to be consistent with the requirements for the specification. Any deviation from these or any other stated requirements must be listed as exceptions on the bid sheet.

Once the bid forms are submitted in response to these specifications, they become the property of the City of Minneapolis, whether or not the bid is accepted. The City shall have the right to use any ideas presented in any bid submitted.

Representatives of the City of Minneapolis will review all bids received. An interview may be part of the evaluation process. Factors, upon which the proposal will be judged include, but are not limited to, the following:

- Residual risk to the City of Minneapolis following disposal.
- Expressed understanding of the project objective.
- Cost of disposal.
- Project work plan, including level of detail.
- Qualification of both the Contractors assigned personnel, and subcontractors.

CITY'S RIGHTS:

The City reserves the right to reject any or all proposals or parts of proposals, to accept part or all of proposal on the basis considerations other than lowest cost, and to create a project of lesser or greater expense and reimbursement that described in this proposal, or the respondent's reply based on the component prices submitted. The City also reserves the right to cancel the Agreement without penalty, if circumstances arise which prevent the City from completing the project. In addition, the City reserves the right to re-bid for any phase of this work.

HOLD HARMLESS:

The Contractor agrees to defend, indemnify and hold harmless the City, its officer and employees, from any liabilities, claims, damages, costs, judgments, and expenses,

including attorney's fees, resulting directly or indirectly from an act or omission of the contractor, it's employees, agents or employees of subcontractors, in the performance of this contract or by reason of the failure of the contractor to fully perform, in any respect, all of its obligation under this contract.

The City agrees to defend and hold harmless insofar as the law allows the Contractor, its officers and employees, from any liabilities, claims, damages, cost, judgements, and expenses, including attorney's fees, resulting directly or indirectly from an act or omission of the City or its employees in the performance under this contract or by reason of the failure of the city to fully perform its obligations under this contract.

INTEREST OF MEMBERS OF CITY:

The Contractor represents and agrees that no member of the governing body, officer, employee or agency of the City has any interest, financial or otherwise, direct or indirect, in the Agreement.

EQUAL OPPORTUNITY STATEMENT:

Contractor agrees to comply with the provisions of all applicable federal, state and City of Minneapolis statutes, ordinances and regulations pertaining to civil rights and nondiscrimination including without limitation Minnesota Statute, Section 181.59 and Chapter 363 and Minneapolis code of Ordinances, Chapter 139, incorporated herein by reference.

AFFIRMATIVE ACTION:

Persons who are authorized to enter into contractual relationships with the City are encouraged to review the City's policies on Affirmative Action.

NON-DISCRIMINATION:

The Contractor will not discriminate against any employee or applicant for employment because of race, color, creed, religion, ancestry, sex, national origin, affectional preference, disability, age, marital status or status regard to public assistance or as a disabled veteran or veteran of the Vietnam era. Such prohibition against discrimination shall include, but no limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and section for training, including apprenticeship.

The Contractor shall agree to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the City, setting forth this nondiscrimination clause. In addition, the Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment with regard to race, creed, religion, ancestry, sex, national origin, affectional preference, disability, age, marital

status or status wit regard to public assistance or status as a disabled veteran or veteran of the Vietnam era, and comply in all other aspects with the requirements of the Minneapolis Code, Chapter 139.

CONTRACT INCORPORATION OF PROPOSAL CONTENTS:

The contents of the proposal and any clarifications or modification to the contract thereof submitted by the successful proposer may, at the City's option, become part of the Agreement obligation and be incorporated by reference into the ensuing contract.

INSURANCE:

This agreement shall be effective only upon the approval by the City of acceptable evidence of the insurance detailed below. Such insurance secured by the Contractor shall be issued by insurance companies acceptable to the City and admitted in Minnesota. The insurance specified may be in a policy or policies of insurance, primary or excess. Such insurance shall be in force on the date of the execution of the agreement and shall remain continuously in force for the duration of the contract period.

The Contractor and its subcontractors shall secure and maintain the following insurance:

a) Worker's Compensation insurance that meets the statutory obligations with Coverage B – Employer's Liability limits of at least $100,000 each accident, $500,000 disease – policy limit and $100,000 disease each employee.

b) Commercial General Liability insurance with limits of at least $500,000 general aggregate, $500,000 products – completed operations $500,000 personal and advertising injury, $500,000 each occurrence $50,000 fire damage, and $5,000 medical expense any one person. The policy shall be on an "occurrence" basis, shall include contractual liability coverage and the City shall be named an additional insured.

c) Commercial Automobile Liability insurance covering all owned, non-owned and hired automobiles with limits of at least $500,000 per accident.

Acceptance of the insurance by the City shall not relieve, limit or decrease the liability of the Contractor. Any policy deductible or retention shall be the responsibility of the Contractor. The Contractor shall control any special unusual hazards and be responsible for any damages that result from those hazards. The City does not represent that the insurance requirements are sufficient to protect the Contractor's interest or provide adequate coverage.

Evidence of coverage is to be provided on a City provided Certificate or Insurance. A thirty- (30) day written notice is required if the policy is canceled, not renewed or materially changed.

The Contractor shall require all of its subcontractors to comply with this provision.

The Contractor shall not assign any interest in the Agreement, and shall not transfer any interest in the same (whether by assignment or novation) without the prior written approval of the City, provided, however, that claims for money due or to become due to the contractor may be assigned to a bank, trust company or other financial institution, or to a Trustee in Bankruptcy without such approval. Notice to any such assignment or transfer shall be furnished promptly to the City.

COMPLIANCE REQUIREMENTS

All Contractors hired by the City of Minneapolis are required to abide by the regulations of the Americans with Disabilities Act of 1990 (ADA) which prohibits discrimination against individuals with disabilities. The Contractor will not discriminate against any employee or applicant for employment because their disability and will take affirmative action to insure that all employment practices are free from such discrimination. Such employment practices include but are not limited to the following: Hiring, promotion, demotion, transfer, recruitment, or recruitment advertising, layoff, discharge, compensation and fringe benefits, classification referral and training. The ADA also requires contractor associated with the City of Minneapolis to provide qualified applicants and employees with disabilities with reasonable accommodations that do not impose undue hardship. Contractors also agree to post in conspicuous areas accessible to employees and applicants, notices of their policy on nondiscrimination.

In the event the Contractor's noncompliance with the nondiscrimination clauses of this agreement, this agreement may be cancelled, terminated, or suspended, in whole or part, and the Contractor may be declared ineligible by the Minneapolis City Council from any further participation in City contracts in addition to other remedies as provided by law.

Since the volume of the spill is greater than 5 gallons, a Hazardous Material Spill Data form (see Appendix A) must be completed as soon as possible (i.e. within 24 hours or the next business day). The completed form will be sent to the MEM as soon as possible. A final report on the action(s) taken will be sent to the MPCA from MEM.

Spill Debris Pile Management

Arrangements for disposal of the spill debris pile will be a collaborative effort by the MSMD and the Engineering Laboratory. As the spill debris pile reaches a size that becomes difficult to manage within the boundaries of the disposal site, the Engineering Laboratory will be contacted. The spill debris pile will be mechanically blended and the Laboratory will select representative samples for laboratory analysis, as required by MPCA regulations. The sampling and testing will require approximately one week to complete. After receiving the laboratory analysis data, the spill debris will be disposed of in a manner pre-approved by the MPCA and the Minneapolis Procurement Division.

Scenario Number II: The MSMD discovers a VRS

MSMD personnel discover a spill or are informed of a potential VRM spill from sources other than MEM or MPCA. After arriving at the scene, they will determine whether the incident is a VRM spill, (possibly from a vehicle collision, a spill from a labeled container, etc.) and will determine if the volume of the spill is greater than the VT (5 gallons).

- Less than 5 gallons: If the spill quantity is judged to be less than 5 gallons, no contact with MEM is necessary. Sand will be applied and the procedure will continue as described in Scenario I (i.e. subsequent sanding/sweeping and stockpiling into the spill debris pile). A Hazardous Materials Spill Data form must be completed for record and documentation purposes and retained at MSMD, but is not to be sent to MEM.

- 5 gallons or more: If the MSMD representative determines that a volume of 5 gallons or more of VRM has been spilled, MSMD must contact MEM or MPCA. The same procedures for clean up and reporting (using the Hazardous Material Spill Data form) as in Scenario I will be followed. This form must be sent to MEM.

For both cases, the disposal of the VRM spill debris pile is as detailed in Scenario I.

Potential Modification to Scenario I and II

Regulatory officials may require separate stockpiling of spill debris from specific spill incidents. Separate sampling and laboratory analysis will be required in these cases. This may also be requested to create a distinct tracking mechanism of a given spill of significant quantities and/or from a billable source. This scenario will be determined on a case-by-case basis. The process for disposal will be the same as previous scenarios.

Scenario Number III: The MSMD becomes aware of a spill of unknown material or composition

The MSMD shall contact MEM before taking any action to clean up a spill of unknown composition. MEM will manage these spills through their contracts with private entities specializing in these activities, or manage and coordinate the cleanup with the MSMD. If MEM cannot be contacted, the MPCA Duty Officer should be contacted immediately.

ADDITIONAL INFORMATION

1. Currently the disposal site for spill debris is at the Royalston site. The stockpile shall be maintained on an impermeable surface and covered with a tarpaulin; reinforced plastic that is at least 6 mills thick, or unreinforced plastic that is at least 10 mills thick. Suitable material shall be used to secure the stockpile covering. Anchoring is accomplished with ropes attached to tires or planking.

2. The Engineering Laboratory is currently developing bid documents for landfill applications as a possible disposal option for the spill debris. As soon as these bids are received, evaluated, and approved, they will be forwarded to the appropriate agencies.

3. List of Potential Contacts:

   - **Minnesota Pollution Control Agency (MPCA)**
     Duty Officer: 651-649-5451; 24 hours a day, seven days a week
   - **Minneapolis Environmental Management (MEM)**
     Roger VanTassel: 685-8531 (work)
     Tom Frame: 673-5807 (work)
     Emergency after-hours contacts:
     Bill Anderson: 651-646-0704
     Tom Frame: 612-754-0762
     Roger VanTassel: 612-942-5217
   - **Engineering Laboratory**
     Kevin Danen: 673-5661 (work)
     Paul Urseth: 673-5622 (work)
     Paul Ogren: 673-5627 (work)
   - **Minneapolis Street Maintenance Division (MSMD)**
     Greg Kolinski: 673-5720 (work)
     Mike Kennedy: 673-5720 (work)
     24 hours a day, seven days a week: 673-5720

1. MSMD will be responsible for any billing of outside parties for services rendered for the clean up/disposal of a spill event. The MSMD, MEM and the Engineering Laboratory will develop a system for tracking cost associated with these operations. This information will be distributed, as it becomes available.

2. This is a preliminary statement of policies and procedures, which will be revised and updated, as new information becomes available.

3. The Royalston site will be unavailable for the continuation of this and all MSMD activities starting in the spring of 2000. The MSMD is currently searching for another site to continue its operations that are currently being performed at the Royalston site. With this in mind, material at this site should not be allowed to be stockpiled near the end of 1999.

CITY OF MINNEAPOLIS - STREET DEPARTMENT

OIL AND HAZARDOUS MATERIAL SPILL DATA

DATE OF REPORT	TIME OF REPORT	NAME & ADDRESS OF RESPONSIBLE PARTY
DATE OF INCIDENT	TIME OF INCIDENT	
TYPE OF POLLUTANT	QUANTITY	CAUSE OF SPILL
PRECISE LOCATION		PERSON MAKING REPORT/PHONE NUMBER
AREAS AFFECTED		PARTY REPORTING SPILL TO STREET DEPT.
PROBABLE FLOW DIRECTION	SOIL TYPE	OTHERS CONTACTED: MPLS. PCA_____ MN PCA_____ FIRE DEPT_____ POLICE_____ OTHER_____
WATERS POTENTIALLY AFFECTED		
EFFECTS OF SPILL/ IMMEDIATE DANGER TO HUMAN LIFE, PROPERTY		PROXIMITY OF WELLS, SEWER, BASEMENTS
ACTION TAKEN TO DATE		IS THIS FIRST NOTICE REGARDING SPILL?
CONTAINMENT OF SPILL		WHO SHOULD BE CONTACTED FOR FURTHER INFORMATION? PHONE NO.
CLEAN-UP TO DATE: MATERIAL USED_____ LOADER USED_____ TRUCKS USED_____ PICK-UP TRUCK USED_____ MACHINE SWEEPER USED_____ LABOR: FOREMAN HOURS_____ SR. MAINT. MAN_____ JR. MAINT. MAN_____ OTHER_____		COMMENTS?

ORIGINAL: When job completed, send immediately to Street Accounting.
COPY 1 : Send to Street Accounting with daily time when labor/eq. first used.
COPY 2 : PCA NOTIFICATION COPY - send immediately(first available interoffice mailing) to Glenn Kiecker, Mpls PCA, Inspection Dept., PHC Room 300.

STREET JOB#_____

LABOR COST $_____
EQUIP COST $_____
MAT'L COST $_____
TOTAL COST $_____

Minneapolis Environmental Management
Non-Stormwater Discharge Permits

(40 Total)

Permit Number	Address
93150	714 1st Ave N
95599	315 1st Ave NE
94014	2600 10th Ave SE
96174	917 13th Ave S
92429	608 2nd Ave S
93419	801 2nd St N
95896	629 2nd St SE
97589	1081 21st Ave SE
94001	1836 38th St SE
100303	2701 4th Ave S
96223	400 4th St S
97203	1701 49th Ave N
92220	105 5th Ave S
93430	521 5th St N
92520	45 5th St S
92479	120 6th St S
96158	1010 7th St S
92512	90 7th St S
96283	730 8th St S
92364	1518 Chestnut Ave
97747	2500 Emerson Ave S
100151	2701 Honeywell Plaza
95176	50 Lowry Ave N
92140	245 Marquette Ave
97670	250 Marquette Ave
92599	601 Marquette Ave
92593	625 Marquette Ave
96789	2536 Marshall St
100108	3100 Marshall St
93331	2751 Minnehaha Ave
96519	5101 Minnehaha Ave
92122	310 Nicollet Mall
92120	414 Nicollet Mall
92579	501 Nicollet Mall
92572	825 Nicollet Mall
95411	2600 Ridgeway Pkwy
95235	3700 Washington Ave N
92163	100 Washington Ave S
92152	20 Washington Ave S
92557	3701 Wayzata Blvd

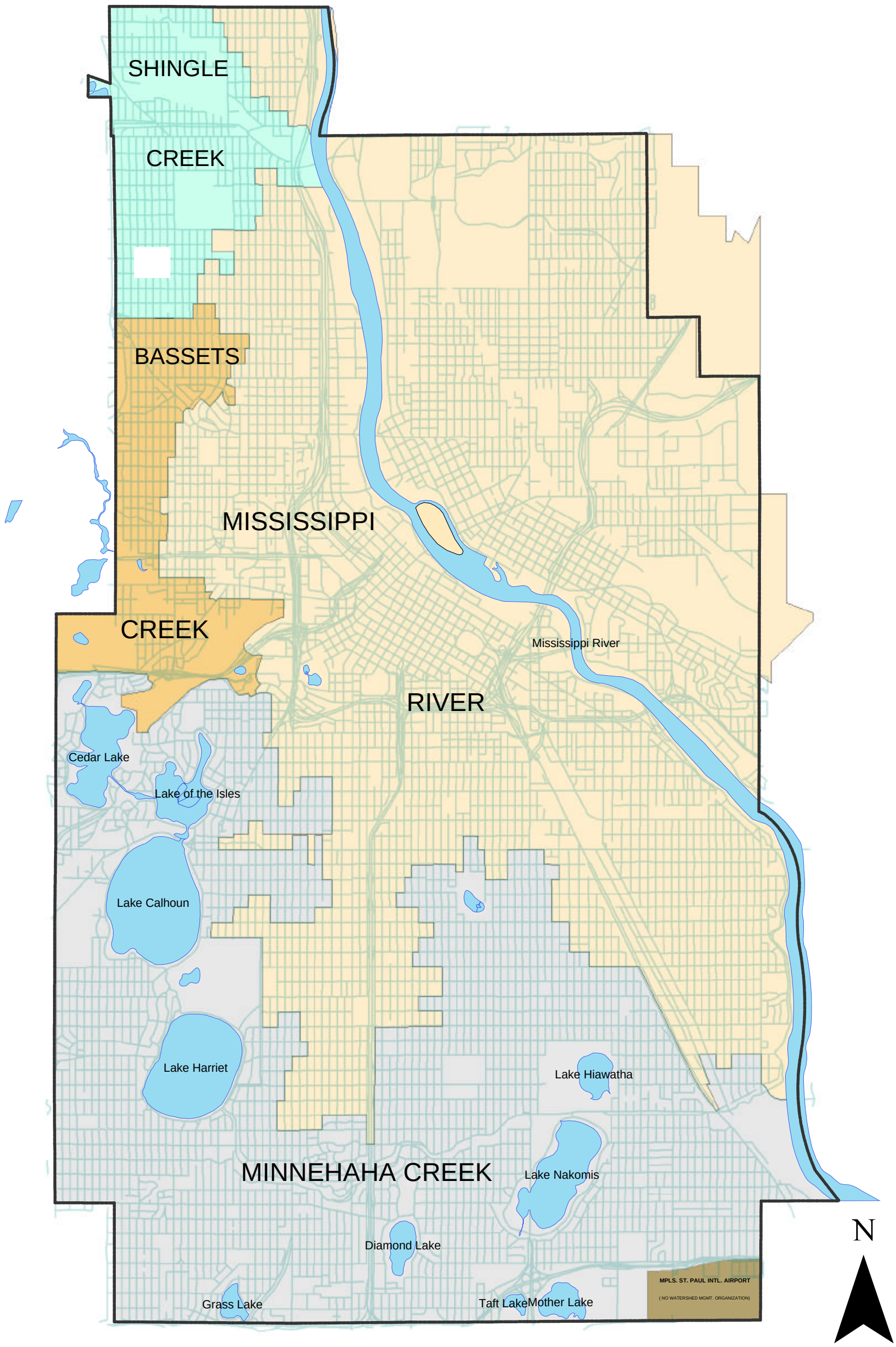
Minneapolis Environmental Management
Non-Stormwater Discharge Permits

(40 Total)

Permit Number	Address
93150	714 1st Ave N
95599	315 1st Ave NE
94014	2600 10th Ave SE
96174	917 13th Ave S
92429	608 2nd Ave S
93419	801 2nd St N
95896	629 2nd St SE
97589	1081 21st Ave SE
94001	1836 38th St SE
100303	2701 4th Ave S
96223	400 4th St S
97203	1701 49th Ave N
92220	105 5th Ave S
93430	521 5th St N
92520	45 5th St S
92479	120 6th St S
96158	1010 7th St S
92512	90 7th St S
96283	730 8th St S
92364	1518 Chestnut Ave
97747	2500 Emerson Ave S
100151	2701 Honeywell Plaza
95176	50 Lowry Ave N
92140	245 Marquette Ave
97670	250 Marquette Ave
92599	601 Marquette Ave
92593	625 Marquette Ave
96789	2536 Marshall St
100108	3100 Marshall St
93331	2751 Minnehaha Ave
96519	5101 Minnehaha Ave
92122	310 Nicollet Mall
92120	414 Nicollet Mall
92579	501 Nicollet Mall
92572	825 Nicollet Mall
95411	2600 Ridgeway Pkwy
95235	3700 Washington Ave N
92163	100 Washington Ave S
92152	20 Washington Ave S
92557	3701 Wayzata Blvd

City of Minneapolis

WATERSHED MANAGEMENT BOUNDARIES



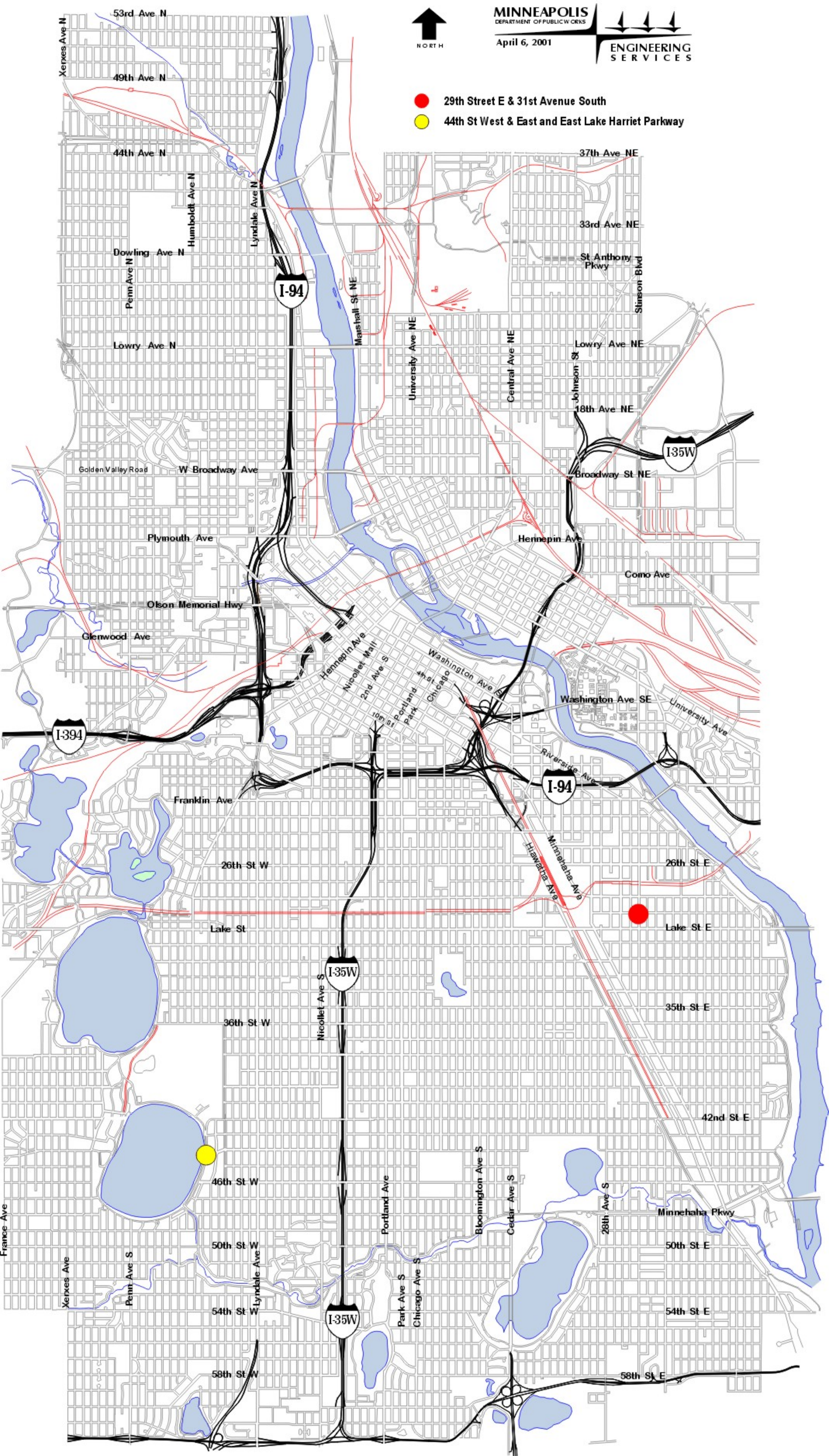
CITY OF MINNEAPOLIS PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
April 2002

Notice
The City of Minneapolis provides access to geospatial data and applications to City staff and designated external individuals and agencies, for the conduct of City business only.

This application and the data products it produces should be used in accordance with all applicable City policies and regulations regarding appropriate use of facilities and computer resources, and especially regarding confidentiality and appropriate use of City data.

The data and applications are provided as working tools only. While they are the best available resources for the stated purpose, the user is advised that there may be problems with data quality and accuracy. The user is advised to read and understand the instructions for the application and all available metadata describing the data to be used.

Minneapolis NPDES Storm Water Monitoring Sites



National Pollutant Discharge Elimination System (NPDES) Monitoring

Summary of NPDES Methods

This summary includes the equipment installation at each site, the parameters monitored, field quality assurance sampling, data handling, validation and reporting, and results.

Site Installation

Equipment installation began when freezing temperatures were no longer a concern in the spring. See Table 1 for site locations and characteristics.

The equipment installed at Site 1(installed 5/1/01) included an ISCO 3700 sampler, a level/pressure transducer and an ISCO 4120 datalogger. The flow paced datalogger was initially set at 2000 cubic feet (cf) but was adjusted accordingly throughout the year to collect samples over the entire hydrograph.

All equipment and flow pacing at Site 2 (installed 4/30/01), Site 3 (installed 5/1/01), and Site 4 (installed 5/1/01) were the same. Equipment installed at each site included an ISCO 3700 sampler, an area/velocity pressure transducer and ISCO 4150 datalogger. The datalogger flow pacing was initially set at 1000 cf but was adjusted accordingly throughout the year to collect samples over the entire hydrograph.

The equipment at Site 5 (installed 4/30/01) included an ISCO 3700 sampler, an area/ velocity pressure transducer and an ISCO 4150 datalogger. Flow pacing on the datalogger was initially set at 2000 cf but was adjusted accordingly throughout the year to collect samples over the entire hydrograph.

Monitored Parameters

Samples were collected March through November for all parameters. One grab sample was collected in January for Site 1. The target frequency for sample collection was once a month, however, if a sample was missed for a month, more than one sample was taken the next month. The March (grab) sample was a snowmelt event. Samples taken in April were also grab samples. For detailed information on sampling events see Table 3. A hydrograph for each site showing samples collected can be found in the Appendix of this section. Total volume sampled for each site and total recorded volume is given in Table 2 along with the percentage sampled per season.

	SD001	SD002	SD003	SD004	SD005
Location:					
Street	E. Harriet Pkwy at W. 44th St.	Luella St. at Orange Ave.	Vandalia St. -350' South of Capp Rd.	Charles Ave. -Mackubin to Arundel St.	E. 29th St. & 31st Ave. S.
City	Minneapolis	St. Paul	St. Paul	St. Paul	Minneapolis
Type	Residential	Residential	Industrial	Commercial	Mixed Use
Area (acres)	143	95	80	63	100
Land Use:					
% Residential	95	100	0	60	50
% Commercial	2	0	0	40	38
% Industrial	0	0	100	0	6
% Public & Open	3	NA	NA	NA	5
Pipe Diameter inch.	54" RCP	48" RCP	78" RCP	48" RCP	48" RCP
% Slope	0.167	1.6	0.2	0.8	0.16
Outfall ID#	57-020	350	10	270	10-630L
Runoff Coefficient	0.22	0.16	0.31	0.24	0.32

Table 1. NPDES Stormwater Monitoring Sites, St. Paul & Minneapolis, MN. Runoff Coefficient is based on MPRB calculated values for 5/1/01-10/31/01. RCP= reinforced concrete pipe, N/A= not applicable.

	Site 1	Site 2	Site 3	Site 4	Site 5
Sum of sampled events (cf)	475,600	236,500	393,000	321,600	667,000
Total volume recorded (cf)	4,977,500	1,129,100	2,006,500	748,100	2,436,800
ANNUAL	10%	21%	20%	43%	27%
SPRING	2%	7%	6%	17%	8%
SUMMER	7%	12%	9%	18%	14%
FALL	1%	3%	4%	8%	6%

Table 2. NPDES site volume totals for the sampling period 5/1/01-11/13/01. SPRING= May-June, SUMMER= July-September, FALL= October-November.

The parameters listed in Table 4 were monitored as part of the National Pollutant Discharge Elimination System (NPDES) permit for each sample collected. Table 5 gives the method used for analysis by Instrumental Research Inc. (IRI), the minimum detection limit (MDL) and holding time for each parameter. Although BOD was tested past the holding time for a few events, this data was still used in calculations because the numbers were comparable to other events. These events are noted as "**" in Table 6.

Event	Start Date	Start Time	End Date	End Time	Precip (inches)	Duration (hours)	Intensity (in/hr)	Sample Type	2001 NPDES Events Collected				
									Site 1	Site 2	Site 3	Site 4	Site 5
1	01/30/01	N/A	N/A	N/A	N/A	N/A	N/A	GRAB+	X				
2	03/09/01	N/A	N/A	N/A	N/A	N/A	N/A	GRAB+	X				X
3	03/15/01	N/A	N/A	N/A	N/A	N/A	N/A	GRAB+	X	X	X	X	X
4	03/20/01	1715	03/20/01	2130	0.11	4.25	0.03						
5	03/28/01	1500	03/28/01	2215	0.11	7.25	0.02						
6	03/31/01	100	03/31/01	800	0.27	7.00	0.04						
7	04/02/01	415	04/02/01	1045	0.21	6.50	0.03						
8	04/06/01	1800	04/07/01	100	1.20	7.00	0.17						
9	04/07/01	700	04/07/01	1830	0.19	11.50	0.02						
10	04/10/01	2030	04/11/01	2000	1.72	23.50	0.07	GRAB	X	X	X	X	X
11	04/14/01	2315	04/15/01	445	0.32	5.50	0.06						
12	04/19/01	2000	04/20/01	1215	0.17	16.25	0.01						
13	04/20/01	2345	04/21/01	1145	0.75	12.00	0.06						
14	04/22/01	1045	04/23/01	1430	3.00	27.75	0.11						
15	04/30/01	515	04/30/01	1400	0.21	8.75	0.02						
16	05/01/01	1630	05/01/01	1645	0.44	0.25	1.76	COMPOSITE		X			
17	05/05/01	1445	05/06/01	1545	0.20	25.00	0.01						
18	05/06/01	1715	05/06/01	1915	0.92	2.00	0.46	COMPOSITE	X	X		X	
19	05/10/01	1000	05/10/01	1530	0.23	5.50	0.04	COMPOSITE	X			X	
20	05/20/01	945	05/21/01	145	1.18	16.00	0.07	COMPOSITE		X	X	X	X
21	05/21/01	1700	05/23/01	2300	1.32	54.00	0.02	COMPOSITE			X		X
22	05/24/01	600	05/24/01	1630	0.30	10.50	0.03						
23	05/25/01	1000	05/26/01	245	0.68	16.75	0.04						
24	06/01/01	1100	06/02/01	45	0.42	13.75	0.03						
25	06/02/01	1745	06/02/01	1945	0.10	2.00	0.05						
26	06/05/01	115	06/05/01	1900	0.49	17.75	0.03	COMPOSITE		X	X	X	X
27	06/10/01	300	06/10/01	815	0.42	5.25	0.08						
28	06/11/01	1800	06/11/01	1815	0.69	0.25	2.76	COMPOSITE	X				
29	06/12/01	2300	06/13/01	1000	1.94	11.00	0.18						
30	06/13/01	2345	06/14/01	1045	0.40	11.00	0.04						
31	06/14/01	1915	06/14/01	2215	0.64	3.00	0.21						
32	06/18/01	800	06/18/01	815	0.12	0.25	0.48						
33	06/30/01	145	06/30/01	315	0.38	1.50	0.25						
34	07/17/01	315	07/17/01	515	0.46	2.00	0.23	COMPOSITE	X	X	X		X
35	07/18/01	115	07/18/01	230	0.15	1.25	0.12						
36	07/19/01	630	07/19/01	1200	0.20	5.50	0.04						
37	07/22/01	730	07/22/01	915	0.69	1.75	0.39	COMPOSITE	X	X	X		
38	07/23/01	630	07/23/01	1100	0.11	4.50	0.02	COMPOSITE					X
39	07/27/01	1845	07/28/01	115	0.35	6.50	0.05						
40	08/01/01	730	08/01/01	1315	0.22	5.75	0.04	COMPOSITE		X	X		
41	08/17/01	2215	08/18/01	1645	1.40	18.50	0.08	COMPOSITE	X			X	X
42	08/29/01	900	08/29/01	1030	0.49	1.50	0.33	COMPOSITE				X	X
43	08/29/01	2230	08/30/01	100	0.31	2.50	0.12						
44	09/07/01	430	09/07/01	945	1.61	5.25	0.31	COMPOSITE	X	X	X	X	
45	09/09/01	1545	09/10/01	130	0.31	9.75	0.03	COMPOSITE	X				
46	09/20/01	1600	09/20/01	2045	0.21	4.75	0.04						
47	09/22/01	1045	09/23/01	715	1.63	20.50	0.08						
48	10/09/01	1730	10/10/01	830	0.19	15.00	0.01	COMPOSITE	X	X			X
49	10/13/01	115	10/13/01	1115	0.34	10.00	0.03	COMPOSITE	X	X	X	X	X
50	10/15/01	1430	10/15/01	1715	0.10	2.75	0.04	COMPOSITE			X		
51	11/12/01	2130	11/13/01	300	0.27	5.50	0.05	COMPOSITE			X	X	X
52	11/23/01	1945	11/24/01	1615	1.66	20.00	0.08						
			Totals:		29.83				14	12	12	11	13

Table 3. 2001 precipitation event data and samples collected for the NPDES sites. A precipitation event is defined as being greater than 0.10 inches and separated from other events by 8 hours. " + " is a snowmelt sample.

Parameter	Abbreviation	Units	Sample Type
BOD –Total, 5 Day (20°C)	BOD	mg/L	Composite
Cadmium, Total	Cd	µg/L	Composite
Chloride, Total	Cl	mg/L	Composite
Conductivity	Cond	µs	Grab-3rd Bottle
Copper, Total	Cu	µg/L	Composite
Fecal Coliform	FC	#/100mL	Grab -3rd Bottle
Lead, Total	Pb	µg/L	Composite
Nitrite+Nitrate, Total as N	NO2+NO3	mg/L	Composite
Ammonia, Un-ionized as N	NH3	mg/L	Composite
Kjeldahl Nitrogen, Total	TKN	mg/L	Composite
pH	pH	SU	Grab-3rd Bottle
Phosphorus, Dissolved	TDP	mg/L	Composite
Phosphorus, Total	TP	mg/L	Composite
Solids, Total Dissolved	TDS	mg/L	Composite
Solids, Total Suspended	TSS	mg/L	Composite
Zinc, Total	Zn	µg/L	Composite

Table 4. List of monitored parameters for the NPDES permit, 2001.

Notes:

- Conductivity and pH were measured in the field using an Oakton CON 100 Series Conductivity Meter and an Oakton Waterproof pHTestr 2.
- Fecal coliform, pH and conductivity grab samples were generally collected from the third composite bottle.
- Some samples were collected more than 24 hours after the storm event (Table 4). Fecal coliform samples were not collected for these events. BOD data for these events are unreliable since the BOD holding time is 24 hours.

Parameter	Method	MDL	Holding Times
BOD, 5 Day (20°C)	SM 5210 B	0.270 mg/L	24 hours
Cadmium, Total	EPA 200.9	0.280 µg/L	6 months
Chloride, Total	SM 4500-Cl^- B	0.42 mg/L	
Conductivity			28 days
Copper, Total	EPA 200.9	0.629 µg/L	6 months
Fecal Coliform	SM 9222D	<1 per 100ml	
Lead, Total	SM 3500-Pb B	0.354 µg/L	6 months
Nitrite+Nitrate, Total as N	SM 4500-NO_3 E	0.006 mg/L	28 days
Ammonia, Un-ionized as N	SM 4500-NH_3 F	0.030 mg/L	7 days
Kjeldahl Nitrogen, Total	SM 4500-Norg B	0.043 mg/L	7 days
pH			2 hours
Phosphorus, Dissolved	SM 4500-P A, B, G	0.002 mg/L	48 hours
Phosphorus, Total	SM 4500-P A, B, E	0.002 mg/L	48 hours
Solids, Total Dissolved	SM 2540 C	1.7 mg/L	7 days
Solids, Total Suspended	SM 2540 D	0.98 mg/L	7 days
Zinc, Total	SM 3500-Zn B	12 µg/L	6 months

Table 5. Analysis method, Minimum Detection Limit (MDL) and holding times for parameters used by contract laboratory, IRI.

Field Quality Assurance Samples

A number of quality assurance samples (10% of samples) were used during this project. The purpose of these samples was to ensure sample integrity. Blanks consisting of distilled-deionized water accompanied samples from the sites to the analytical laboratory. One blank was used for the five sites on each event for a complete analysis suite.

Equipment blanks (2-l L samples) were collected from Site 5 on 7/27/01. To collect the equipment blank, a large bottle of de-ionized water was placed at the end of the sampler's tygon tubing in the storm sewer. The intake line was flushed and pumped by pulling de-ionized water through the sampler, simulating the pre-sample flush. The flush water was back pumped to waste and then a sample of de-ionized water was collected. The samples taken (2-1 L samples) were of sufficient volume to allow for analysis of all parameters.

Data Handling, Validation and Reporting

Manual transcription of data was minimized to reduce the need for data validation. However, 10% of all manually transcribed data were checked for transcription errors. As no more than 10% of the checked data were found to be incorrect, all transcribed data was not checked.

Field measurements were recorded on the Field Measurement Form in the Field Log Book. All field measurements were entered into a computerized database. Hard copy and computerized data from the lab were forwarded to the Monitoring Manager* for review.

Computerized data from the lab were checked and passed laboratory quality assurance procedures, and they were not checked further unless manual data was needed.

Data approaching the extremes of the range were reviewed by the Monitoring Manager for consistency. Ultimate responsibility for flagging data was jointly shared among the Monitoring Manager, the Field Coordinator and the Laboratory Quality Assurance Coordinator**. The Laboratory Quality Assurance Coordinator was responsible for verifying inconsistent data within the laboratory. Data considered inconsistent were those data values exceeding three times the standard deviation.

The Monitoring Manager reviewed computerized data received from the analytical laboratory for completeness. These data were used to prepare storm event reports. For data reported below the minimum detection limit (MDL), the MDL value was divided in half and then used for all calculations.

A Chain of Custody Form accompanied each set of sample bottles delivered to the lab. Each tray was labeled indicating the date and time of collection, site location and the field personnel's initials. The time each bottle was collected was recorded from the ISCO sampler and onto field sheets.

A complete description of methods can be found in the Storm Water Monitoring Program Manual (MPRB, 2001). Results of this season's monitoring can be found in the following results section. Statistics for event mean concentrations were calculated using Microsoft Excel spreadsheets. FLUX and P8 were used to calculate flow-weighted mean concentrations and snowmelt runoffs respectively.

A description of FLUX as described in the FLUX manual (Walker 1996):

> "FLUX is an interactive program designed for use in estimating the loadings of nutrients or other water quality components passing a tributary sampling station over a given period of time. These estimates can be used in formulating reservoir nutrient balances over annual or seasonal averaging periods appropriate for application of empirical eutrophication models.
>
> Using six calculation techniques, FLUX maps the flow/concentration relationship developed from the sample record onto the entire flow record to calculate total mass discharge and associated error statistics. In many cases, stratifying the data increases the accuracy and precision of loading estimates."

A description of P8 as described in the software's introduction:

> "P8 is a model for predicting the generation and transport of stormwater runoff pollutants in small urban catchments…
>
> Simulations are driven by hourly rainfall and daily air-temperature time series…"

*Titles defined in the Storm Water Monitoring Program Manual (MPRB, 2001). Jeff Lee is the Monitoring Manager.

**The Field Coordinator was originally Mike Perniel as defined by the Storm Water Monitoring Program Manual (MPRB, 2001), but that responsibility was taken over by Amanda Janet. Sue Melchior of IRI is the Laboratory Quality Assurance Coordinator.

NPDES Results

Event mean concentrations are listed in Table 6. Table 7 lists the mean, median, maximum, minimum, and standard deviations for all measured parameters. The pollutant loads were often larger for events that occurred after a long dry period as seen for TP at Site 2 and Site 5 on 7/17/01. Typically, maximums for each parameter were reached during early spring and fall. This was probably due to snowmelt accumulations and leaf litter, respectively. The highest fecal coliform sampled was 5,230,000/100ml at Site 1, which was also from the 7/17/01 event. The 6/11/01 storm event had an intensity of 2.76 in/hr, the highest for the 5/1/01-11/13/01 sampling period. This sampled event also had the highest TKN and Pb values (sampled at Site 1) for all 5 sites and the highest TSS for Site 1. Samples collected for the storm event on 10/13/01 had the lowest Zinc levels.

Sampled data was fairly comparable to typical urban storm water data (Tables 8 and 9). Total phosphorus was slightly higher when compared to Nationwide Urban Runoff Program (NURP) data, but was more comparable to data from Bannerman *et al.* (1992) (the study area for Bannerman's data was nearly 100 percent residential and is reported as the geometric mean). Site 1 had a slightly larger mean TKN, and all sites had larger median TKN values when compared to NURP data. Both NO3NO2 and TDP had lower mean concentrations than reported in Tables 8 and 9 while the sampled BOD and TSS data were comparable. The metals data are most correlated to Bannerman's reported levels. When compared to the NURP data, mean metal levels were all below the reported average. The all land use category average concentrations from Table 7 were closely related to or less than the City of Minneapolis Public Works Department and City of St. Paul reported average concentrations in Table 9.

Site ID	Date	Sample Start Time	Sample End Time	Collection Date	Collection Time	Sample Type	Peak Discharge (cfs)	TP mg/L	TDP mg/L	TKN mg/L	NO3NO2 mg/L	NH3 mg/L	Cl mg/L	pH units	Specific Conductivity, µs	BOD mg/L	TSS mg/L	TDS mg/L	Fecal Coli col/100ml	Cd ug/L	Cu ug/L	Pb ug/L	Zn ug/L
1	*10/13/01	651	1145	10/15/01	1300	composite	1.52	0.763	0.612	1.38	<0.030	<0.100	5.80	6.63	138.5	**50.7	21	155	N/C	<0.500	9.82	9.80	33.0
1	10/10/01	327	635	10/10/01	1330	composite	3.74	1.01	0.598	2.83	0.031	<0.100	<2.00	6.54	177	100	44	244	140000	<0.500	17.9	8.90	67.0
1	9/9/01	1505	1835	9/10/01	1500	composite	32.78	0.295	0.071	3.06	0.291	0.259	<2.00	6.27	35.5	4.30	195	30	30100	<0.500	22.4	51.0	143
1	9/7/01	439	927	9/7/01	1445	composite	62.24	0.355	0.079	3.28	0.300	0.377	<2.00	6.77	29.2	7.00	119	33	9400	<0.500	12.3	37.9	111
1	*8/17-8/18/01	2151	903	8/20/01	1100	composite	22.42	0.440	0.272	1.77	0.357	0.340	<2.00	6.95	65.0	**4.00	71	57	N/C	<0.500	13.5	28.0	115
1	7/22/01	656	826	7/23/01	1325	composite	37.8	0.670	0.187	3.35	0.410	0.446	<2.00	6.45	53.0	**6.00	206	56	290000	<0.500	10.1	22.6	89.0
1	7/17/01	310	342	7/17/01	1345	composite	37.46	0.993	0.215	4.19	0.106	1.13	3.00	5.91	89.0	23.0	272	129	5230000	<0.500	42.9	88.6	372
1	6/11/01	1716	1948	6/12/01	1015	composite	57.89	1.11	0.104	8.48	0.270	0.573	<5.00	5.80	51.7	10.0	379	79	134	<0.500	29.5	102	387
1	5/10/01	1429	1605	5/11/01	1110	composite	2.74	0.690	0.155	3.44	0.656	0.825	<5.00	6.32	151	15.5	113	98	26100		<1.50	33.2	102
1	5/6/01	1829	2049	5/7/01	1300	composite	38.72	0.630	0.120	2.65	0.270	0.615	<5.00	6.84	50.1	9.00	300	48	33300		<1.50	70.8	99.5
1	4/11/01	840	N/A	4/11/01	840	grab	N/A	0.323	0.068	1.75	0.352	0.570	<5.00	6.50	99.0	6.00	105	61	18500	<0.500	13.4	16.6	88.0
1	3/15/01	N/A	N/A	3/15/01	1140	grab	N/A	0.570	0.203	5.07	0.607	1.26	845	6.64	3200	10.0	129	1540	720	0.568	28.5	27.0	360
1	3/9/01	N/A	N/A	3/9/01	N/C	grab	N/A	1.81	0.287	4.09	0.509	1.35	985	7.01	N/C	19.0	370	1910	N/C	1.16	103	47.5	812
1	1/30/01	N/A	N/A	1/30/01	N/C	grab	N/A	0.872	0.163	5.67	1.68	2.99	4880	6.85	N/C	18.5	256	8200	N/C	2.11	94.9	16.8	489
2	*10/13/01	518	1302	10/15/01	950	composite	2.45	0.651	0.034	0.938	0.0310	<0.100	2.30	6.64	83.3	**28.7	16	82	N/C	<0.500	6.30	5.20	13.0
2	10/10/01	400	546	10/10/01	1000	composite	0.816	1.79	1.18	2.38	<0.030	<0.100	<2.00	6.10	221	131	55	339	123000	<0.500	17.5	6.30	65.5
2	9/7/01	534	1024	9/7/01	1030	composite	16.38	0.350	0.215	1.91	0.447	0.408	<2.00	6.93	39.2	5.70	115	77	31000	<0.500	7.28	20.4	49.0
2	8/1/01	306	1238	8/1/01	1305	composite	54.74	0.453	0.071	2.40	0.348	<0.100	<2.00	6.05	47.0	5.65	212	52	67500	<0.500	9.15	13.3	108
2	7/22/01	815	948	7/23/01	930	composite	13.41	0.498	0.132	2.44	0.592	0.609	<2.00	6.58	56.0	6.00	44	69	161000	<0.500	5.00	<5.00	228
2	7/17/01	358	545	7/17/01	930	composite	19.55	1.68	0.132	4.06	0.101	0.817	5.50	5.61	97.0	19.0	257	110	100000	<0.500	25.8	27.4	228
2	6/5/01	247	831	6/5/01	930	composite	4.41	0.336	0.140	1.85	0.225	0.563	18.3	6.69	209	5.00	18	135	<1.00	1.17	7.11	<5.00	73.0
2	5/20-5/21/2001	1604	143	5/21/01	930	composite	2.08	0.467	0.172	5.38	0.774	0.746	<5.00	6.51	132	12.5	40	84	11,400		7.35	<5.00	77.0
2	5/6/01	1929	2247	5/7/01	915	composite	32.35	0.572	0.108	3.61	0.161	0.500	<5.00	6.22	70.8	13.0	631	63	16700		3.10	12.1	188
2	5/1/01	1801	1823	5/2/01	1040	composite	18.52	1.48	0.175	4.70	0.171	2.32	<5.00	7.60	172	29.5	639	118	1380		2.95	34.4	180
2	4/11/01	N/A	N/A	4/11/01	1000	grab	N/A	0.327	0.089	0.671	0.238	0.224	<5.00	6.40	72.0	3.00	30	47	195	<0.500	6.96	<5.00	28.0
2	3/15/01	N/A	N/A	3/15/01	1300	grab	N/A	0.370	0.188	2.38	0.498	0.472	590	6.87	1490	7.00	110	1080	50.0	1.15	35.3	49.3	479
3	11/12-11/13/01	2235	1051	11/13/01	1130	composite	4.31	0.243	0.040	2.53	1.56	1.75	7.80	6.64	110	8.90	70	106	1360	2.11	18.6	11.8	342
3	10/14/01	1529	1733	10/15/01	1100	composite	1.36	0.296	0.035	1.80	0.490	0.118	<2.00	7.25	126	9.60	20	77	13000	<0.500	9.71	<5.00	76.0
3	*10/13/01	549	1553	10/15/01	1100	composite	3.93	0.556	0.052	0.303	0.403	<0.100	<2.00	6.14	52.3	**5.00	3	28	N/C	<0.500	9.47	<5.00	23.0
3	9/7/01	819	1113	9/7/01	1145	composite	38.49	0.140	0.023	1.44	0.406	0.402	6.50	6.94	71.9	6.50	42	128	6800	<0.500	8.05	7.99	77.0
3	8/1/01	829	1312	8/1/01	1420	composite	15.81	0.268	0.016	2.03	0.675	0.218	<2.00	6.11	73.0	9.00	143	85	20000	<0.500	15.2	12.5	328
3	7/22/01	752	820	7/23/01	1040	composite	18.91	0.515	0.018	3.75	0.502	0.985	5.50	6.72	76.0	**15.0	196	67	4000	<0.500	12.7	11.0	182
3	7/17/01	328	917	7/17/01	1050	composite	26.56	0.268	0.034	2.59	0.999	0.545	5.00	5.95	95.0	12.0	90	133	25000	0.791	30.7	9.37	229
3	6/5/01	242	959	6/5/01	1100	composite	3.89	0.158	0.040	1.20	0.324	<0.500	6.00	6.57	107	18.0	25	63	1350	3.54	12.5	6.60	191
3	5/21-5/22/2001	2058	1010	5/22/01	1100	composite	3.08	0.047	0.003	1.50	0.340	<0.500	<5.00	6.94	86.3	9.00	13	52	1,500		21.0	5.16	101
3	5/20-5/21/2001	1518	728	5/21/01	1045	composite	4.36	0.079	0.020	2.07	0.769	<0.500	<5.00	6.23	109	14.0	24	54	3,950		7.50	5.50	117
3	4/11/01	N/A	N/A	4/11/01	1040	grab	N/A	0.211	0.064	0.600	0.256	0.252	<5.00	6.50	68.0	3.00	89	50	200	<0.500	13.0	13.5	97.0
3	3/15/01	N/A	N/A	3/15/01	1330	grab	N/A	0.815	0.174	3.53	0.387	0.536	335	7.26	2820	16.0	265	681	220	0.606	5.00	10.5	127

Table 6. (continued on next page) NPDES sampled event data by site.

Notes: Questionable data is underlined, "" data was collected >48 hours after the event, "**" data was collected past the parameter's holding time, blocked out data is considered unusable by Qa/Qc standards, N/A= Not applicable, N/C= Not collected.*

Site ID	Date	Sample Start Time	Sample End Time	Collection Date	Collection Time	Sample Type	Peak Discharge (cfs)	TP mg/L	TDP mg/L	TKN mg/L	NO3NO2 mg/L	NH3 mg/L	Cl mg/L	pH units	Specific Conductivity, µs	BOD mg/L	TSS mg/L	TDS mg/L	Fecal Coli col/100ml	Cd ug/L	Cu ug/L	Pb ug/L	Zn ug/L
4	11/12-11/13/01	2246	128	11/13/01	1100	composite	2.14	0.862	0.125	4.17	<0.030	1.40	10.4	6.30	148	61.6	90	183	6200	1.01	34.7	16.0	293
4	*10/13/01	456	1424	10/15/01	1030	composite	4.03	0.200	0.0670	0.844	0.031	0.075	<2.00	6.54	58.5	**6.40	20	<10.0	N/C	<5.00	13.6	10.7	32.0
4	9/7/01	534	1032	9/7/01	1110	composite	16.33	0.295	0.0700	2.38	0.411	0.540	2.00	6.78	43.3	11.9	89	85	47900	<5.00	17.2	22.9	137
4	8/29/01	952	1044	8/29/01	1320	composite	2.4	0.527	0.344	3.06	1.15	1.25	<2.00	6.24	112	29.1	65	179	5500	0.605	30.8	32.8	370
4	*8/17-8/18/01	2225	1645	8/20/01	915	composite	17.13	0.203	0.0710	1.31	0.341	0.335	<2.00	6.47	61.0	**2.00	56	52	N/C	<5.00	12.6	22.6	116
4	6/5/01	236	812	6/5/01	1030	composite	4.5	0.349	0.0710	1.44	0.247	<0.500	<5.00	6.11	69.7	26.0	94	46	700	0.897	25.2	29.1	264
4	5/20-5/21/2001	1528	156	5/21/01	1000	composite	2.45	0.537	0.0430	4.12	0.563	0.674	<5.00	6.41	141	40.0	81	88	175,000		20.3	31.5	234
4	5/10/01	1410	1918	5/11/01	1000	composite	3.13	0.497	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	143	N/C	1850	N/C	N/C	N/C	N/C
4	5/6/01	232	2216	5/7/01	1030	composite	34.68	0.486	0.0360	1.59	0.294	0.522	<5.00	6.58	63.8	22.0	191	63	3680		2.00	86.0	177
4	4/11/01	N/A	N/A	4/11/01	1025	grab	N/A	0.257	0.0430	0.971	0.262	0.277	<5.00	6.40	85.0	6.00	76	58	9100	<5.00	17.1	29.1	100
4	3/15/01	N/A	N/A	3/15/01	1400	grab	N/A	0.907	0.197	2.25	0.543	0.279	310	7.09	2580	11.0	326	726	10.0	0.789	47.3	68.8	488
5	11/12-11/13/01	2315	451	11/13/01	1320	composite	9.83	0.569	0.082	4.11	0.168	0.943	10.0	6.25	103	46.3	90	116	1900	4.70	25.8	16.0	292
5	*10/13/01	635	1351	10/15/01	1145	composite	2.76	0.261	0.139	0.859	<0.030	0.365	2.80	6.76	75.6	**14.9	19	45	N/C	<5.00	10.3	11.1	43.0
5	10/10/01	303	743	10/10/01	1235	composite	44.7	0.354	0.067	0.741	0.243	0.123	<2.00	6.56	51.4	16.4	65	50	55700	<5.00	18.6	17.8	98.0
5	8/29/01	939	1111	8/29/01	1400	composite	13.12	0.416	0.133	2.96	1.10	0.992	<2.00	6.39	96.0	13.8	93	125	15800	0.613	30.6	36.5	454
5	*8/17-8/18/01	2225	1721	8/20/01	1020	composite	21.9	0.132	0.065	0.782	0.304	0.142	<2.00	6.75	55.0	**3.00	36	52	N/C	<5.00	12.1	11.9	130
5	7/22/01	751	957	7/23/01	1145	composite	65.23	0.479	0.040	1.47	0.107	0.265	<2.00	6.36	43.0	**12.0	91	64	400500	<5.00	10.8	17.9	588
5	7/17/01	329	543	7/17/01	1300	composite	22.03	1.10	0.040	3.38	0.141	1.79	5.00	6.09	110	31.0	174	112	2950000	<5.00	48.6	69.6	588
5	6/5/01	249	827	6/5/01	1245	composite	4.79	0.284	0.040	4.97	0.247	<0.500	<5.00	5.89	70.5	19.0	36	45	180	1.26	11.1	6.58	130
5	5/21-5/22/2001	2105	1135	5/22/01	1135	composite	7.68	0.197	0.027	1.62	0.242	<0.500	<5.00	6.51	66.0	10.0	38	38	15500		5.70	8.50	125
5	5/20/01	1511	2335	5/21/01	1130	composite	20.7	0.367	0.057	2.96	0.475	0.731	<5.00	6.34	92.6	12.0	72	69	436,000		14.5	19.9	203
5	4/11/01	N/A	N/A	4/11/01	925	grab	N/A	0.255	0.235	1.44	0.243	0.305	<5.00	6.70	118	5.00	87	54	635	<5.00	16.4	24.6	113
5	3/15/01	N/A	N/A	3/15/01	1500	grab	N/A	0.616	0.188	3.72	0.364	0.556	300	7.20	2180	18.0	197	702	115	1.42	53.8	48.1	480
5	3/9/01	N/A	N/A	3/9/01	N/C	grab	N/A	1.05	0.075	3.94	0.326	0.929	885	8.12	N/C	39.0	406	1660	85	2.00	120	69.8	1090

Table 6. NPDES sampled event data by site.

Notes: Questionable data is underlined, "" data was collected >48 hours after the event, "**" data was collected past the parameter's holding time, blocked out data is considered unusable by Qa/Qc standards, N/A= Not applicable, N/C= Not collected.*

Site ID	Statistical Function	TP mg/L	TDP mg/L	TKN mg/L	NO3NO2 mg/L	NH3 mg/L	Cl mg/L	pH units	Specific Conductivity, µs	BOD mg/L	TSS mg/L	TDS mg/L	Fecal Coli col/100ml	Cd ug/L	Cu ug/L	Pb ug/L	Zn ug/L
1	MEAN (geometric)	0.665	0.176	3.26	0.257	0.481	7.74	6.52	99.7	12.6	142	162	24900	0.363	14.5	31.1	159
1	MEAN (arithmetic)	0.752	0.224	3.64	0.418	0.774	481	6.53	345	20.2	184	903	578000	0.507	28.5	40.0	233
1	MEDIAN	0.680	0.175	3.315	0.326	0.572	2.50	6.59	77.0	10.0	162	88	28100	0.250	15.7	30.6	113
1	MAXIMUM	1.81	0.612	8.48	1.68	2.99	4880	7.01	3200	100	379	8200	5230000	2.11	103	102	812
1	MINIMUM	0.295	0.068	1.38	0.015	0.050	1.00	5.80	29.2	4.00	21	30	134	0.250	0.750	8.90	33.0
1	STAN. DEV.	0.400	0.176	1.85	0.409	0.759	2030	0.363	900	26.0	117	2183	1640000	0.572	31.9	29.1	222
2	MEAN (geometric)	0.607	0.144	2.34	0.192	0.323	3.63	6.50	117	11.7	89	111	4090	0.352	8.32	8.72	95.8
2	MEAN (arithmetic)	0.749	0.219	2.73	0.300	0.567	52.5	6.52	224	22.1	181	188	46600	0.453	11.1	14.9	143
2	MEDIAN	0.483	0.136	2.39	0.232	0.486	2.50	6.55	90.2	9.75	82	83	16700	0.250	7.19	9.18	92.5
2	MAXIMUM	1.79	1.18	5.38	0.774	2.32	590	7.60	1490	131	639	1080	161000	1.17	35.3	49.3	479
2	MINIMUM	0.327	0.034	0.671	0.015	0.050	1.00	5.61	39.2	3.00	16	47	0.500	0.250	2.95	2.50	13.0
2	STAN. DEV.	0.558	0.306	1.44	0.236	0.612	169	0.51	403	35.3	225	292	57600	0.402	9.98	15.2	130
3	MEAN (geometric)	0.229	0.030	1.61	0.516	0.317	4.33	6.59	115	9.42	46	85	2810	0.494	12.2	7.22	127
3	MEAN (arithmetic)	0.300	0.043	1.94	0.593	0.467	31.4	6.60	316	10.5	82	127	7030	0.855	13.61	8.24	157
3	MEDIAN	0.256	0.035	1.92	0.448	0.251	3.75	6.60	90.7	9.30	56	72	3950	0.250	12.6	8.68	122
3	MAXIMUM	0.815	0.174	3.75	1.56	1.75	335	7.26	2820	18.0	265	681	25000	3.54	30.7	13.5	342
3	MINIMUM	0.047	0.003	0.303	0.256	0.050	1.00	5.95	52.3	3.00	3	28	200	0.250	5.00	2.50	23.0
3	STAN. DEV.	0.223	0.044	1.05	0.372	0.474	95.7	0.439	789	4.59	82	177	8570	1.11	7.07	3.79	100
4	MEAN (geometric)	0.412	0.082	1.92	0.231	0.418	3.47	6.49	113	14.5	90	77	3680	0.450	17.4	29.3	177
4	MEAN (arithmetic)	0.465	0.107	2.21	0.386	0.561	33.5	6.49	336	21.6	112	148	27800	0.538	22.1	34.9	221
4	MEDIAN	0.486	0.071	1.92	0.318	0.429	2.50	6.44	77.4	17.0	89	74	5500	0.428	18.8	29.1	206
4	MAXIMUM	0.907	0.344	4.17	1.15	1.40	310	7.09	2580	61.6	326	726	175000	1.01	47.3	86.0	488
4	MINIMUM	0.200	0.036	0.844	0.015	0.075	1.00	6.11	43.3	2.00	20	5	10.0	0.250	2.00	10.7	32.0
4	STAN. DEV.	0.242	0.096	1.22	0.324	0.440	97	0.281	789	18.5	84	211	57200	0.328	12.9	23.8	138
5	MEAN (geometric)	0.392	0.074	2.10	0.218	0.436	5.07	6.59	101	14.6	78	99	8410	0.580	20.2	21.0	229
5	MEAN (arithmetic)	0.468	0.091	2.54	0.306	0.588	93.6	6.61	255	18.5	108	241	353000	1.04	29.1	27.6	333
5	MEDIAN	0.367	0.067	2.96	0.243	0.365	2.50	6.51	84.1	14.9	87	64	15500	0.250	16.4	17.9	203
5	MAXIMUM	1.10	0.235	4.97	1.10	1.79	885	8.12	2180	46.3	406	1660	2950000	4.70	120	69.8	1090
5	MINIMUM	0.132	0.027	0.741	0.015	0.123	1.00	5.89	43.0	3.00	19	38	85.0	0.250	5.70	6.58	43.0
5	STAN. DEV.	0.304	0.064	1.45	0.265	0.480	252	0.563	607	12.8	104	462	877000	1.36	31.0	21.9	299
All	MEAN (geometric)	0.437	0.087	2.22	0.264	0.392	4.77	6.54	109	12.4	85	106	6110	0.441	13.9	16.6	151
All	MEAN (arithmetic)	0.553	0.140	2.66	0.400	0.598	152	6.55	294	18.5	135	345	202000	0.690	21.2	25.3	220
All	MEDIAN	0.460	0.079	2.40	0.326	0.446	2.50	6.54	85.7	12.0	90	77	9250	0.250	13.5	16.8	130
All	MAXIMUM	1.81	1.18	8.48	1.68	2.99	4880	8.12	3200	131	639	8200	5230000	4.70	120	102	1090
All	MINIMUM	0.047	0.003	0.303	0.015	0.050	1.00	5.61	29.2	2.00	3.30	5.00	0.500	0.250	0.750	2.50	13.0
All	STAN. DEV.	0.399	0.179	1.53	0.336	0.566	652	0.434	693	21.9	135	1095	822000	0.879	22.9	23.6	203

Table 7. Event mean concentration statistics for the year 2001. "All" is a composite of all 5 sites. STAN. DEV.= standard deviation.

Parameter	Residential		Mixed		Commercial		Composite of all land use categories	
	MPRB[1]	NURP	MPRB[2]	NURP	MPRB[3]	NURP	MPRB[4]	NURP
TP (mg/L)	0.601	0.383	0.367	0.263	0.486	0.201	0.46	0.33
TKN (mg/L)	2.95	1.9	2.96	1.288	1.92	1.179	2.4	1.5
NO3NO2 (mg/L)	0.296	0.736	0.243	0.558	0.318	0.572	0.326	0.68
BOD (mg/L)	10	10	14.9	7.8	17	9.3	12	9
TSS (mg/L)	117	101	87	67	89	69	90	100
Cu (µg/L)	11.2	33	16.4	27	18.8	29	13.5	30
Pb (µg/L)	21.5	144	17.9	114	29.1	104	16.8	140
Zn (µg/L)	109	135	203	154	206	226	130	160

Table 8. NURP = Typical median event mean concentrations found in urban storm water as reported by the Nationwide Urban Runoff Program (USEPA, 1996). MPRB = Median values calculated by the Minneapolis Parks & Recreation Board for the year 2001. [1] calculated from Site 1 and 2 data, [2] calculated from Site 5 data, [3] calculated from Site 4 data, [4] calculated from Sites 1-5.

Parameter	NURP[1]	Maryland[2]	Bannerman *et al.*[3]	Mpls PW[4]	St. Paul[5]
TP (mg/L)	0.5	0.3	0.66	0.417	0.484
TDP (mg/L)	--	--	0.27	0.251	--
TKN (mg/L)	2.3	--	--	--	2.46
NO3NO2 (mg/L)	0.86	--	--	--	0.362
NH3 (mg/L)	--	--	--	0.234	--
Cl (mg/L)	--	230	--	--	--
BOD (mg/L)	12	--	--	14.9	25
TDS (mg/L)	--	--	--	73.3	78
TSS (mg/L)	239	80	262	77.6	129.2
Fecal Coliform/100 ml	--	3600	--	--	--
Cd (µg/L)	--	2	0.4	--	10
Cu (µg/L)	50	10	16	26.7	30
Pb (µg/L)	240	18	32	75.5	233
Zn (µg/L)	350	140	204	148	194

Table 9. Typical average concentrations for urban storm water. " -- " = not reported. [1] from USEPA (1996), [2] from CWP (1997), [3] from the Monroe study area of Bannerman *et al.* (1992), [4] from City of Minneapolis Public Works Department (1992)- average from a combination of all land uses, [5] from City of St. Paul 1994 stormwater data- average from a combination of land uses.

All flow weighted mean concentrations were calculated using the model FLUX (Table 10). FLUX calculates total mass discharge and associated error statistics based on six different calculation methods. Calculation methods 1-Direct Mean Loading and 5-Regression, Second-Order (Walker 1987) were ignored because they are inappropriate for storm sewer applications where the daily flow file contains a significant number of zero flows (Bruce Wilson, personal communication, 2001). Sample concentrations and associated daily average flows were used as input for these calculations. In order to achieve the most accurate and precise results, the data was often stratified by flow or by seasons (Table 11). Flow weighted mean concentrations were comparable to values in Tables 8 and 9.

The model P8 was used to calculate daily flows for the snowmelt events during January through April. Daily temperature and hourly precipitation files obtained from the National Oceanic and Atmospheric Administration (NOAA) National Data Center (NNDC) were used as input for P8.

Event mean concentration seasonal statistics for a combination of all sites were calculated and are listed in Table 12.

	TP (mg/L)		TDP (mg/L)		TKN (mg/L)		NO3NO2 (mg/L)		NH3 (mg/L)		CL (mg/L)		BOD (mg/L)	
Site	FWMC	CV	FWMC	CV	FWMC	CV	FWMC	CV	FWMC	CV	FWMC	CV	FWMC	CV
1	0.541	0.147	0.159	0.168	3.09	0.175	0.358	0.119	0.587	0.132	150	0.885	10.3	0.143
2	0.652	0.15	0.179	0.181	2.28	0.289	0.373	0.159	0.479	0.286	7.81	0.602	12.5	0.257
3	0.255	0.153	0.0488	0.221	1.72	0.199	0.608	0.14	0.388	0.175	12.4	0.703	8.70	0.111
4	0.377	0.115	0.0889	0.118	2.19	0.062	0.357	0.118	0.585	0.117	3.54	0.397	16.4	0.233
5	0.525	0.108	0.0859	0.256	1.77	0.148	0.296	0.186	0.43	0.187	13.3	0.819	12.8	0.111
MEAN	**0.470**	**0.135**	**0.112**	**0.189**	**2.21**	**0.175**	**0.398**	**0.144**	**0.494**	**0.179**	**37.41**	**0.681**	**12.1**	**0.171**
MEDIAN	**0.525**	**0.147**	**0.0889**	**0.181**	**2.19**	**0.175**	**0.358**	**0.140**	**0.479**	**0.175**	**12.36**	**0.703**	**12.5**	**0.143**
SD	**0.155**	**0.0213**	**0.0546**	**0.0526**	**0.552**	**0.0823**	**0.121**	**0.0287**	**0.0901**	**0.0663**	**63.06**	**0.192**	**2.93**	**0.0693**

	TSS (mg/L)		TDS (mg/L)		Cd (µ/L)		Cu (µ/L)		Pb (µ/L)		Zn (µ/L)	
Site	FWMC	CV	FWMC	CV	FWMC	CV	FWMC	CV	FWMC	CV	FWMC	CV
1	163	0.228	1074	0.688	0.290	0.114	16.2	0.190	37.9	0.301	153	0.188
2	140	0.522	122	0.376	0.360	0.208	8.91	0.216	12.3	0.354	104	0.325
3	86	0.258	115	0.351	0.710	0.255	14.0	0.163	9.39	0.145	151	0.122
4	97	0.204	131	0.292	0.500	0.155	19.1	0.166	36.3	0.227	176	0.109
5	92	0.168	89	0.305	0.800	0.0920	17.2	0.135	20.7	0.138	314	0.232
MEAN	**116**	**0.276**	**306**	**0.402**	**0.532**	**0.165**	**15.1**	**0.174**	**23.3**	**0.233**	**180**	**0.195**
MEDIAN	**97**	**0.228**	**122**	**0.351**	**0.500**	**0.155**	**16.2**	**0.166**	**20.7**	**0.227**	**153**	**0.188**
SD	**34**	**0.141**	**429**	**0.163**	**0.219**	**0.0670**	**3.91**	**0.0305**	**13.3**	**0.0950**	**79.5**	**0.0881**

Table 10. Flow Weighted Mean Concentration (ppb) and related statistics for NPDES parameters in 2001. FWMC= Flow Weighted Mean Concentration, CV= Coefficient of Variance. SD= standard deviation.

Site	Stratification (strata 1)	TP	TDP	TKN	NO3NO2	NH3	Cl	BOD	TSS	TDS	Cd	Cu	Pb	Zn
1	flow	0.35	--	0.3	0.3	0.25	--	0.2	0.5	--	0.65	--	--	--
	season	--	--	--	--	--	--	--	--	--	--	--	--	1/1/01-4/1/01
2	flow	0.2	0.25	0.2	--	0.2	0.3	--	--	--	0.4	--	0.35	0.3
	season	--	--	--	1/1/01-9/1/01	--	--	--	--	--	--	--	--	--
3	flow	0.4	--	0.2	0.2	--	0.28	0.6	0.3	0.4	0.2	--	0.3	0.2
	season	--	--	--	--	1/1/01-10/14/01	--	--	--	--	--	--	--	--
4	flow	--	0.3	0.3	0.26	0.25	0.4	0.3	--	0.3	0.5	0.25	0.25	0.25
	season	--	--	--	--	--	--	--	--	--	--	--	--	--
5	flow	--	--	0.5	0.6	0.25	--	0.2	--	0.45	0.3	0.15	0.25	0.5
	season	--	--	--	--	--	--	--	1/1/01-5/1/01	--	--	--	--	--

Table 11. Stratification schemes used for NPDES parameters in 2001.

Season	Statistical Method	TP mg/L	TDP mg/L	TKN mg/L	NO3NO2 mg/L	NH3 mg/L	Cl mg/L	pH units	Specific Conductivity	BOD mg/L	TSS mg/L	TDS mg/L	Fecal Coli col/100ml	Cd ug/L	Cu ug/L	Pb ug/L	Zn ug/L
Snowmelt (1/1/01-4/15/01)	MEAN (geometric)	0.525	0.131	2.22	0.408	0.557	81.0	6.87	453	9.47	149	400	317	0.623	27.5	24.3	233
	MEAN (arithmetic)	0.645	0.152	2.77	0.482	0.769	703	6.89	1270	12.4	188	1290	2710	0.850	42.6	32.6	365
	MEDIAN	0.570	0.174	2.38	0.364	0.536	310	6.85	804	10.0	129	702	200	0.606	28.5	27.0	360
	MAXIMUM	1.81	0.287	5.67	1.68	2.99	4880	8.12	3200	39.0	406	8200	18500	2.11	120	69.8	1090
	MINIMUM	0.211	0.043	0.600	0.238	0.224	2.50	6.40	68.0	3.00	30	47	10	0.250	5.00	2.50	28.0
	STANDARD DEVIATION	0.451	0.076	1.68	0.379	0.765	1300	0.473	1320	9.93	124	2180	5880	0.668	39.2	22.0	321
Spring (4/16/01-5/31/01)	MEAN (geometric)	0.367	0.053	2.79	0.372	0.562	2.50	6.58	95.8	15.0	100	67	12200	N/A	4.61	16.9	137
	MEAN (arithmetic)	0.504	0.083	3.06	0.429	0.698	2.50	6.59	103	17.0	190	70	60500	N/A	7.81	28.1	146
	MEDIAN	0.492	0.057	2.96	0.340	0.615	2.50	6.51	92.6	13.0	97	63	13400	N/A	5.70	19.9	125
	MAXIMUM	1.48	0.175	5.38	0.774	2.32	2.50	7.60	172	40.0	639	118	436000	N/A	21.0	86.0	234
	MINIMUM	0.047	0.003	1.50	0.161	0.250	2.50	6.22	50.1	9.00	13	38	1380	N/A	0.75	2.50	77.0
	STANDARD DEVIATION	0.372	0.064	1.32	0.230	0.576	0.00	0.407	40.6	9.80	223	24	128000	N/A	7.47	27.7	52.0
Summer (6/1/01-8/31/01)	MEAN (geometric)	0.405	0.077	2.44	0.335	0.424	2.03	6.35	68.6	9.45	95	74	13000	0.380	15.5	18.5	186
	MEAN (arithmetic)	0.501	0.106	2.80	0.416	0.552	3.14	6.36	75.5	12.2	126	82	445000	0.547	18.6	27.9	231
	MEDIAN	0.386	0.071	2.52	0.333	0.405	1.00	6.37	70.1	9.50	94	68	20000	0.250	12.6	21.5	187
	MAXIMUM	1.68	0.344	8.48	1.15	1.79	18.3	6.95	209	31.0	379	179	5230000	3.54	48.6	102	588
	MINIMUM	0.132	0.016	0.782	0.101	0.050	1.00	5.61	29.2	2.00	18	30	1	0.250	5.00	2.50	49.0
	STANDARD DEVIATION	0.372	0.086	1.62	0.294	0.416	3.77	0.388	37.3	8.57	93	39	1270000	0.709	11.8	26.2	157
Fall (9/1/01-11/30/01)	MEAN (geometric)	0.512	0.117	1.48	0.072	0.160	2.36	6.52	101	24.0	31	79	15300	0.428	14.4	8.34	69.6
	MEAN (arithmetic)	0.630	0.252	1.91	0.251	0.419	3.76	6.53	112	39.9	43	119	48700	0.839	16.0	9.88	115
	MEDIAN	0.563	0.074	1.59	0.031	0.097	1.65	6.55	107	22.6	32	94	13000	0.250	15.6	10.3	66.3
	MAXIMUM	1.79	1.18	4.17	1.56	1.75	10.4	7.25	221	131	90	339	140000	4.70	34.7	17.8	342
	MINIMUM	0.200	0.034	0.303	0.015	0.050	1.00	6.10	51.4	5.00	3	5	1360	0.250	6.30	2.50	13.0
	STANDARD DEVIATION	0.451	0.358	1.31	0.444	0.602	3.72	0.313	52.8	40.4	30	97	59700	1.34	8.08	5.12	120

Table 12. Statistical summary for event mean concentrations by season. Statistics were calculated from all sites (1-5). N/A= lab data was unusable due to failure of performance standards.

Supporting Documents

Bannerman, R.T., D.W. Owens, R. Dodds, and P. Hughes. 1992. Sources of Pollutants in Wisconsin Stormwater. WI Dept. of Natural Resources, Madison, WI.

Center for Watershed Protection (CWP), Environmental Quality Resources and Loiederman Associates. 1997. Maryland Stormwater Design Manual. Draft. Prepared for: Maryland Department of the Environment. Baltimore, MD.

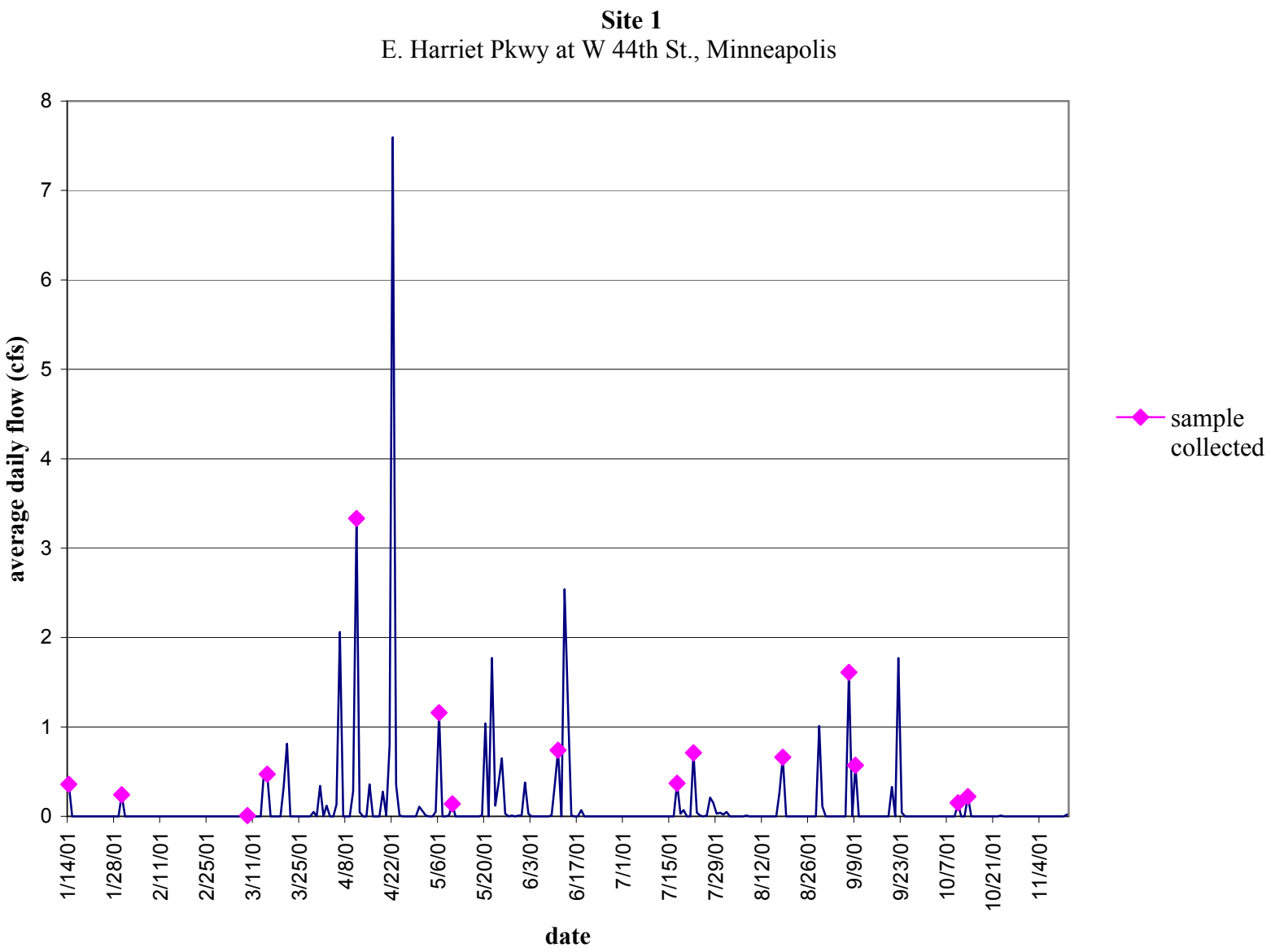
City of Minneapolis, Public Works Department. November 16, 1992. NPDES Permit Application for Discharges from Municipal Separate Storm Sewer Systems, Part 2. Minneapolis, MN.

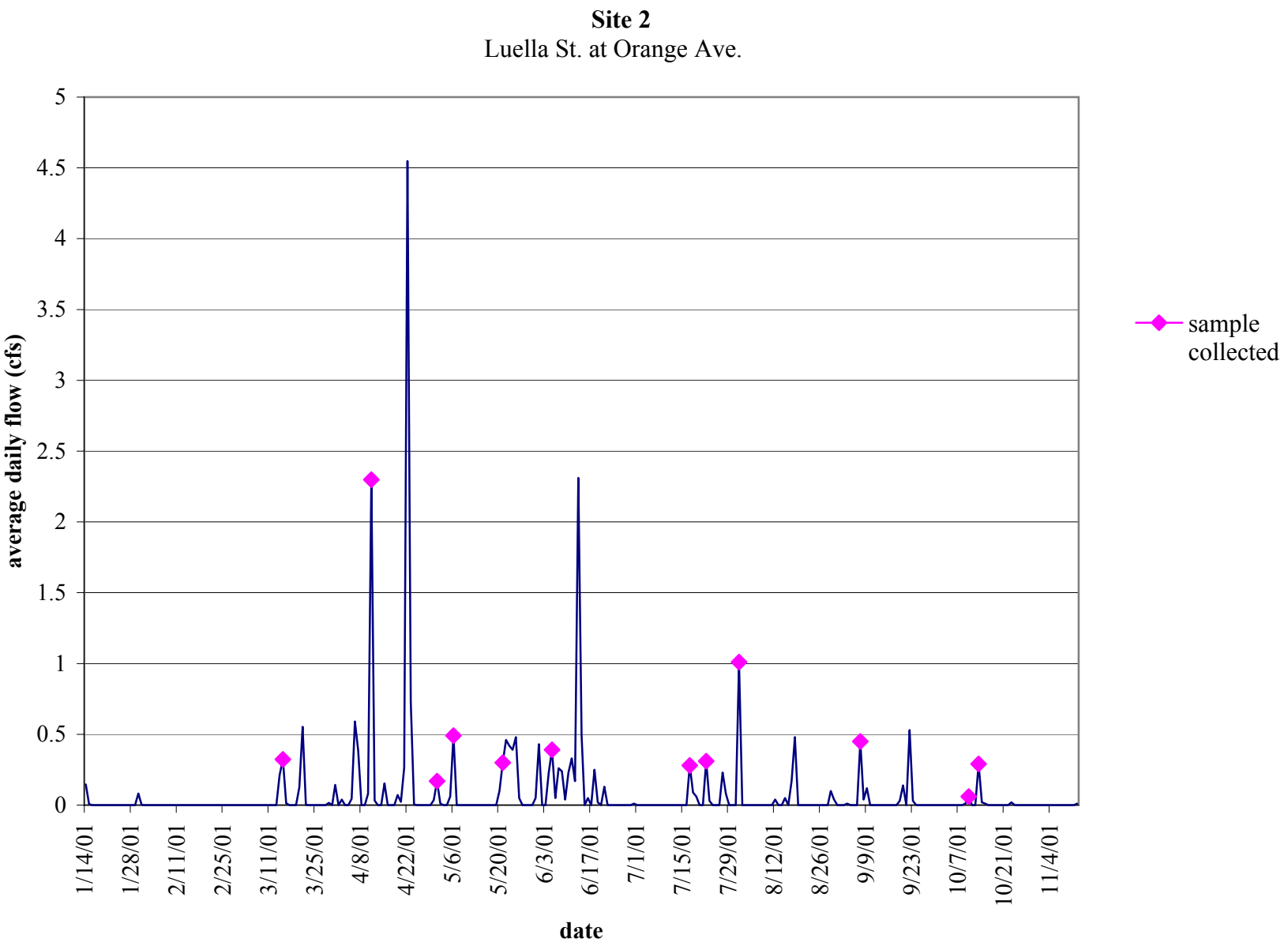
Minneapolis Park and Recreation Board, Environmental Operations Section. 2001. Storm Water Monitoring Program Manual. MPRB, Minneapolis.

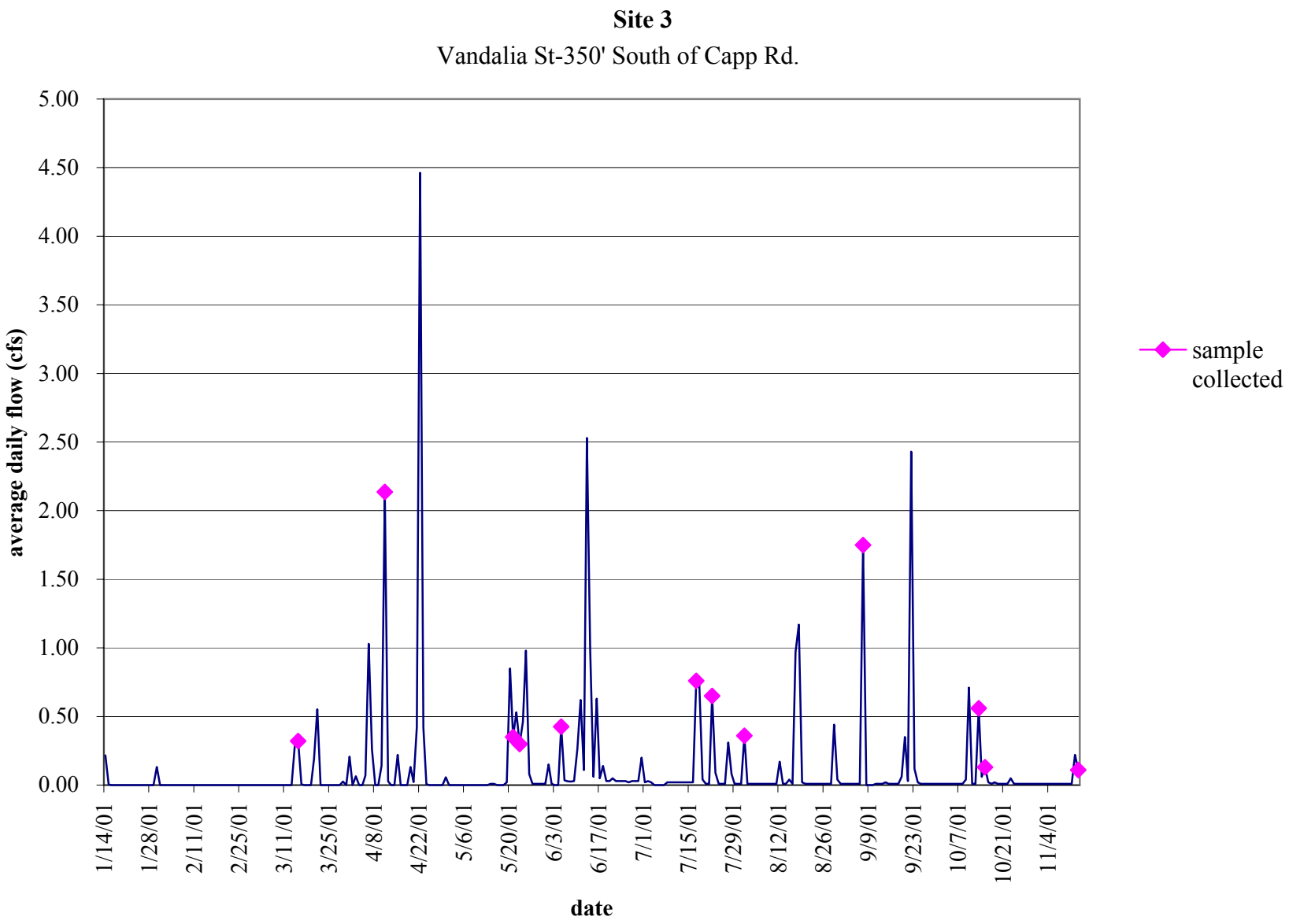
United States Environmental Protection Agency (USEPA). 1996. Protecting Natural Wetlands. A Guide to Stormwater Best Management Practices. EPA-843-B-96-001. Washington, D.C.

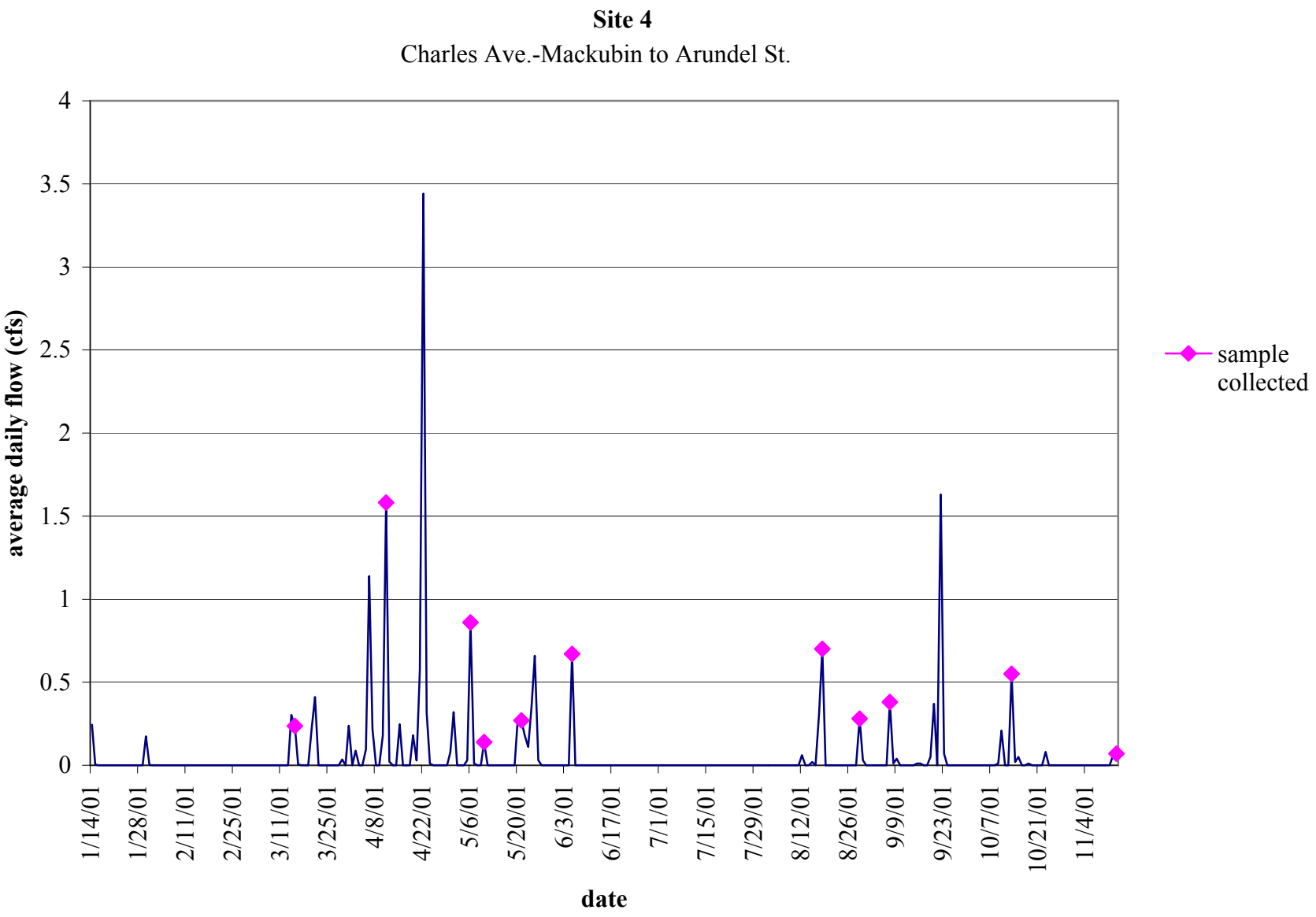
Walker, W. W., 1996. *Simplified Procedures for Eutrophication Assessment and Prediction: User Manual*. Instruction Report W-96-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

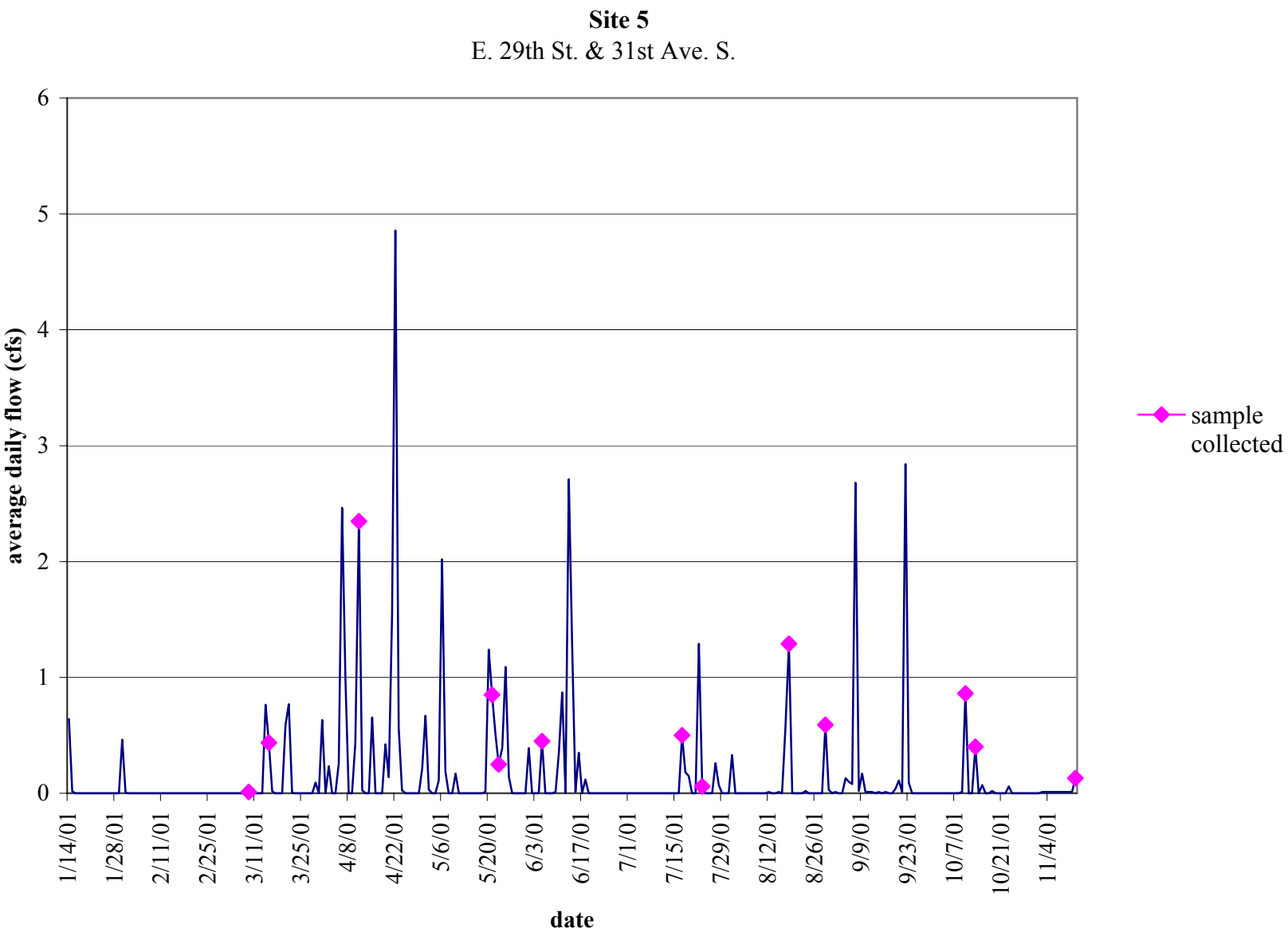
Appendix


Site 1
E. Harriet Pkwy at W 44th St., Minneapolis
average daily flow (cfs)
0
1
2
3
4
5
6
7
8
1/14/01
1/28/01
2/11/01
2/25/01
3/11/01
3/25/01
4/8/01
4/22/01
5/6/01
5/20/01
6/3/01
6/17/01
7/1/01
7/15/01
7/29/01
8/12/01
8/26/01
9/9/01
9/23/01
10/7/01
10/21/01
11/4/01
date
sample collected


Site 2
Luella St. at Orange Ave.
average daily flow (cfs)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1/14/01
1/28/01
2/11/01
2/25/01
3/11/01
3/25/01
4/8/01
4/22/01
5/6/01
5/20/01
6/3/01
6/17/01
7/1/01
7/15/01
7/29/01
8/12/01
8/26/01
9/9/01
9/23/01
10/7/01
10/21/01
11/4/01
date
sample collected


Site 3
Vandalia St-350' South of Capp Rd.
average daily flow (cfs)
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1/14/01
1/28/01
2/11/01
2/25/01
3/11/01
3/25/01
4/8/01
4/22/01
5/6/01
5/20/01
6/3/01
6/17/01
7/1/01
7/15/01
7/29/01
8/12/01
8/26/01
9/9/01
9/23/01
10/7/01
10/21/01
11/4/01
date
sample collected


Site 4
Charles Ave.-Mackubin to Arundel St.
average daily flow (cfs)
4
3.5
3
2.5
2
1.5
1
0.5
0
1/14/01
1/28/01
2/11/01
2/25/01
3/11/01
3/25/01
4/8/01
4/22/01
5/6/01
5/20/01
6/3/01
6/17/01
7/1/01
7/15/01
7/29/01
8/12/01
8/26/01
9/9/01
9/23/01
10/7/01
10/21/01
11/4/01
date
sample collected


Site 5
E. 29th St. & 31st Ave. S.
average daily flow (cfs)
0
1
2
3
4
5
6
1/14/01
1/28/01
2/11/01
2/25/01
3/11/01
3/25/01
4/8/01
4/22/01
5/6/01
5/20/01
6/3/01
6/17/01
7/1/01
7/15/01
7/29/01
8/12/01
8/26/01
9/9/01
9/23/01
10/7/01
10/21/01
11/4/01
date
sample collected

Minneapolis Grit Chamber Inventory

ID	GRIT CHAMBER LOCATION	CHAMBER SIZE	BUILT	CAPACITY (CY)	WATERSHED
1	UPTON AV. N. & 53RD AV. N	96" DIA. M.H. 4.0' SUMP	1996	3.72	20-011 SHINGLE CREEK
2	RUSSELL AV. N. & 53RD AV.N.	96" DIA. M.H. 3.0' SUMP	1994	2.79	20-012 SHINGLE CREEK
3	SHERIDAN AV. N., NORTH OF 52ND AV.N.	18' - 10' X 12' BOX	1996	34.2	20-010 SHINGLE CREEK
4	RUSSELL AV. N., NORTH OF 52ND AV.N.	48" DIA. M.H. 4.0' SUMP	1996	1.86	20-013 SHINGLE CREEK
5	PENN AV. N. & 52ND AV. N.	96" DIA. M.H. 4.0' SUMP	1996	7.4	20-020 SHINGLE CREEK
6	PENN AV. N. & 52ND AV. N.	96" DIA. M.H. 4.0' SUMP	1994	7.4	20-030 SHINGLE CREEK
7	OLIVER AV. N. & 52ND AV. N.	96" DIA. M.H. 5.0' SUMP	1994	9.3	20-040 SHINGLE CREEK
8	NEWTON AV. N. & SHINGLE CREEK	96" DIA. M.H. 2.0' SUMP	1994	3.7	20-050 SHINGLE CREEK
9	OLIVER AV. N. & 51ST AV. N.	96" DIA. M.H. 4.0' SUMP	1996	7.4	20-060 SHINGLE CREEK
10	MORGAN AV. N. & 51ST AV. N.	96" DIA. M.H. 2.2' SUMP	1994	4.1	20-070 SHINGLE CREEK
11	KNOX AV. N. & 51ST AV. N.	24' - 96" DIA. M.H. Tee Sections	1994	20.9	20-070 SHINGLE CREEK
12	KNOX AV. N. & 50TH AV. N.	30' - 10' X 12' BOX	1996	77.1	20-080 SHINGLE CREEK
13	IRVING AV.N. & 50TH AV. N.	96" DIA. M.H. 2.8' SUMP	1994	5.2	20-090 SHINGLE CREEK
14	JAMES AV. N., NORTH OF 49TH AV. N.	48" DIA. M.H. 4.0' SUMP	1996	1.86	20-095 SHINGLE CREEK
15	21ST AV. N. & 1ST ST. N.	36' - 12' X 12' BOX	1994	94	10-230 MISSISSIPPI RIVER
16	XERXES AV. N. & 14TH AV. N.	82' - 31' X 8'	1977	283	40-010 BASSETT CREEK
17	XERXES AV. N. & GLENWOOD AV.	24' - 96" DIA. PIPE	1996	22.3	40-020 BASSETT CREEK
18	MORGAN AV. N. & CHESTNUT AV.	24' - 96" DIA. PIPE	1994	25.1	40-130 BASSETT CREEK
19	GIRARD AV. N. & CURRIE AV. N.	48' - 12' X 12' BOX	1994	182	40-160 BASSETT CREEK
20	BRIDAL VEIL TUNNEL OUTLET	Stilling Basin	1994	Stilling Basin	10-560A MISSISSIPPI RIVER
21	LAKE OF THE ISLES PKWY. & LOGAN AV.	32' - 96" PIPE	1994	32	53-100 LAKE OF THE ISLES
22	W. 22ND ST. & JAMES AV. S.	10' - 3' X 3' BRICK	1915	3.3	53-120A/B LAKE OF THE ISLES
23	YARD SUMPS, E. 26TH ST. & HIAWATHA	5 - 48" M.H. W/2' SUMPS	1996	4.6	10-630R MISSISSIPPI RIVER
24	DREW AV. S. & W. LAKE ST.	66" DIA. M.H. 6.0' SUMP	1995	5.3	52-070 CEDAR LAKE
25	EXCELSIOR BLVD. & MARKET PLACE	84" DIA. M.H. 6.0' SUMP	1995	8.6	54-140A/B LAKE CALHOUN
26	W. LAKE ST. & ALDRICH AV. S.	60" DIA. M.H. 2.0' SUMP	1992	1.5	54-040A/B LAKE CALHOUN
27	W. 32ND ST. & BRYANT AV. S.	126" DIA.M.H.	1992	6.4	10-430V LAKE CALHOUN
28	W. 33RD ST. & HOLMS AV. S.	24' - 6' X 8' BOX	1995	39	54-040A/B LAKE CALHOUN
29	W. 33RD ST. & GIRARD AV. S.	32' - 10' X 12'	1992	33.5	54-040A/B LAKE CALHOUN
30	YORK AV. S. & W. LAKE CALHOUN PKWY	16' - 96" PIPE	1980	15	54-080 LAKE CALHOUN
31	CHOWEN AV. S. & W. 41ST ST.	45' - 96" CMP Tee Sections	1994	51.2	54-080A/B/C LAKE CALHOUN

Minneapolis Grit Chamber Inventory

ID	GRIT CHAMBER LOCATION	CHAMBER SIZE	BUILT	CAPACITY (CY)	WATERSHED
32	E. 42ND ST. & BLOOMINGTON AV. S.	6' X 16' & 10' X 10'	1988	N/A	76-010 LAKE HIAWATHA
33	E. 43RD ST. & PARK AV. S.	96' - 72" ARCH	1993	73	70-350 MINNEHAHA CREEK
34	W. 44TH ST. & W. LAKE HARRIET PKWY.	36' - 8' X 10' BOX	1996	6.52	57-100A/B/C LAKE HARRIET
35	E. 44TH ST. & OAKLAND AV. S.	18' - 4' X 8' BOX	1993	10.1	70-350 MINNEHAHA CREEK
36	E. 46TH ST. & 31ST AV. S.	16' - 72" ARCH/11' - 5'X8'	1976	9.5	70-490 MINNEHAHA CREEK
37	46TH AV. S. & GODFREY ROAD	16'- 90" PIPE/6' - 7'X10' Box	1975	21	70-580 MINNEHAHA CREEK
38	W. 47TH ST. & YORK AV. S.	96" DIA. M.H. 3.0' SUMP	1990	5.6	57-100A/B LAKE HARRIET
39	W. 47TH ST. & WASHBURN AV. S.	96" DIA. M.H. 2.0' SUMP	1990	3.7	57-100 A/B LAKE HARRIET
40	W. 47TH ST. & LAKE HARRIET PKWY.	16' - 6' X 8' BOX	1990	N/A	57-100A/B LAKE HARRIET
41	W. 48TH ST. & YORK AV. S.	10' - 6' X 22' BOX	1990	N/A	57-100A/B LAKE HARRIET
42	QUEEN AV. S. & LAKE HARRIET PKWY.	48' - 10' X 12'	1995	128	57-070 LAKE HARRIET
43	16TH AV. S. & E. MINNEHAHA PKWY.	24' - 8' X 8' BOX	1990	28	70-415 MINNEHAHA CREEK
44	SHERIDAN AV. S. & W. 50TH ST.	108" DIA. M.H. 6.0' SUMP	1995	14.1	57-070 LAKE HARRIET
45	JAMES AV. S. & MINNEHAHA CREEK	24' - 8' X 8' BOX	1992	21.3	70-130 MINNEHAHA CREEK
46	MORGAN AV. S. & W. 53RD ST.	24' - 8' X 8' BOX	1992	36.5	70-085 MINEHAHA CREEK
47	E. 55TH ST. & PORTLAND AV. S.	24' - 3' X 8' BOX	1992	3.8	71-020 DIAMOND LAKE
48	E. 56TH ST. & PORTLAND AV. S.	90" DIA. M.H. 4.1' SUMP	1992	6.7	71-030 DIAMOND LAKE
49	E. 57TH ST. & PORTLAND AV. S.	96" DIA. M.H. 3.2' SUMP	1992	6	71-040 DIAMOND LAKE
50	E. 58TH ST. & PORTLAND AV. S.	12' - 8' X 8' BOX	1992	12.1	71-050 DIAMOND LAKE
51	GIRARD AV. S. BETWEEN 59TH ST. & 60TH	120" DIA.M.H. 5.0' SUMP	1995	14.5	83-060 GRASS LAKE
52	E. 59TH ST. & 12TH AV. S.	24' - 3' X 8' BOX	1992	10.67	75-040 TAFT LAKE
53	GIRARD AV. S. & W. 60TH ST.	72" DIA. M.H. 4.0' SUMP	1995	4.2	83-070 GRASS LAKE
54	GIRARD AV. S. BETWEEN 60TH & DUPONT	48' - 12' X 10' BOX	1995	105.8	83-080 GRASS LAKE
55	GRASS LK. TERR. BETWEEN GIRARD & JAMES	24' - 8' X 8' BOX	1995	24.6	83-050 GRASS LAKE
56	GRASS LK. SERVICE RD. BEHIND 6035 JAMES	48" DIA. M.H. 4.0' SUMP	1995	1.86	83-040 GRASS LAKE
57	GRASS LK. SERVICE RD. BEHIND 6077 JAMES	72" DIA. M.H. 4.0' SUMP	1995	4.2	83-030 GRASS LAKE
58	GRASS LK. SERVICE RD. BEHIND 1416 W. 61ST	72" DIA. M.H. 4.0' SUMP	1995	4.2	83-015 GRASS LAKE
59	W. 61ST ST. & GRASS LAKE SERVICE ROAD	72" DIA. M.H. 4.0' SUMP	1995	4.2	83-010 GRASS LAKE
60	IRVING AVE SO. & W. 61ST ST.	50' - 10' X 12" BOX	1995	80	83-020 GRASS LAKE
61	E. RIVER RD. & CECIL ST.	24' - 6' X 8' BOX	1993	22.4	10-600 MISSISSIPPI RIVER
62	HIAWATHA PARK REFECTORY TURN-ROUND	120" DIA.M.H. 4.0' SUMP	1995	11.6	70-578 MINNEHAHA CREEK

Minneapolis Grit Chamber Inventory

ID	GRIT CHAMBER LOCATION	CHAMBER SIZE	BUILT	CAPACITY (CY)	WATERSHED
63	33RD AV. N. & 1ST ST. N./ R.R. TRACKS	8' - 3'- 6" X 4' SYPHON	1936	N/A	10-120B MISSISSIPPI RIVER
64	NORTH TRANSFER STATION	96" STORMCEPTOR	1998	13.5	10-210 MISSISSIPPI RIVER
65	SOUTH TRANSFER STATION	96" STORMCEPTOR	1997	14.7	10-630R MISSISSIPPI RIVER
66	MAPLE PLACE & EAST ISLAND	72" DIA. M.H. 4.2' SUMP	1997	4.4	10-315 MISSISSIPPI RIVER
67	DE LASALLE DR. & EAST ISLAND	96" DIA.M.H. 5.0' SUMP	1997	9.3	10-360 MISSISSIPPI RIVER
68	W. ISLAND, 300' S. OF MAPLE PLACE	108" DIA.M.H. 4.0' SUMP	1997	9.4	10-316 MISSISSIPPI RIVER
69	EASTMAN AV. & WEST ISLAND	108" DIA.M. H. 4.5' SUMP	1997	10.6	10-345 MISSISSIPPI RIVER
70	ROYALTON & 5TH AV. N.	42' - 8' X 8' BOX	1997	No As-built	40-310 MISSISSIPPI RIVER
71	THE MALL & E. LAKE OF THE ISLES	60' - 8' X 8' BOX	1998	75	54-104 A/B LAKE of the ISLES
72	S. OF 37TH AV. N.E. & ST. ANTHONY PKWY.	42' - 12' X12' BOX	1998	128.6	10-065 MISSISSIPPI RIVER
73	4552 KNOX Av. N. (IN ALLEY BEHIND @	48" DIA. M.H./DRYWELL	1995	4.5	20-210A SHINGLE CREEK
74	STEVENS AV. S. 300' S. OF MINNEHAHA CREEK	96" DIA. M.H. 3.5 SUMP	1995	6.5	70-295 MINNEHAHA CREEK
75	IRVING AV. N. (IMPOUND LOT)	INLET/BASIN/STRUCT/	1998	N/A	40-170 BASSETT'S CREEK
76	MARKET PLAZA & EXCEL BLVD (PKING LOT)	42' 10' X 12' BOX CULVERT	1999	96.2	54-140 LAKE CALHOUN
77	ALLEY btwn NICOLLET & BLAISDELL(on 39th St)	72" DIA SUMP & PUMP STA.	1999	5.9	10-430T MISSISSIPPI
78	SHINGLE CREEK WETLANDS-WEST SIDE	24' - 8'X10' BOX CULVERT	1999	35.5	20-011 SHINGLE CREEK
79	SHINGLE CREEK WETLANDS-EAST SIDE	36' - 12'X12' BOX CULVERT	1999	116.7	20-011 SHINGLE CREEK
80	WOODLAWN BLVD & 51 ST E	CDS PSW30_28	2000	1.8	72-020 LAKE NOKOMIS
81	WOODLAWN BLVD & 53 ST E	CDS PSW70_70	2000	3.9	72-040 LAKE NOKOMIS

STORM PUMP STATIONS

STATION #	LOCATION	NSP ADDRESS	DIALER #	JOB NUMBER	POWER SOURCE	# PUMPS	MODEL	H.P.	Comments
1	W. 50th St. & Sheridan Ave. S.	5000 Sheridan Ave. S.	929-6586	6300DP01	480 Volt 3 Phase	1	Flygt Turbine - Propeller PL 7055	27	
2	(alley) Blaisdell Ave. S - Wentworth Ave. S. W. 44th St. - W. 43rd St.	4339 Wentworth Ave. S.	827-6327	6300DP02	240 Volt 3 Phase	1	Flygt CP3101	5	
3	W. 49th St. & Humboldt Ave. S.	4901 Humboldt Ave. S.	922-4468	6300DP03	480 Volt 3 Phase	2	Layne/Bowler Turbine	40	Generator
4	E. 39th St. & Park Ave. S.	3901 Park Ave. S.	827-6353	6300DP04	240 Volt 3 Phase	2	Flygt CP3200	29	
5	W. 54th St., between Upton Ave. S. - Thomas Ave. S. - south side of creek.	2714 W. 54th St.	929-7174	6300DP05	480 Volt 3 Phase	2	Flygt CP3201	35	
6	W. 53rd St., Logan Ave. - Morgan Ave. (alley)	1909 W. 53rd St.	929-7196	6300DP06	240 Volt 3 Phase	1	Flygt CP3201	5	
7	2519 Emerson Ave. S.	2524 Emerson Ave. S.	377-8431	6300DP07	240 Volt 3 Phase	1	Flygt CP3152	20	
8	E. 49th St. & Oakland Ave. S.	633 E. Minnehaha Parkway	827-6320	6300DP08	480 Volt 3 Phase	2	Flygt Turbine - Propeller PL 7055	44	Generator
9	W. 39th St. & Bryant Ave. S.- Kings Highway Holding Pond.	3915 Dupont Ave. S.	827-6371	6300DP09	480 Volt 3 Phase	3	Flygt CP3201	47	Needs frequent maintenance after rain events
10	E. 42nd St. & Bloomington Ave. S.- Holding Pond.	4143 15th Ave. S.	824-3458	6300DP10	480 Volt 3 Phase	5	# 1-2 Flygt CP3152- sump pumps. # 3-5 Flygt CP3311	14.8 177	
11	E. 45th St. & 15th Ave. S. (alley drain)	4507 14th Ave. S.	No Phone	6300DP11	240 Volt 3 Phase	1	Flygt CP3127	10	
12	2863 Irving Ave. S. (alley drain)	2863 Irving Ave. S.	No Phone	6300DP12	240 Volt 3 Phase	1	Flygt CP3152	14	
13	E. 39th St. & 19th Ave. S.- Sibley Holding Pond	1900 E. 39th St.	No Phone	6300DP13	240 Volt 3 Phase	1	Flygt CP3085	2.4	
14	W. 32nd St. & Bryant Ave. S.	820 W. 32nd St.	824-3328	6300DP14	480 Volt 3 Phase	1	M&W Turbine Propeller SEA318	50	
15	W. 52nd St. & Morgan Ave. S.	5224 Morgan Ave. S.	922-0092	6300DP15	480 Volt 3 Phase	3	# 1-2 Flygt Turbine Propeller 7060 # 3 Flygt CP3085 Sump Pump	44 3	Generator
16	W. 51st St. & James Ave. S.	5042 James Ave. S.	922-0291	6300DP16	480 Volt 3 Phase	3	# 1-2 Flygt Turbine Propeller 7060 # 3 Flygt CP3085 Sump Pump	60 3	Generator
17	2841 Aldrich Ave. S.		No Phone	6300DP17	460 Volt 3 Phase	1	KSB	52	
18	5201 Stevens Ave. S.		827-6326	6300DP18	460 Volt 3 Phase	1	KSB	39	

STORM PUMP STATIONS

STATION #	LOCATION	NSP ADDRESS	DIALER #	JOB NUMBER	POWER SOURCE	# PUMPS	MODEL	H.P.	Comments
19	3235 13th Ave. S. (Powderhorn Park)		No Phone	6300DP19	460 Volt 3 Phase	1	Myers	40	
20	3901 Bryant Ave. N. (alley drain)		No Phone	6300DP20	230 Volt 1 Phase	1	Myers	3	
21	3833 Blaisdell Ave. S. (alley drain)		822-4706	6300DP21	460 Volt 3 Phase	1	Flygt	10	
22	4055 13th Ave. S. (alley drain)		822-4954	6300DP22	460 Volt 3 Phase	1	Flygt	10	
23	17th Ave. N.E. & Monroe St. N.E.	1625 Monroe St. N.E.	789-1006	6300DP23	460 Volt 3 Phase	2	Flygt	30	
24	810 22nd Ave. N.E.		787-0548	6300DP24	460 Volt 3 Phase	1	ABS	33.5	
25	6046 Stevens Ave. S.		866-3409	6300DP25	460 Volt 3 Phase	1	Flygt	14	

STORM DRAINAGE AREAS BY RECEIVING WATER BODY

Surface Water	Outfall	Total (acres)	Res. %	Comm. %	Ind. %	Public %	Open %	Rail %	Runoff Coeff.	Pop.
Mississippi River (Minneapolis)	10-xxx	18,077	0.53	0.16	0.16	0.04	0.07	0.04	0.46	263,400
Mississippi River (Columbia Heights)	10-100	348	0.48	0.11	0.33	0.00	0.08	0.00	0.37	2,765
Mississippi River (UofM)	15-xxx	100	0.00	0.00	0.00	1.00	0.00	0.00	0.55	0
Shingle Creek	20-xxx	1,365	0.62	0.17	0.06	0.03	0.04	0.07	0.44	11,493
Ryan Lake (Minneapolis)	21-xxx	49	1.00	0.00	0.00	0.00	0.05	0.00	0.45	388
Bassett Creek	40-xxx	2,293	0.58	0.12	0.13	0.03	0.08	0.05	0.44	26,756
New Bassett Creek Tunnel	41-xxx	219	0.22	0.26	0.26	0.04	0.10	0.11	0.45	669
Brownie Lake (Minneapolis)	51-xxx	34	0.99	0.00	0.01	0.00	0.00	0.00	0.45	193
Cedar Lake (Minneapolis)	52-xxx	224	0.79	0.01	0.00	0.00	0.17	0.03	0.38	1,674
Lake of the Isles	53-xxx	760	0.76	0.07	0.02	0.01	0.12	0.01	0.42	13,644
Lake Calhoun (Minneapolis)	54-xxx	1,249	0.69	0.11	0.03	0.10	0.07	0.00	0.46	13,640
Cemetary Lake	55-xxx	205	0.00	0.99	0.00	0.00	0.01	0.00	0.60	41
Sanctuary Pond	56-xxx	68	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
Lake Harriet	57-xxx	863	0.83	0.09	0.01	0.04	0.02	0.00	0.46	12,249
Hart Lake (Minneapolis)	61-xxx	3	0.32	0.68	0.00	0.00	0.00	0.00	0.55	0
Silver Lake (Minneapolis)	62-xxx	28	0.94	0.03	0.00	0.00	0.03	0.00	0.44	245
Crystal Lake (Minneapolis)	63-xxx	469	0.92	0.04	0.00	0.02	0.03	0.00	0.45	5,985
Legion Lake (Minneapolis)	64-xxx	49	1.00	0.00	0.00	0.00	0.00	0.00	0.45	332
Legion Lake (Richfield)	64-xxx	1,700	0.96	0.00	0.01	0.00	0.03	0.00	0.30	9,781
Richfield Lake (Minneapolis)	65-xxx	715	0.88	0.06	0.02	0.00	0.04	0.00	0.32	4,388
Richfield Lake (Richfield)	65-xxx	58	0.58	0.37	0.05	0.00	0.01	0.00	0.51	442
Wood Lake (Richfield)	66-xxx	627	0.75	0.05	0.02	0.00	0.18	0.00	0.29	7,316
Minnehaha Creek	70-xxx	3,213	0.85	0.07	0.01	0.04	0.03	0.00	0.44	38,399
Diamond Lake	71-xxx	685	0.72	0.11	0.09	0.03	0.05	0.00	0.47	6,456
Lake Nokomis	72-xxx	620	0.78	0.03	0.00	0.03	0.16	0.00	0.40	7,120
Taft Lake	73-xxx	100	0.76	0.00	0.00	0.00	0.24	0.00	0.37	675
Mother Lake (Minneapolis)	74-xxx	49	0.83	0.19	0.00	0.00	0.00	0.00	0.48	111
Mother Lake (Richfield)	74-xxx	245	0.71	0.09	0.00	0.00	0.20	0.00	0.30	2,025
Unnamed Wetland W of Mother Lake	75-xxx	41	0.91	0.00	0.00	0.00	0.00	0.09	0.41	344
Lake Hiawatha	76-xxx	1,008	0.87	0.07	0.02	0.03	0.02	0.00	0.46	14,707
Birch Pond	81-xxx	31	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
Powderhorn Lake	82-xxx	286	0.88	0.05	0.02	0.04	0.01	0.00	0.46	5,621
Grass Lake	83-xxx	386	0.90	0.04	0.00	0.05	0.02	0.00	0.46	4,128
Unnamed Wetland on Hwy 62	84-xxx	17	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0
Unnamed Wetland on Ewing Ave S	85-xxx	22	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0
GRAND TOTAL		**36,205**	**0.58**	**0.13**	**0.10**	**0.04**	**0.06**	**0.03**	**0.42**	**454,987**

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-010	60	53rd Ave N.	113.55	0.90	0.03	0.00	0.00	0.07	0.00	0.42	1,208
10-020	42	51st Ave. N (Mississippi Ct.)	7.81	0.82	0.00	0.00	0.00	0.18	0.00	0.39	40
10-030	15	49th Ave N.	4.05	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-040	78	49th Ave. N	167.42	0.65	0.12	0.12	0.00	0.10	0.01	0.45	1,176
10-050	42	46th Ave N (I-94)	114.18	0.83	0.08	0.08	0.00	0.00	0.01	0.47	1,312
10-060	15	St. Anthony Pkwy & 36th Ave NE	10.50	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
10-070	72	41st Ave N & Sooline R.R. (sanitary overflow)	30.66	0.00	0.33	0.30	0.00	0.05	0.32	0.38	0
10-080	36	1st St. N approx. 39th Ave N	30.66	0.00	0.33	0.30	0.00	0.05	0.32	0.38	0
10-090A	18	39th Ave N (At River)	0.99	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
10-090B	18	37th Ave N (At River)	1.47	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
10-090C	24	37th Ave N (Sooline R.R.)	12.77	0.00	0.00	0.90	0.00	0.02	0.08	0.54	0
10-090D	30	36th Ave N (Sooline R.R.)	4.41	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
10-100	24	Marshall St (31st Ave NE)	1392.10	0.59	0.02	0.11	0.01	0.16	0.11	0.36	8,400
10-110	48	Dowling Ave N (At River)	300.11	0.78	0.17	0.01	0.01	0.03	0.00	0.47	3,205
10-120A,B	(A)48, (B)36	(A) Approx. 34th Ave N, (B) Approx. 33rd Ave N (At River)	372.78	0.75	0.04	0.10	0.01	0.07	0.03	0.43	4,883
10-130	24	27th Ave NE (Monroe St NE)	336.00	0.30	0.07	0.45	0.00	0.05	0.13	0.45	1,669
10-140A	36	Lowry Ave NE (At River) North	2.59	0.04	0.69	0.20	0.03	0.04	0.00	0.57	2,136
10-140B	18	Lowry Ave NE (At River) South	220.65	0.05	0.70	0.20	0.02	0.03	0.00	0.58	2,136
10-150	27	Marshall St NE (Lowry Ave NE)	157.15	0.63	0.20	0.13	0.00	0.03	0.01	0.48	1,476
10-160	48	31st Ave N (Pacific St N)	17.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0
10-170	42	30th Ave N (Mill St Extended)	176.01	0.57	0.07	0.33	0.00	0.03	0.00	0.50	2,702
10-180	78	22nd Ave NE (Grand St NE)	284.26	0.60	0.14	0.10	0.05	0.05	0.06	0.45	3,214
10-190	30	27th Ave N (Mill St N)	14.58	0.00	0.53	0.45	0.00	0.02	0.00	0.59	0
10-200	36	Marshall St NE (18th Ave NE)	42.44	0.30	0.07	0.43	0.00	0.02	0.18	0.44	433
10-210	54	26th Ave N (Mill St N)	98.32	0.50	0.03	0.41	0.00	0.05	0.01	0.49	837
10-220	18	22nd Ave N	18.83	0.00	0.33	0.60	0.00	0.01	0.06	0.56	0
10-230	60	21st Ave N	235.02	0.60	0.18	0.12	0.05	0.04	0.01	0.48	4,455
10-240	42	West Broadway	103.83	0.42	0.32	0.18	0.03	0.05	0.00	0.51	985
10-250	72	12th Ave NE (Vacated)	242.96	0.64	0.09	0.17	0.06	0.03	0.01	0.48	2,674
10-260	24	17th Ave N	23.77	0.00	0.05	0.85	0.00	0.02	0.08	0.54	0
10-270	48	10th Ave NE	72.45	0.76	0.05	0.15	0.00	0.04	0.00	0.47	922
10-280	54	14th Ave (extended)	55.08	0.00	0.02	0.54	0.14	0.20	0.10	0.44	0
10-290	21	Plymouth Ave N	6.83	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-300	27	8th Ave NE	17.74	0.66	0.29	0.05	0.00	0.00	0.00	0.50	125
10-310	42	Ramsey St NE (extension)	60.29	0.85	0.08	0.01	0.05	0.01	0.00	0.47	523
10-320	84	3rd Ave NE	341.99	0.65	0.12	0.10	0.04	0.06	0.03	0.45	4,680
10-330	18x60	W River Pkwy approx. 500' SE of 4th Ave N	21.61	0.14	0.00	0.06	0.00	0.80	0.00	0.18	126
10-340	30X'60	W River Pkwy at 1st Ave N (extended)	20.74	0.00	0.12	0.59	0.00	0.21	0.08	0.45	8
10-350	36	1st Ave NE	28.16	0.00	0.50	0.50	0.00	0.00	0.00	0.60	20
10-360	36	East Hennepin (on Nicollet Isld)	29.02	0.02	0.50	0.46	0.00	0.02	0.00	0.59	9
10-370	21	East Hennepin Ave	14.46	0.00	0.52	0.38	0.07	0.03	0.00	0.59	331
10-380	30X67	W River Pkwy at 2nd Ave S (extended)	14.38	0.15	0.09	0.00	0.50	0.25	0.01	0.45	0
10-390	tunnel	3rd Ave SE	41.97	0.13	0.26	0.58	0.00	0.01	0.02	0.56	456
10-400A	30	2nd St S at 3rd Ave S	1.07	0.14	0.32	0.34	0.00	0.15	0.05	0.47	280
10-400B	108	2nd St S tunnel btwn Hennepin Ave and 3rd Ave	17.66	0.02	0.50	0.46	0.00	0.02	0.00	0.59	19

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-400C	108	12th Ave N approx.150' W of 3rd St. N	50.25	0.20	0.00	0.00	0.79	0.01	0.00	0.57	134
10-410A	24	Washington Ave S at Chicago Ave S	46.22	0.00	0.49	0.35	0.00	0.05	0.11	0.51	2
10-410B	30	2nd St at Park Ave S (extended)	21.29	0.00	0.00	0.41	0.00	0.59	0.00	0.31	2
10-410C	36	Washington Ave S at Portland Ave S	22.80	0.00	0.03	0.50	0.25	0.22	0.00	0.49	193
10-410D	30	Washington Ave S at 5th Ave S	27.34	0.00	0.13	0.30	0.33	0.00	0.24	0.46	423
10-410E	tunnel	Washington,Marquette,Nicollet Tunnel	220.65	0.04	0.70	0.20	0.03	0.04	0.00	0.58	2,136
10-410F	36	10th St S@ 2nd Ave S	37.92	0.06	0.42	0.51	0.00	0.01	0.00	0.59	118
10-420A	21	W River Pkwy approx 200' E of 11th Ave S (extended)	23.05	0.00	0.58	0.15	0.00	0.02	0.25	0.44	13
10-420B	15	Washington Ave S at 11th Ave S	10.06	0.00	0.74	0.25	0.00	0.01	0.00	0.60	0
10-420C	60 X 78	Washington Ave S at 11th Ave S	7.42	0.00	0.96	0.03	0.00	0.00	0.01	0.59	2
10-420D	48	5th St S at 11th Ave S	20.73	0.00	0.90	0.00	0.00	0.00	0.10	0.54	0
10-420E	60	11th Ave S at 5th St S	127.89	0.08	0.38	0.33	0.13	0.08	0.00	0.55	2,096
10-430A	24	I-35W @ 1st St S	7.07	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0
10-430B	48	I-35W @ 4th St S	54.72	0.10	0.25	0.60	0.00	0.00	0.05	0.56	2,867
10-430C	MNDOT	14th Ave S @ St. Pacific RR Bridge	44.83	0.10	0.65	0.05	0.00	0.10	0.10	0.48	17
10-430D	72	9th St S @ 13th Ave S	85.79	0.64	0.15	0.15	0.05	0.01	0.00	0.50	3,540
10-430E	36	I -35W @ W side of Portland Ave S Bridge	86.66	0.25	0.60	0.05	0.00	0.10	0.00	0.51	0
10-430F	30	Middle of I-35W 300' W of Portland Ave Bridge	12.27	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-430G	54	E. 18th St @ Clinton Ave S	82.63	0.53	0.30	0.12	0.00	0.05	0.00	0.50	5,054
10-430H	MNDOT	I-94 @ W side of 1st Ave S Bridge	33.18	0.64	0.20	0.15	0.00	0.01	0.00	0.50	658
10-430I	48	Nicollet Ave S 100' S of E 16th St	32.61	0.07	0.10	0.10	0.70	0.03	0.00	0.57	42
10-430J	120	W 15th St @ Willow St	532.36	0.45	0.20	0.08	0.08	0.18	0.01	0.44	12,300
10-430K	48	W 27th St (extended) 200' E of I-35W	337.06	0.50	0.27	0.10	0.03	0.10	0.00	0.48	8,015
10-430L	42	E 31st St @ 2nd Ave S	84.40	0.87	0.04	0.04	0.00	0.05	0.00	0.44	1,696
10-430M	48	E 31st St @ Stevens Ave S	75.94	0.32	0.47	0.15	0.04	0.01	0.01	0.54	1,681
10-430N	24	E 34th St @ 2nd Ave S	26.43	0.84	0.09	0.02	0.03	0.02	0.00	0.46	17,919
10-430O	66	E 35th St @ 2nd Ave S	109.53	0.80	0.06	0.00	0.10	0.04	0.00	0.46	1,978
10-430P	78	E 35th St @ Stevens Ave S	212.53	0.90	0.08	0.01	0.00	0.01	0.00	0.46	4,545
10-430Q	30	I-35W @ N side of W 35th St Bridge	8.03	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-430R	84	E 39th St @ 2nd Ave S	150.32	0.79	0.15	0.02	0.02	0.02	0.00	0.47	2,269
10-430S	21	I-35W @ S side of E 39th St Bridge	5.15	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-430T	78	W 39th St @ Stevens Ave S	262.47	0.93	0.04	0.01	0.01	0.01	0.00	0.46	5,157
10-430U	78	I-35W @ W 39th St Bridge	431.37	0.83	0.11	0.00	0.06	0.00	0.00	0.48	5,600
10-430V	72	King's Hwy Holding Pond @ 700' S of W 38th St	329.11	0.86	0.06	0.02	0.04	0.02	0.00	0.46	6,929
10-440A	18	35W Btwn University Ave SE 4th St SE	23.18	0.65	0.15	0.11	0.00	0.09	0.00	0.46	443
10-440B	18	35W @ 9th St SE (extended),	34.23	0.56	0.21	0.00	0.23	0.00	0.00	0.52	0
10-440C&D	(C) 18, (D) 18	(C) 35W @ Winter St, (D) Johnson St 400' S of E Broadway	56.00	0.26	0.40	0.33	0.00	0.01	0.00	0.56	60
10-440E	18	E Broadway @ New Brighton Blvd	831.25	0.45	0.35	0.15	0.02	0.02	0.01	0.52	3,677
10-440F	96	35W @ 13th Ave NE (extended)	538.85	0.59	0.15	0.14	0.04	0.04	0.04	0.47	12,569
10-450A	18	10th Ave SE @ 2nd St SE	338.26	0.50	0.16	0.21	0.03	0.04	0.06	0.47	6,510
10-450B	18	10th Ave SE 50' N of Univ. Ave SE	3.41	0.56	0.20	0.00	0.24	0.00	0.00	0.52	60
10-450C	18	10th Ave SE 50' N of 4th St SE	55.64	0.90	0.00	0.10	0.00	0.00	0.00	0.47	304
10-450D	18	10th Ave SE @ 5th St SE	4.62	1.00	0.00	0.00	0.00	0.00	0.00	0.45	219
10-450E	18	10th Ave SE @ 6th St SE	3.20	0.98	0.00	0.00	0.00	0.02	0.00	0.44	212
10-450F	18	8th St SE @ 15th Ave SE	158.55	0.10	0.31	0.38	0.00	0.02	0.19	0.46	1,473

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-450G&H	(G) 18, (H) 18	(G)Como Av SE 100' E 35W E Front. Rd, (H)12 Ave SE @ SCL E Henn.	73.97	0.71	0.15	0.04	0.01	0.08	0.01	0.45	1,342
10-450I	18	E Hennepin @ Pierce St NE	243.64	0.36	0.32	0.21	0.00	0.03	0.08	0.48	2,263
10-450J	18	E Hennepin @ Garfield St NE	17.16	0.03	0.20	0.61	0.00	0.02	0.14	0.50	78
10-450K	18	Winter St NE @ Garfield St NE	37.01	0.11	0.26	0.62	0.00	0.01	0.00	0.58	153
10-450L	66	Arthur St NE @ Kennedy St NE	213.41	0.00	0.21	0.63	0.00	0.02	0.14	0.51	0
10-460A	18	300' S of University Ave SE	0.00								
10-460B	18	University Ave SE 100' SE of 14th Ave SE	7.29	0.09	0.70	0.00	0.10	0.00	0.11	0.52	0
10-460C&D	18	(C) 5th St SE @ 16th Ave SE, (D) 8th St SE @ 17th Ave SE	112.22	0.00	0.03	0.15	0.41	0.05	0.36	0.36	0
10-460E	18	18th Ave SE @ Elm St. SE	231.41	0.48	0.05	0.37	0.00	0.02	0.08	0.47	1,376
10-460F	18	18th Ave SE @ Alley S of Como Ave SE	14.75	0.70	0.08	0.00	0.22	0.00	0.00	0.50	137
10-460G	18	Talmage Ave SE 50' E of 18th Ave SE	79.66	0.37	0.10	0.21	0.25	0.03	0.04	0.51	1,711
10-460H	18	18th Ave SE 50 S of E Hennepin	12.35	0.03	0.17	0.60	0.00	0.02	0.18	0.48	90
10-460I	18	Stinson Blvd @ Traffic St NE	74.29	0.01	0.21	0.69	0.00	0.02	0.07	0.55	28
10-460J	18	Como Ave @ 19th Ave SE	5.36	0.91	0.00	0.09	0.00	0.00	0.00	0.46	0
10-460K	18	Como Ave @ 20th Ave SE	5.48	0.77	0.00	0.00	0.00	0.03	0.20	0.35	45
10-460L	18	Como Ave @ 21st Ave SE	3.50	0.44	0.50	0.00	0.00	0.06	0.00	0.50	3
10-460M	18	Como Ave @ 122nd Ave SE	9.55	0.81	0.18	0.01	0.00	0.00	0.00	0.48	67
10-460N	18	Como Ave @ 23rd Ave SE	3.85	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
10-460O	18	Como Ave @ 24th Ave SE	4.15	0.98	0.02	0.00	0.00	0.00	0.00	0.45	5
10-460P	18	25th Ave SE 100' S of Como Ave SE	4.34	1.00	0.00	0.00	0.00	0.00	0.00	0.45	76
10-460Q	18	Como Ave SE @ 27th Ave SE	19.73	0.10	0.07	0.77	0.00	0.00	0.06	0.55	62
10-460R	18	25th Ave SE 200' N of Talmadge	50.46	0.03	0.11	0.78	0.00	0.00	0.08	0.55	0
10-460S	60	Hoover St NE @ E Hennepin	233.54	0.00	0.17	0.75	0.00	0.02	0.06	0.55	0
10-465	12	West River Pkwy @ RR Bridge	8.56	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-470	24	West River Road 200' N of Washington Ave	25.60	0.70	0.00	0.12	0.00	0.13	0.05	0.40	407
10-480	60	West River Road 100' N of Washington Ave	39.66	0.15	0.05	0.10	0.69	0.01	0.00	0.57	0
10-485	12	West River Road 100' S of Washington Ave	7.27	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0
10-490	84	West River Road @ 4th St S	150.96	0.45	0.20	0.15	0.01	0.18	0.01	0.44	1,822
10-500A	54	7th St S (vacated) 15' SE of 17th Ave S	26.21	0.00	0.34	0.10	0.00	0.00	0.56	0.27	571
10-500B	18	17th Ave S Under I-94	8.48	0.00	0.00	0.60	0.00	0.36	0.04	0.40	0
10-500C	72	East Franklin Av 250' E of Cedar Ave S	218.00	0.73	0.10	0.05	0.02	0.10	0.00	0.44	2,090
10-500D	12	Cedar Ave S 500' S of I-94	3.83	0.00	0.11	0.29	0.00	0.00	0.60	0.24	0
10-500E	24	19th Ave S	23.34	0.50	0.25	0.10	0.08	0.07	0.00	0.49	5,884
10-500F	48	E 18th St @ 14th Ave S	270.00	0.14	0.00	0.00	0.00	0.86	0.00	0.15	183
10-500G	60	E 24th St @ Snelling Ave S	112.94	0.67	0.09	0.18	0.03	0.03	0.00	0.48	2,090
10-505	12	West River Road below St Marys' Hospital	7.85	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-510	30X60	West River Road @ 27th Ave S (extended)	62.36	0.47	0.06	0.15	0.22	0.10	0.00	0.48	1,138
10-520	U of M	U of M Outfall	139.98	0.08	0.25	0.35	0.13	0.19	0.00	0.49	2,813
10-530	96	Oak St SE	116.15	0.15	0.23	0.23	0.12	0.25	0.02	0.44	789
10-540	30	West River Road @ I-94	53.90	0.05	0.00	0.00	0.00	0.95	0.00	0.12	72
10-550	36	West River Road @ E Franklin Av	25.83	0.90	0.07	0.02	0.00	0.01	0.00	0.46	629
10-560A&B	96	26th Ave SE Bridal Vail Creek Tunnel	600.63	0.18	0.27	0.28	0.02	0.05	0.20	0.43	2,921
10-570A	24	West River Road @ 33rd Ave S	14.64	1.00	0.00	0.00	0.00	0.00	0.00	0.45	93
10-570B	48	West River Road @ 33rd Ave S	228.18	0.58	0.14	0.10	0.03	0.15	0.00	0.44	2,847
10-580	30	Seymour Ave SE	73.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	760

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-600	36	Cecil St SE	89.24	0.75	0.15	0.00	0.00	0.10	0.00	0.44	859
10-610	12	East City Limits	25.60	0.88	0.08	0.02	0.00	0.00	0.02	0.46	239
10-630A	12	West River Rd @ 28th Ave S (extended)	9.80	0.95	0.02	0.00	0.03	0.00	0.00	0.46	1,641
10-630B	16	E 28th St @ Dorman Ave S	6.24	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
10-630C	60	E 28th St @ 42nd Ave S	4.68	1.00	0.00	0.00	0.00	0.00	0.00	0.45	102
10-630D	21	E 28th St @ 42nd Ave S	96.03	0.76	0.19	0.03	0.01	0.01	0.00	0.48	1,071
10-630E	16	28th Ave S	6.37	1.00	0.00	0.00	0.00	0.00	0.00	0.45	40
10-630F	16	E 28th St @ 38th Ave S	8.52	1.00	0.00	0.00	0.00	0.00	0.00	0.45	254
10-630G	60	E 28th St and 36th Ave S	17.56	0.40	0.60	0.00	0.00	0.00	0.00	0.54	170
10-630H	24	36th Ave S 100' S of E 27th St	5.90	1.00	0.00	0.00	0.00	0.00	0.00	0.45	58
10-630I	16	E 28th St @ 34th Ave S	25.63	0.42	0.05	0.14	0.00	0.00	0.39	0.30	196
10-630J	12	E 28th St @ Alleyway btwn 32nd & 33rd Ave S	12.48	0.42	0.00	0.43	0.00	0.00	0.15	0.45	52
10-630K	54	E 28th St @ 31st Ave S	95.29	0.36	0.12	0.38	0.00	0.09	0.05	0.47	440
10-630L	48	E 28th St @ 31st Ave S	100.42	0.48	0.40	0.07	0.04	0.01	0.00	0.52	1,201
10-630M	15	E 28th St @ 31st Ave S	11.71	0.65	0.00	0.33	0.00	0.02	0.00	0.49	67
10-630N	12	E 28th St @ 29th Ave S	8.45	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
10-630O	12	E 28th St @ Alley btwn 27th & 28th Ave S,	5.77	0.01	0.24	0.23	0.00	0.50	0.02	0.34	0
10-630P&Q	36	E 28th St @ 26th Ave S	66.45	0.01	0.28	0.09	0.00	0.60	0.02	0.29	0
10-630R	60	E 29th St @ 22nd Ave S	83.89	0.15	0.25	0.15	0.10	0.05	0.30	0.37	920
10-630S	21	E 29th St @ Layman Ave S	37.02	0.00	0.02	0.37	0.00	0.60	0.01	0.29	60
10-630T	16	E 29th St @ 21st Ave S	7.72	0.25	0.75	0.00	0.00	0.00	0.00	0.56	0
10-630U	16	Drill Hole along 29th Ave S	115.42	0.36	0.24	0.14	0.02	0.08	0.16	0.41	1,443
10-630V	36	E 29th St @ 14th Ave S	33.85	0.52	0.25	0.10	0.05	0.08	0.00	0.48	2,240
10-630W	16	14th Ave S @ E 28th St	23.68	0.62	0.08	0.24	0.00	0.03	0.03	0.47	458
10-630X	21	E 27th St @ 13th Ave S	14.78	0.83	0.05	0.02	0.02	0.08	0.00	0.44	549
10-630Y	60	E 27th St @ 12th Ave S	111.54	0.44	0.29	0.11	0.06	0.10	0.00	0.48	1,290
10-630Z	36	14th Ave S 200' S of E Lake St	45.66	0.82	0.11	0.04	0.02	0.01	0.00	0.47	950
10-640	40X72	W River Pkwy at E Lake St	258.18	0.83	0.07	0.03	0.03	0.02	0.02	0.45	2,980
10-650	12	W River Pkwy at E 32nd St	19.53	0.29	0.71	0.00	0.00	0.00	0.00	0.56	203
10-660	48X 72	W River Pkwy at E 33rd St	306.37	0.86	0.05	0.03	0.04	0.02	0.00	0.46	3,816
10-670	36	W River Pkwy at E 36th St	137.88	1.00	0.00	0.00	0.00	0.00	0.00	0.45	1,408
10-680	120	W River Pkwy at E 38th St	707.95	0.71	0.06	0.08	0.07	0.04	0.04	0.45	7,782
10-690	27	W River Pkwy at E 42nd St	70.63	0.66	0.04	0.00	0.30	0.00	0.00	0.50	654
10-700	60	W River Pkwy at E 44th St	222.07	0.87	0.05	0.04	0.03	0.01	0.00	0.46	2,606
10-710	36	W River Pkwy 250' S of E 46th St	29.95	0.60	0.02	0.00	0.00	0.38	0.00	0.32	244
10-720A	12	Riverview Rd 250' N of E 54th St	15.77	0.98	0.00	0.00	0.00	0.02	0.00	0.44	75
10-720B	66	E 53rd St at 48th Ave S	422.18	0.74	0.01	0.23	0.01	0.01	0.00	0.48	4,182
10-720C	24	E 52nd St at 47th Ave S	26.35	0.76	0.08	0.01	0.00	0.15	0.00	0.41	261
10-720D	21	E 54th at 38th Ave S	22.95	0.96	0.04	0.00	0.00	0.00	0.00	0.46	337
10-720E	12	Boardman Ave S at 35th Ave S (extended)	18.39	0.96	0.04	0.00	0.00	0.00	0.00	0.46	350
10-720F	84	E 55th at 33rd Ave S	317.75	0.80	0.20	0.00	0.00	0.00	0.00	0.48	3,710
10-720G	15	Hiawatha Ave at E 51st St	13.25	1.00	0.00	0.00	0.00	0.00	0.00	0.45	246
10-720H	12	Hiawatha Ave at 44th Ave S	4.55	1.00	0.00	0.00	0.00	0.00	0.00	0.45	71
10-720I	36	Hiawatha Ave at E 50th St	87.27	0.91	0.05	0.00	0.00	0.04	0.00	0.44	802
10-720J	12	Hiawatha Ave at 42nd Ave S	3.71	0.75	0.00	0.00	0.00	0.25	0.00	0.36	47

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
10-720K	12	Hiawatha Ave at E Minnehaha Pkwy	32.76	0.00	0.80	0.10	0.00	0.04	0.06	0.54	0
10-720L	12	E 59th St at 46th Ave S	5.00	1.00	0.00	0.00	0.00	0.00	0.00	0.45	102
20-010	18	Penn Ave N	93.99	0.89	0.00	0.00	0.00	0.11	0.00	0.41	990
20-020	12	52nd Ave N (Penn Av N)	15.09	0.95	0.00	0.00	0.00	0.05	0.00	0.43	170
20-030	21	52nd Ave N (Oliver Ave N)	7.95	1.00	0.00	0.00	0.00	0.00	0.00	0.45	65
20-040	12	Newton Ave N	6.79	0.80	0.00	0.00	0.00	0.20	0.00	0.38	37
20-050	12	51st Ave N (Newton Av N)	1.59	0.80	0.00	0.00	0.00	0.20	0.00	0.38	37
20-060	36	Knox Ave N	5.91	1.00	0.00	0.00	0.00	0.00	0.00	0.45	63
20-070	30	50th Ave N (Knox Ave N)	39.07	0.91	0.04	0.00	0.00	0.05	0.00	0.44	441
20-080	24	50th Ave N (James Ave N)	33.72	0.94	0.04	0.00	0.00	0.02	0.00	0.45	438
20-090	12	Alley W of Humboldt Ave N	9.95	0.32	0.00	0.00	0.68	0.00	0.00	0.55	85
20-100	54	49th Ave N (Ryan Creek)	0.99	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
20-110	21	49th Ave N (Humboldt Ave N)	216.04	0.13	0.04	0.23	0.00	0.15	0.45	0.24	370
20-120	24	48th Ave N (Humboldt Ave N)	10.22	0.89	0.06	0.00	0.05	0.00	0.00	0.47	55
20-130	12	47th Ave N (Shingle Crk Pkwy)	16.12	1.00	0.00	0.00	0.00	0.00	0.00	0.45	168
20-140	24	47th Ave N (Girard Ave N)	2.97	0.95	0.00	0.00	0.00	0.05	0.00	0.43	61
20-150	12	Malmquist Lane	14.48	1.00	0.00	0.00	0.00	0.00	0.00	0.45	182
20-160	12	Fremont Ave N (Shingle Crk Pkwy)	3.21	0.45	0.20	0.00	0.35	0.00	0.00	0.53	0
20-170	12	46th Ave N (Mamquist Lane)	4.94	0.74	0.00	0.00	0.00	0.26	0.00	0.36	44
20-180	12	46th Ave N (Shingle Crk Pkwy)	5.30	0.64	0.36	0.00	0.00	0.00	0.00	0.50	20
20-190	24	Dupont Ave N (Shingle Crk Pkwy)	1.35	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
20-200	60	45th Ave N (Dupont Ave N)	13.84	1.00	0.00	0.00	0.00	0.00	0.00	0.45	191
20-210A	60	44th Ave N (Soo Line RR)	92.90	0.96	0.00	0.00	0.00	0.03	0.01	0.44	710
20-210B	30	45th Ave N (Colfax Ave N)	620.78	0.62	0.32	0.03	0.03	0.00	0.00	0.51	5,932
20-220	24	43rd Ave N	26.38	0.60	0.10	0.20	0.00	0.10	0.00	0.46	202
20-230	24	Weber Pkwy (Aldrich Ave N)	21.16	1.00	0.00	0.00	0.00	0.00	0.00	0.45	115
20-240	21	Lyndale Ave N (S of Creek)	30.06	0.77	0.13	0.10	0.00	0.00	0.00	0.48	337
20-250	15	Lyndale Ave N (N of Creek)	6.28	0.00	0.80	0.10	0.00	0.10	0.00	0.55	0
20-260	60	I- 94 (S of Creek)	3.50	0.00	0.00	1.00	0.00	0.00	0.00	0.60	115
20-270	40	I-94 (E of I-94 at Creek)	42.81	0.75	0.02	0.03	0.20	0.00	0.00	0.49	665
20-280	24	I-94 (N of Creek)	8.98	0.00	0.90	0.00	0.00	0.05	0.05	0.55	0
20-290	54	47th Ave N @ Xerxes Ave N	8.41	0.00	0.50	0.40	0.00	0.10	0.00	0.55	0
21-010	96	14th Ave N @ Xerxes Ave N	49.49	1.00	0.00	0.00	0.00	0.05	0.00	0.45	388
40-010	future	Xerxes Ave N (S of T.H. 55)	719.17	0.87	0.05	0.01	0.02	0.05	0.00	0.44	10,605
40-020	36	Vincent Ave N (N. of T.H. 55)	15.36	1.00	0.00	0.00	0.00	0.00	0.00	0.45	85
40-030	42	Upton Ave N (N of T.H.)	51.02	0.91	0.00	0.00	0.00	0.09	0.00	0.42	426
40-040	15	T.H. 55 @ Upton Av N	65.39	0.93	0.02	0.00	0.00	0.05	0.00	0.44	987
40-050	12	100' N of 5th Av N @ Thomas Av N	10.28	1.00	0.00	0.00	0.00	0.00	0.00	0.45	65
40-060	future	S of Thomas Av N @ Inglewood St N	3.20	1.00	0.00	0.00	0.00	0.00	0.00	0.45	8
40-070	24	Thomas Av N (N of Chestnut Av N)	7.98	0.80	0.00	0.00	0.00	0.20	0.00	0.38	59
40-080	30	Queen Av N (N of Chestnut Av N)	60.51	0.81	0.00	0.00	0.00	0.19	0.00	0.38	376
40-090	15	Queen Av N -S of 2nd Av N	20.65	0.90	0.02	0.05	0.00	0.03	0.00	0.45	587
40-100	30	Oliver Av N - S of 2nd Av N	10.70	0.93	0.03	0.02	0.00	0.02	0.00	0.45	471
40-110	36	Newton Av N (S of Bassett Creek)	2.61	0.98	0.00	0.00	0.00	0.02	0.00	0.44	0
40-120	30	Morgan Av N (N of Bassett Creek)	65.87	0.87	0.04	0.03	0.00	0.03	0.03	0.44	644

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
40-130	66	Morgan Av N extended (S of Bassett Creek)	35.01	0.89	0.05	0.03	0.00	0.03	0.00	0.45	610
40-140	future	Irving Av N	125.46	0.27	0.36	0.00	0.00	0.05	0.32	0.34	572
40-150	18	2nd Av N - !00' Dupont Av N	24.31	0.38	0.16	0.33	0.00	0.05	0.08	0.47	181
40-160	36	Dupont Av N @ 2nd Av N	30.99	0.16	0.09	0.60	0.00	0.02	0.13	0.49	201
40-170	27	Glenwood Av N @ Dupont Av N (west MH)	194.89	0.12	0.29	0.14	0.03	0.25	0.17	0.36	131
40-180	42	Glenwood Av N @ Dupont Av N (east MH)	16.80	0.17	0.33	0.31	0.12	0.07	0.00	0.54	210
40-190	24	4th Av N @ Dupont Av N (west MH)	65.53	0.00	0.36	0.51	0.00	0.05	0.08	0.53	184
40-200	27	4th Av N @ Dupont Av N (east MH)	24.75	0.40	0.06	0.00	0.38	0.16	0.00	0.46	572
40-210	42	5th Av N @ Dupont Av N (west MH)	17.26	0.72	0.15	0.08	0.01	0.04	0.00	0.47	2,368
40-220	21	5th Av N @ Dupont Av N (east MH)	100.58	0.77	0.17	0.01	0.01	0.04	0.00	0.46	1,559
40-230	48	TH 55 @ Dupont Av N (west MH)	13.78	0.82	0.00	0.00	0.12	0.06	0.00	0.45	200
40-240	54	8th Av N @ Aldrich Av N	341.00	0.55	0.09	0.10	0.13	0.13	0.00	0.45	5,292
40-250	18	TH 55 @ Dupont Av N (east MH)	1.15	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
40-260	15	T H 55 (N frontage Rd) @ Dupont	3.49	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
40-270	21	T H 55 (West Bound) @ Sumner Av	9.59	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
40-280	48	Alley - NW of 8th Av N & 10th Av N	12.76	0.09	0.13	0.70	0.00	0.08	0.00	0.55	23
40-290	future	10th Av SE - 200' NE of 8th Av NE	13.73	0.04	0.66	0.15	0.00	0.08	0.07	0.51	0
40-300	42	6th St N - 100' N of 8th Av N	10.38	0.05	0.06	0.69	0.00	0.11	0.09	0.48	0
40-310	24	4th St N @ 8th Av N (extended) South MH	97.86	0.00	0.09	0.66	0.00	0.05	0.20	0.46	0
40-320	24	4th St N @ 8th Av N (extended) North MH	9.43	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
40-330	future	3rd St N @ 7th Av N (vacated) South MH	15.34	0.00	0.27	0.71	0.00	0.01	0.01	0.59	136
40-340	future	3rd St N -200' SE of 8th Av N	35.27	0.00	0.08	0.80	0.00	0.04	0.08	0.53	0
40-350	30	Washington Av N -200' S of 8th Av N	8.99	0.00	0.09	0.81	0.00	0.00	0.10	0.54	0
40-360	30	2nd St N - 100' SE of 8th Av N	8.09	0.00	0.03	0.97	0.00	0.00	0.00	0.60	0
40-370	18	1stSt N - 100' SE of 8th Av N	12.41	0.00	0.44	0.51	0.00	0.05	0.00	0.58	0
40-380	15	West River Parkway @ Bassett Creek (west curb)	24.92	0.13	0.12	0.40	0.00	0.25	0.10	0.40	204
40-390	15	Bassett Creek outlet to Mississippi River	5.72	0.00	0.96	0.00	0.00	0.04	0.00	0.58	0
40-400	60	I-394 at Penn Av S (Penn Av Holding Pond)	1.07	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
41-010	none	BNRR tracks at 16th St (extended)	94.73	0.50	0.15	0.10	0.00	0.10	0.15	0.39	142
41-020	72	Washington Av N at 3rd Av N	14.89	0.00	0.03	0.12	0.35	0.05	0.45	0.31	0
41-030	48	6th St at 2nd Av N	60.47	0.03	0.37	0.40	0.00	0.14	0.06	0.49	402
41-040	24	2nd Av N at 5th St N	35.59	0.00	0.35	0.45	0.10	0.10	0.00	0.55	125
41-050	15	2nd Av N at 4th St N	10.48	0.00	0.62	0.38	0.00	0.00	0.00	0.60	0
41-060	36	North edge of Brownie Lake	2.95	0.00	0.66	0.34	0.00	0.00	0.00	0.60	0
51-010	12	Cedar Lake Road - 250' SW of Lake View	29.63	0.99	0.00	0.01	0.00	0.00	0.00	0.45	162
51-020	21	W '21st St (extended)	4.00	1.00	0.00	0.00	0.00	0.00	0.00	0.45	31
52-010	12	Burnham Road @ Kenilworth Lagoon	45.29	0.53	0.00	0.00	0.00	0.36	0.11	0.27	147
52-020	12	Park Lane - 500' North of Burnham Road	6.09	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
52-030	12	Burnham Road - '100' North of Cedar Lake Pkwy	7.18	1.00	0.00	0.00	0.00	0.00	0.00	0.45	16
52-040	24	Cedar Lake Pkwy @ Depot	4.54	0.90	0.00	0.00	0.00	0.10	0.00	0.42	0
52-050	18	Cedar Lake Pkwy @ Chowen (extended)	15.30	0.95	0.00	0.00	0.00	0.05	0.00	0.43	74
52-060	36	Cedar Lake Pkwy @ Drew Ave S (extended)	3.22	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
52-070	24	Cedar Lake Pkwy @ Ewing Av S (extended	86.94	0.88	0.02	0.00	0.00	0.10	0.00	0.42	1,095
52-080	18	Cedar Lake Pkwy @ at Basswood Road	8.08	0.41	0.00	0.00	0.00	0.59	0.00	0.24	0
52-090	42	Cedar Lake Pkwy @ West 24th St	4.89	1.00	0.00	0.00	0.00	0.00	0.00	0.45	19

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
52-100	48	Cedar Lake Pkwy @ West 22nd St	11.89	0.58	0.00	0.00	0.00	0.39	0.03	0.30	92
52-110	24	Cedar Lake Pkwy @ West Franklin Av	8.84	0.99	0.00	0.00	0.00	0.01	0.00	0.45	45
52-120	8	Cedar Lake Pkwy @ Cedar Lake Road	14.74	1.00	0.00	0.00	0.00	0.00	0.00	0.45	168
52-130	12	Upton Av S @ West 26th St	7.18	0.70	0.00	0.00	0.00	0.00	0.30	0.32	18
53-010	24	West 26th St @ Lake of the Isles Parkway	7.03	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
53-020	15	Thomas Av S (Dean Blvd)	12.38	0.61	0.00	0.00	0.00	0.00	0.39	0.28	57
53-030	18	Lake of the Isles Parkway ('200' E of Russell Av S)	11.37	0.96	0.00	0.00	0.00	0.04	0.00	0.44	65
53-040	24	Lake of the Isles Parkway (West 24th ST)	2.78	1.00	0.00	0.00	0.00	0.00	0.00	0.45	71
53-050	30	Lake of the Isles Parkway (Penn Av S)	13.66	1.00	0.00	0.00	0.00	0.00	0.00	0.45	149
53-060	18	Lake of the Isles Parkway (Newton Av S)	20.37	1.00	0.00	0.00	0.00	0.00	0.00	0.45	284
53-070	24	Lake of the Isles Parkway (Oliver Av S)	4.89	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
53-080	24	West 21st St @ Lake of the Isles Blvd	5.81	0.84	0.00	0.00	0.00	0.16	0.00	0.39	36
53-090	24	Lake of the Isles Blvd @Franklin Av	59.59	0.68	0.01	0.00	0.03	0.28	0.00	0.36	1,555
53-100	12	Lake of the Isles Blvd @Franklin Av	107.81	0.54	0.01	0.00	0.00	0.45	0.00	0.29	634
53-110	36	Lake of the Isles Pkwy @ West 22nd St	4.59	0.81	0.00	0.00	0.00	0.19	0.00	0.38	26
53-120	12	Lake of the Isles Pkwy @ West 25th St	129.79	0.95	0.04	0.01	0.00	0.00	0.00	0.46	2,688
53-130	15	Lake of the Isles Pkwy @ West 26th St	5.02	1.00	0.00	0.00	0.00	0.00	0.00	0.45	14
53-140	42	Lake of the Isles Pkwy @ Euclid Place	6.36	1.00	0.00	0.00	0.00	0.00	0.00	0.45	60
53-150	54	Lake of the Isles Pkwy @ West 27th St	90.40	0.70	0.20	0.02	0.06	0.02	0.00	0.49	1,586
53-160	15	Lake of the Isles Pkwy @ '250' SW of James Av S	252.19	0.78	0.12	0.06	0.01	0.03	0.00	0.47	6,244
53-170	15	Lake of the Isles Pkwy @ '500' W of Lagoon	6.39	0.75	0.00	0.00	0.00	0.25	0.00	0.36	33
53-180	18	Lake of the Isles Pkwy @ West 28th St	8.09	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
53-190	36	E. Isles Pkwy at The Mall	11.41	0.57	0.00	0.00	0.00	0.43	0.00	0.30	76
54-010	42	E. Calhoun Pkwy at 33rd St. W	84.93	0.67	0.15	0.05	0.00	0.13	0.00	0.43	2,220
54-040	18	E. Calhoun Pkwy at 36th St W.	255.14	0.68	0.22	0.08	0.02	0.00	0.00	0.50	3,792
54-050	18	W. Calhoun Pkwy at Sheridan Av S.	9.27	0.21	0.00	0.00	0.00	0.79	0.00	0.17	27
54-060	30	W. Calhoun Pkwy at Vincent Av S	32.13	0.95	0.00	0.00	0.00	0.05	0.00	0.43	69
54-070	60	W. Calhoun Pwky at Xerxes Av S	60.80	0.74	0.00	0.00	0.00	0.26	0.00	0.36	595
54-080	12	W. Calhoun Pwky approx. '250' S. of W 36th St	414.26	0.89	0.03	0.01	0.05	0.02	0.00	0.46	4,180
54-090	36	W. Calhoun Pwky at W. 36th St	3.55	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
54-100	18	W. Calhoun Pwky at Rose Lane	114.24	0.20	0.00	0.00	0.78	0.02	0.00	0.56	134
54-110	24	W. Calhoun Pwky at Ivy Lane	24.55	1.00	0.00	0.00	0.00	0.00	0.00	0.45	20
54-120	12	W. Calhoun Pwky approx. '200' N of W 32nd St	62.08	0.76	0.08	0.01	0.09	0.06	0.00	0.46	378
54-130	30	W. Calhoun Pwky at Market Place (extended)	1.07	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
54-140	24	W. Calhoun Pwky at Calhoun Blvd (extended)	113.01	0.32	0.35	0.04	0.00	0.25	0.04	0.40	1,729
54-150	9	W. Calhoun Pwky at Dean Pwky	55.34	0.94	0.02	0.01	0.00	0.03	0.00	0.44	455
54-160	12	W. Calhoun Pwky approx. 200' E of Thomas Av S	2.62	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
54-170	12	W. Calhoun Pwky approx. 500' E of Thomas Av S	8.08	0.13	0.42	0.44	0.00	0.01	0.00	0.58	0
54-180	12	W. Calhoun Pwky approx 750' E of Thomas Av S	2.82	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
54-190	12	W. Calhoun Pwky approx. 1000' E of Thomas Av S	2.20	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
54-200	12	W. Calhoun Pwky approx. 1200' E of Thomas Av S	2.13	0.00	0.00	0.00	0.00	1.00	0.00	0.10	41
54-210	12	E. Calhoun Pkwy approx. 1000' NE of Wm Berry Pkwy	1.14	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
55-010	12	Lakewood Cemetary	14.98	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
55-020	12	Lake Harriet Pkwy at Roseway Rd	189.58	0.00	0.99	0.00	0.00	0.01	0.00	0.60	41
56-010	15	E. Harriet Pwky at 43rd St	67.62	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
57-010	36	E. Harriet Pwky at 44th St	26.10	0.44	0.56	0.00	0.00	0.00	0.00	0.53	130
57-020	12	E. Harriet Pwky at Kings Highway	143.08	0.95	0.02	0.00	0.03	0.00	0.00	0.46	1,641
57-030	24	E. Harriet Pwky at W 47th St	18.22	1.00	0.00	0.00	0.00	0.00	0.00	0.45	157
57-040	12	Harriet Pwky at Morgan Av S	39.88	0.71	0.00	0.00	0.00	0.29	0.00	0.35	390
57-050	24	Harriet Pwky at Oliver Ave S.	7.90	1.00	0.00	0.00	0.00	0.00	0.00	0.45	51
57-060	36	W. Harriet Pwky @ Queen Av S	26.11	0.91	0.08	0.01	0.00	0.00	0.00	0.46	436
57-070	12	W. Harriet Pwky @ Russel Av S	81.33	0.98	0.02	0.00	0.00	0.00	0.00	0.45	1,011
57-080	42	W. Harriet Pwky @ Thomas Av S	5.54	0.92	0.00	0.00	0.00	0.08	0.00	0.42	45
57-090	60	W. Harriet Pwky @ W. 47th St	77.77	0.85	0.05	0.01	0.09	0.00	0.00	0.47	833
57-100	12	W. Harriet Pwky @ W.46th St (extended)	313.43	0.81	0.11	0.02	0.06	0.00	0.00	0.48	3,458
57-110	30	W. Harriet Pwky @ W. 44th St.	21.60	0.40	0.60	0.00	0.00	0.00	0.00	0.54	275
57-120	18	W. Harriet Pwky @ approx. 400' N of W 44th St	62.08	0.81	0.11	0.02	0.06	0.00	0.00	0.48	3,458
57-130	18	W. Harriet Pwky @ approx. 500' S W 42nd St	1.16	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
57-140	15	W. Harriet Pwky @ W 42nd St	1.55	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
57-150	12	Lake Harriet Pkwy approx. 50' N of W 42nd St	35.68	0.88	0.02	0.00	0.00	0.10	0.00	0.42	364
57-160	future	Cleveland St NE at 37th Av NE	1.89	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
61-010	36	Silver Lake Stinson Blvd and 37th Av NE	2.86	0.32	0.68	0.00	0.00	0.00	0.00	0.55	0
62-010	66	Victory Pkwy @ Dowling Av N	27.84	0.94	0.03	0.00	0.00	0.03	0.00	0.44	245
63-010	24	W Broadwy Av at Xerxes Av N	455.67	0.92	0.04	0.00	0.02	0.02	0.00	0.45	5,985
63-020	24	Columbus Av S (extended) 200' S of E 61st St	13.62	0.75	0.00	0.00	0.00	0.25	0.00	0.36	0
64-100	12	Elliot Av S (extended) S side of Hwy 62	24.92	1.00	0.00	0.00	0.00	0.00	0.00	0.45	314
64-110	30	Oakland Av S (extended) @ 50' N of Hwy 62	6.01	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
64-120	12	Park Av S 300' E of Portland Av (at curve)	16.04	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
64-130	30	Mn Hwy 190 @ Hwy 62	2.44	1.00	0.00	0.00	0.00	0.00	0.00	0.45	18
65-010	33	W 62nd St (extended) @ State Hwy 190	18.97	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0
65-020	12	W 54th @ France Av S	39.13	0.44	0.55	0.00	0.00	0.01	0.00	0.53	442
70 -265	21	Pratt St @ W M'haha Pkwy (north bank)	185.98	0.81	0.15	0.02	0.00	0.02	0.00	0.47	2,415
70-010	24	W 54th St 150' E of Zenith Av S	6.23	0.93	0.07	0.00	0.00	0.00	0.00	0.46	55
70-015	24	York Av S @ W 54th St (extended)	11.69	1.00	0.00	0.00	0.00	0.00	0.00	0.45	124
70-020	12	Xerxes Av S @ 54th St	37.55	1.00	0.00	0.00	0.00	0.00	0.00	0.45	576
70-025	18	Washburn Av S @ N Bank of Creek	3.67	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-030	12	Washburn Av S	13.48	1.00	0.00	0.00	0.00	0.00	0.00	0.45	106
70-035	12	Vincent Av S @ W 54th St	4.53	1.00	0.00	0.00	0.00	0.00	0.00	0.45	57
70-040	12	W 54th St 50' W of Upton Av S	2.42	1.00	0.00	0.00	0.00	0.00	0.00	0.45	55
70-045	18	Upton Av S - N Bank of Creek	0.22	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-050	60	W 54th St 250' E of Upton Av S	17.41	1.00	0.00	0.00	0.00	0.00	0.00	0.45	216
70-055	12	Forest Dale Rd 250' E of Upton Av S	333.43	0.87	0.09	0.00	0.02	0.02	0.00	0.46	3,186
70-060	12	Forest Dale Rd 750' E of Upton Av S	3.53	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-065	12	Forest Dale Rd @ Sheridan Av S (extended)	1.89	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-070	12	Queen Av S @ W 53rd St S	5.80	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-075	15	Penn Av S - S Bank of Creek	5.00	0.95	0.00	0.00	0.00	0.05	0.00	0.43	96
70-080	48	Morgan Av S 300' N of 53rd St	11.96	0.94	0.03	0.00	0.00	0.03	0.00	0.44	2,796
70-085	15	W 52nd St - W Bank of Creek	229.48	0.94	0.03	0.00	0.00	0.03	0.00	0.44	2,702
70-090	15	W 52nd St -E Bank of Creek	18.57	1.00	0.00	0.00	0.00	0.00	0.00	0.45	271
70-095	12	300' SE of Newton Av S @ W 51st St	9.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	129

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
70-100	12	Morgan Av S '500' N of W 52nd St	9.64	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-105	21	Morgan Av S @ 51st St	1.63	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-110	12	Logan Av S at W M' haha Pkwy (South bank)	18.13	1.00	0.00	0.00	0.00	0.00	0.00	0.45	217
70-115	21	Logan Av S at W M' haha Pkwy (north bank)	3.71	1.00	0.00	0.00	0.00	0.00	0.00	0.45	40
70-120	12	Knox Av S @ W M' haha Pkwy (south)	4.22	1.00	0.00	0.00	0.00	0.00	0.00	0.45	61
70-125	36	James Av S @ N Bank of Creek	5.23	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
70-130	12	Irving Av S @ W 51st St	34.29	0.70	0.23	0.00	0.07	0.00	0.00	0.50	218
70-135	12	Humboldt Av S @ N Bank of Creek	7.46	1.00	0.00	0.00	0.00	0.00	0.00	0.45	115
70-140	20	W 50th St @ W M' haha Pkwy	0.78	0.00	0.00	0.00	1.00	0.00	0.00	0.60	0
70-145	30	W 49th St @ Humboldt Av S (vacated)	9.19	0.00	0.60	0.00	0.40	0.00	0.00	0.60	0
70-150	15	Humboldt Av S '50' N of W 49th St	4.51	1.00	0.00	0.00	0.00	0.00	0.00	0.45	77
70-155	12	Harriet Pkwy @ Irving Av S	2.05	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
70-160	15	W 48th St @ Humboldt Av S	2.95	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-165	15	W 49th St @ W M'haha Pkwy	27.77	1.00	0.00	0.00	0.00	0.00	0.00	0.45	286
70-170	18	W 50th St @ W M' haha (east bank)	23.74	1.00	0.00	0.00	0.00	0.00	0.00	0.45	179
70-175	12	W M 'haha Pkwy 400' S of W 50th St	30.89	0.95	0.02	0.00	0.03	0.00	0.00	0.46	420
70-180	12	W 51st St @ Humboldt Av S	1.14	1.00	0.00	0.00	0.00	0.00	0.00	0.45	17
70-185	18	Humboldt Av S @ W M ' haha Pkwy (west bank)	1.53	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-190	21	Fremont Av S @ W M' haha Pkwy (east bank)	15.04	0.21	0.00	0.00	0.00	0.79	0.00	0.17	171
70-195	24	Girard Av S @ W M' haha Pkwy	46.02	0.96	0.04	0.00	0.00	0.00	0.00	0.46	554
70-200	12	W M 'haha Pkwy 250' W of Emerson Av S (east bank)	31.52	1.00	0.00	0.00	0.00	0.00	0.00	0.45	342
70-205	12	W M 'haha Pkwy @ Fremont Av S (extended)	1.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-210	12	Emerson Av S @ W M' haha	3.58	1.00	0.00	0.00	0.00	0.00	0.00	0.45	111
70-215	12	Dupont Av S @ W M' haha Pkwy (south bank)	5.93	1.00	0.00	0.00	0.00	0.00	0.00	0.45	60
70-220	12	Dupont Av S @ W M' haha Pkwy (northbank)	4.54	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-225	12	Colfax Av S @ W M 'haha Pkwy (north bank)	4.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	65
70-230	12	Bryant Av S @ W M' haha Pkwy (north bank)	4.72	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
70-235	30	Bryant Av S @ W M' haha Pkwy (south bank)	5.04	1.00	0.00	0.00	0.00	0.00	0.00	0.45	68
70-240	12	Aldrich Av S @ W M"haha Pkwy (north bank)	4.52	1.00	0.00	0.00	0.00	0.00	0.00	0.45	93
70-245	27	Lyndale Av S @ W M ' haha Pkwy (south bank)	9.98	0.95	0.00	0.00	0.00	0.05	0.00	0.43	187
70-250	24	Harriet Av S @ W M' haha Pkwy (north bank)	41.27	0.78	0.20	0.02	0.00	0.00	0.00	0.48	398
70-255	30	Gladstone Av S (ext) @ W M haha Pkwy (north bank)	45.37	1.00	0.00	0.00	0.00	0.00	0.00	0.45	388
70-260	48	Pleasant Av S @ W M'haha Pkwy (south bank)	24.90	0.94	0.00	0.06	0.00	0.00	0.00	0.46	341
70-270	24	W M 'haha Pkwy 250' W of Nicollet Ave S (east bank)	4.66	1.00	0.00	0.00	0.00	0.00	0.00	0.45	119
70-275	21	W M' haha Pkwy 300' S of Valley View (north bank)	4.28	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-280	18	Nicollet Ave S at M ' haha Pkwy (north bank)	9.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-285	12	E M' haha Pkwy 300' E of Nicollet Ave S (n bank)	19.03	1.00	0.00	0.00	0.00	0.00	0.00	0.45	60
70-290	15	E M ' haha Pkwy 50' W of Stevens Av S (south bank)	2.37	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-295	12	E M ' haha Pkwy 50' W of Stevens Av S (south bank)	7.18	1.00	0.00	0.00	0.00	0.00	0.00	0.45	90
70-300	12	E M ' haha Pkwy at Luverne Av S (north bank)	0.40	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
70-305	12	E M ' haha Pkwy at 3rd Av S (north bank)	12.68	0.99	0.00	0.00	0.00	0.01	0.00	0.45	118
70-310	21	E M ' haha Pkwy at 200' W of Tarrymore Av S (S bank)	5.36	0.82	0.00	0.00	0.00	0.18	0.00	0.39	0
70-315	36	E M ' haha Pkwy at E 50th St (north Bank)	5.79	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-320	9	E M ' haha Pkwy at 5th Av S (north bank)	2.32	0.82	0.00	0.00	0.00	0.18	0.00	0.39	394
70-325	54	E M ' haha Pkwy at 5th Av S (north bank)	2.35	1.00	0.00	0.00	0.00	0.00	0.00	0.45	394

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
70-330	18	E M ' haha Pkwy at 100' W of Portland Av S (s bank)	279.41	0.83	0.03	0.00	0.14	0.00	0.00	0.48	3,211
70-335	12	E M ' haha Pkwy at Portland Av S (s bank)	1.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-340	12	E M ' haha Pkwy at Oakland Av S (s bank)	21.97	0.12	0.12	0.40	0.00	0.25	0.11	0.39	204
70-345	60	E M ' haha Pkwy at Oakland Av S (n bank)	3.81	1.00	0.00	0.00	0.00	0.00	0.00	0.45	60
70-350	12	E M ' haha Pkwy at Park Av S (s bank)	314.40	0.70	0.25	0.01	0.04	0.00	0.00	0.50	4,075
70-355	42	E M ' haha Pkwy at Park Av S (s bank)	1.29	1.00	0.00	0.00	0.00	0.00	0.00	0.45	18
70-360	12	E M ' haha Pkwy at Columbus Av S (s bank)	131.96	0.96	0.02	0.01	0.01	0.00	0.00	0.46	1,253
70-365	21	E M ' haha Pkwy at Chicago Av S (n bank)	6.70	1.00	0.00	0.00	0.00	0.00	0.00	0.45	116
70-370	12	E M ' haha Pkwy at Chicago Av S (s bank)	3.75	0.96	0.00	0.00	0.00	0.04	0.00	0.44	33
70-375	15	E M' haha Pkwy at 11th Av S (s bank)	7.10	0.85	0.15	0.00	0.00	0.00	0.00	0.47	64
70-380	127	E M ' haha Pkwy 150 ' W of 11th Av S (n bank)	14.40	1.00	0.00	0.00	0.00	0.00	0.00	0.45	222
70-385	24	E M' haha Pkwy at 12th Av S (s bank)	14.97	1.00	0.00	0.00	0.00	0.00	0.00	0.45	243
70-390	30	E M' haha Pkwy at 12th Av S (n bank)	58.11	0.90	0.00	0.00	0.10	0.00	0.00	0.47	770
70-395	12	E 50th St at 13th Av S (s bank)	57.19	0.94	0.00	0.00	0.00	0.06	0.00	0.43	713
70-400	15	E 50th St at Bloomington Av S (south bank)	9.67	0.95	0.00	0.00	0.00	0.05	0.00	0.43	119
70-405	12	E 49th St at 16th Av S (south bank)	7.16	0.40	0.00	0.00	0.00	0.60	0.00	0.24	0
70-410	36x96	E M' haha Pkwy at 16th Av S (north bank)	5.80	0.90	0.00	0.00	0.00	0.10	0.00	0.42	67
70-415	15	E M' haha Pkwy at 18th Av S (south bank)	120.75	0.96	0.02	0.00	0.02	0.00	0.00	0.46	947
70-420	30	E M' haha Pkwy at Cedar Av S (north bank)	16.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	164
70-425	15	E M' haha Pkwy 1/2 mi. E of Longfellow Av (w bank)	20.63	0.59	0.34	0.07	0.00	0.00	0.00	0.51	163
70-430	18	E M' haha Pkwy 1/2 mi. E of Longfellow Av (e bank)	6.19	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
70-435	42	47th St E (extended) 1/2 mi. E Longfellow Av	9.16	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
70-440	12	28th Av S @ W 47th St (s bank)	34.48	0.68	0.06	0.06	0.20	0.00	0.00	0.50	236
70-445	12	28th Av S 500' S of 46th St E (n band)	5.60	1.00	0.00	0.00	0.00	0.00	0.00	0.45	65
70-450	12	29th Av S 500' N E M' haha Pkwy (s band)	2.65	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-455	12	29th Av S 500' S of 46th St E (n bank)	2.66	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-460	15	'30th Av S 500' N of E M ' haha Pkwy (s band)	2.67	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-465	15	30th Av S 500' S of E 46th St (n bank)	2.58	1.00	0.00	0.00	0.00	0.00	0.00	0.45	92
70-470	60	Nokomis Av 200' S of 46th St (n bank)	8.55	0.81	0.00	0.00	0.00	0.19	0.00	0.38	164
70-475	12	31st Av S @ E 46th St (n bank)	229.14	0.85	0.02	0.00	0.10	0.03	0.00	0.46	2,806
70-480	24	E 31st St 600' N of 47th St (s bank)	0.68	0.00	0.00	0.00	1.00	0.00	0.00	0.60	0
70-485	48	31st Av @ E 46th St (s bank)	13.36	1.00	0.00	0.00	0.00	0.00	0.00	0.45	140
70-490	15	32nd Av S @ E 46th St	48.75	0.85	0.00	0.00	0.15	0.00	0.00	0.47	466
70-495	12	32nd Av S 250' N of E M' haha Pkwy (s bank)	7.74	1.00	0.00	0.00	0.00	0.00	0.00	0.45	66
70-500	15	E 47th St 200' W of 32nd Av S	0.56	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-505	27	32nd Av S 300' N of E M' haha Pkwy (s bank)	8.12	0.89	0.00	0.00	0.00	0.11	0.00	0.41	110
70-510	30	33rd Av S '250' NE of E M' haha Pkwy (s bank)	41.82	0.99	0.01	0.00	0.00	0.00	0.00	0.45	360
70-515	18	34th Av S '150 N of E M' haha Pkwy (s bank)	62.73	0.86	0.14	0.00	0.00	0.00	0.00	0.47	778
70-520	15	35th Av S @ E M' haha Pkwy (s bank)	6.05	1.00	0.00	0.00	0.00	0.00	0.00	0.45	74
70-525	12	35th Av S @ e 47th St	6.23	1.00	0.00	0.00	0.00	0.00	0.00	0.45	110
70-530	24	35th Av S 100' S of Crosby Av S	1.67	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-535	12	35th Av S @ E 47th St (s bank)	30.24	0.75	0.05	0.00	0.00	0.20	0.00	0.39	370
70-540	12	36th Av S @ Crosby Av (n bank)	5.10	0.32	0.00	0.00	0.00	0.68	0.00	0.21	63
70-545	12	37th Av S 100' N of E 47th St (s bank)	1.89	1.00	0.00	0.00	0.00	0.00	0.00	0.45	55
70-550	12	37th Av S Crosby Av S	1.77	1.00	0.00	0.00	0.00	0.00	0.00	0.45	55

STORM DRAINAGE AREAS CHARACTERIZATION

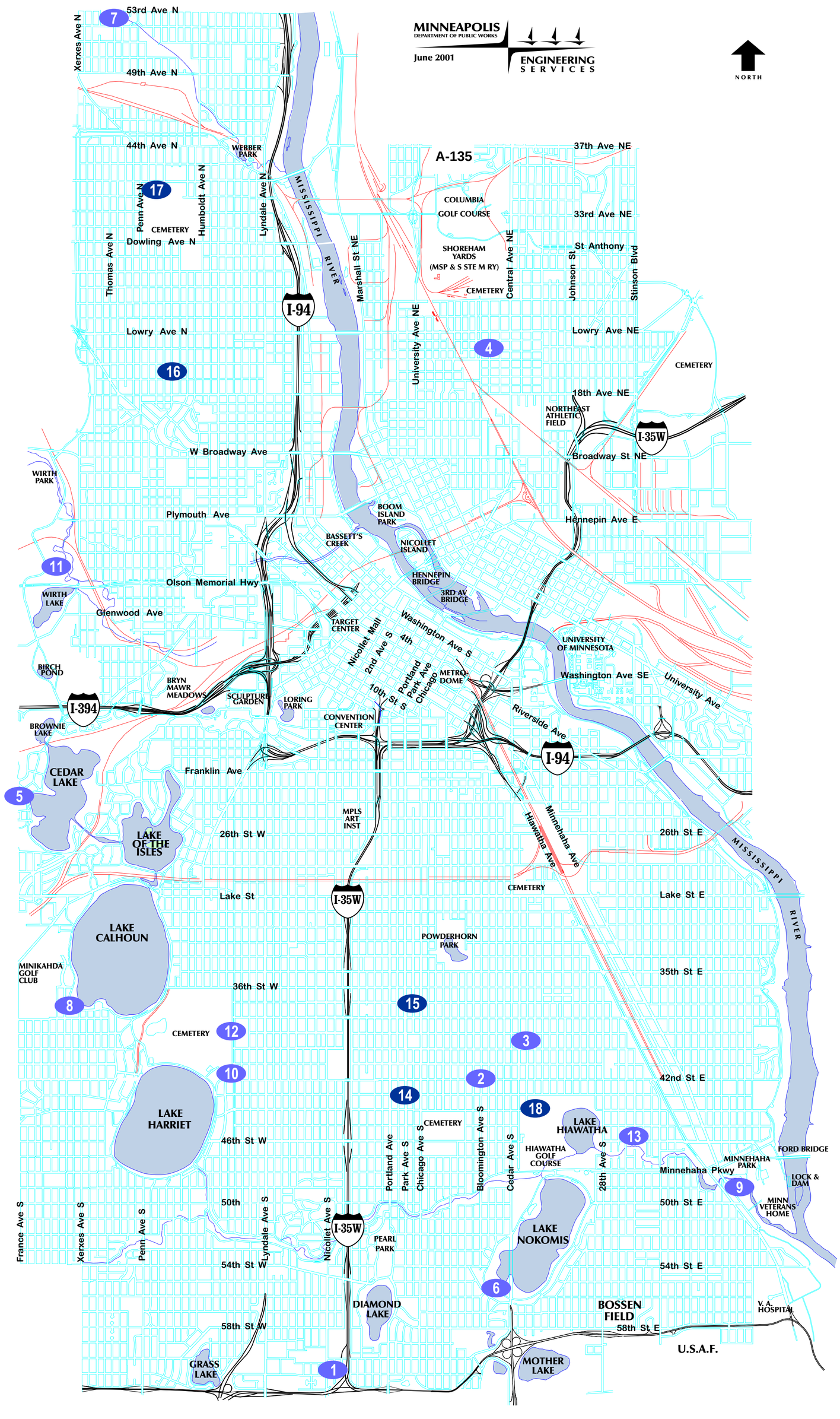
Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
70-555	12	E 47th St @ 38th Av S (s bank)	1.73	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-560	12	E M' haha Pkwy @ 39th Av S (s bank)	3.33	1.00	0.00	0.00	0.00	0.00	0.00	0.45	39
70-565	12	39th Av S 250' N of E 49th St (s bank)	16.63	0.40	0.00	0.00	0.00	0.60	0.00	0.24	143
70-570	24	E 49th St @ 30th Av S	1.23	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
70-575	48	Godfrey Rd @ 46th Av S (extended)	15.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	175
70-580	12	Portland Av S 250' S of Diamond Lake Rd	119.93	0.73	0.10	0.05	0.00	0.12	0.00	0.43	1,025
71-010	18	E 55th St @ Portland Av S	1.12	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
71-020	24	E 56th St @ Park Av S	14.05	1.00	0.00	0.00	0.00	0.00	0.00	0.45	115
71-030	12	E 57th St @ Portland Av S	28.58	0.98	0.02	0.00	0.00	0.00	0.00	0.45	328
71-040	36	E 58th St @ Portland Av S	20.93	0.34	0.00	0.00	0.00	0.66	0.00	0.22	131
71-050	12	Diamond Lake Lane @ E 59th St	120.42	0.95	0.05	0.00	0.00	0.00	0.00	0.46	1,218
71-060	66	W 58th St @ Clinton Av S	3.11	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
71-070	54	E Diamond Lake Road @ Clinton Av S	386.69	0.60	0.15	0.15	0.05	0.05	0.00	0.49	3,657
71-080	12	Hampshire Drive @ E Diamond Lake Rd	101.79	0.85	0.10	0.05	0.00	0.00	0.00	0.47	938
71-090	12	Diamond Lake Rd 250' E of Hampshire Drive	6.50	0.99	0.00	0.00	0.00	0.01	0.00	0.45	69
71-100	21	Nokomis Pkwy at Parking Lot on North Shore	1.99	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-010	18	E Nokomis Pkwy approx. 100' N of 50th St	17.32	0.00	0.00	0.00	0.15	0.85	0.00	0.18	0
72-020	21	E Nokomis Pkwy approx 200 N of 52nd St E	24.70	0.77	0.05	0.00	0.00	0.18	0.00	0.39	205
72-030	36	E Nokomis Pkwy @ E 53rd St	5.25	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-040	18	E Nokomis Pkwy @ 54th St (extended)	166.54	0.80	0.04	0.00	0.03	0.13	0.00	0.42	1,911
72-050	36	E Nokomis Pkwy E 56th St	5.16	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-060	12	Cedar Av S 500' N of Nokomis Pkwy	113.04	0.69	0.00	0.00	0.04	0.27	0.00	0.36	947
72-070	12	W Nokomis Pkwy 500' W of Cedar Av S	2.21	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-080	73x115	Edgewater Blvd at Nokomis Lane	4.74	0.00	1.00	0.00	0.00	0.00	0.00	0.60	0
72-090	42	Edgewater Blvd 50' W of Nokomis Lane	68.71	0.92	0.00	0.00	0.05	0.03	0.00	0.45	717
72-100	12	Nokomis Pkwy 600' W of Cedar Av S	68.32	0.91	0.09	0.00	0.00	0.00	0.00	0.46	760
72-110	27	E Nokomis Pkwy at 54th St	3.22	1.00	0.00	0.00	0.00	0.00	0.00	0.45	610
72-120	30	Cedar Av S at E 52nd St	62.98	1.00	0.00	0.00	0.00	0.00	0.00	0.45	589
72-130	12	E Nokomis Pkwy at Parking Lot on NW Shore	58.06	0.96	0.04	0.00	0.00	0.00	0.00	0.46	706
72-140	24	Nokomis Pkwy at Parking Lot on N Shore	10.19	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-150	12	W Nokomis Pkwy 500' S of Minnehaha Creek	4.76	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
72-160	48	E 61st St @ Bloomington Av S	4.55	0.95	0.00	0.00	0.00	0.05	0.00	0.43	675
73-010	42	E 61st St @ Bloomington Av S	20.76	0.98	0.00	0.00	0.00	0.02	0.00	0.44	92
73-020	12	North Shore of Taft Lake	57.47	0.97	0.00	0.00	0.00	0.03	0.00	0.44	583
73-030	12	Hwy 62 at NW Shore of Mother Lake	21.56	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
74-010	18	59th St E at 26th Ave S	44.39	0.81	0.19	0.00	0.00	0.00	0.00	0.48	111
74-020	12	Highway 62 @ SW shore of Wetland	4.41	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
75-005	12	Highway 62 frontage Rd @ 15th Av S	12.39	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
75-010	12	E 60th St 50' W of 15th Av S	3.65	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0
75-020	15	14th Av S @ E 59th St	1.53	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
75-030	15	E 59th St @ 12th Av S	8.38	1.00	0.00	0.00	0.00	0.00	0.00	0.45	35
75-040	60x69	E 43rd St @ 23rd Av S (extended)	14.74	1.00	0.00	0.00	0.00	0.00	0.00	0.45	309
76-010	42	27th Av S @ E44th St	907.31	0.86	0.07	0.02	0.03	0.02	0.00	0.46	13,563
76-020	15	E 44th St @ 27th Av S	88.62	0.96	0.04	0.00	0.00	0.00	0.00	0.46	1,074
76-030	15	E 45th St @ 28th Av S	7.55	1.00	0.00	0.00	0.00	0.00	0.00	0.45	70

STORM DRAINAGE AREAS CHARACTERIZATION

Outfall	Pipe Size(in)	Location of Outfall	Total(Ac)	Res	Comm	Ind	Public	Open	Rail	Runoff	Pop
76-040	15	E 46th St @ 28th Av S	4.67	0.25	0.00	0.00	0.00	0.75	0.00	0.19	0
81-010	18	Wirth Pkwy @ S side of Birch Pond	31.17	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
82-010	36	Powderhorn Terrace @ 12th Av S	23.53	0.72	0.22	0.06	0.00	0.00	0.00	0.49	457
82-020	36	15th Av S 300' S of E 34th St	73.45	0.94	0.03	0.01	0.02	0.00	0.00	0.46	1,285
82-030	30	E 35th St @ 13th Av S	90.04	0.91	0.04	0.01	0.02	0.02	0.00	0.45	1,998
82-040	36	10th Av S 200' S of E 33rd St	98.49	0.85	0.03	0.02	0.08	0.02	0.00	0.46	1,881
83-010		W 61st St @ Grass Lake Terrace	6.59	1.00	0.00	0.00	0.00	0.00	0.00	0.45	39
83-015	24	S Shore of Grass Lake @ Grass Lake Terrace	0.99	1.00	0.00	0.00	0.00	0.00	0.00	0.45	0
83-020	48	Road btwn W 61st St & Grass Lake Terrace	85.96	0.96	0.00	0.00	0.00	0.04	0.00	0.44	241
83-025	36	Road btwn W 61st St & Grass Lake Terrace	51.23	1.00	0.00	0.00	0.00	0.00	0.00	0.45	474
83-030	24	W Grass Lake Terr. @ SW corner of Grass Lake	0.82	0.00	0.00	1.00	0.00	0.00	0.00	0.60	0
83-040	32	W Grass Lake Terr. @ W shore of Grass Lake	1.08	0.00	0.00	0.00	0.00	1.00	0.00	0.10	0
83-050	24	W 59th St (extended) @ Grass Lake Terrace	40.40	0.99	0.00	0.01	0.00	0.00	0.00	0.45	295
83-060	15	Girard Av S 250' S Grass Lake Terrace	10.05	1.00	0.00	0.00	0.00	0.00	0.00	0.45	149
83-070	24	Girard Av S @ W 60th St	1.19	0.82	0.08	0.00	0.10	0.00	0.00	0.48	1,426
83-080	60	Girard Av S 250' N of Dupont Av S	178.63	0.82	0.08	0.00	0.10	0.00	0.00	0.48	1,426
83-090	15	Dupont Av S @ Girard Av S	9.16	0.85	0.00	0.00	0.00	0.15	0.00	0.40	78
84-010	12	Hwy 62 between 28th and 34th Ave S	16.93	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0
85-010	12	Ewing Ave S & W 22nd St.	21.56	0.86	0.00	0.14	0.00	0.00	0.00	0.47	0

Minneapolis Storm Water Ponds

A-135



Proposed Ponds

- 14 43rd & Park - Wet
- 15 37th & Columbus - Dry
- 16 Logan & 29th - Wet
- 17 42nd & Queen
- 18 Lake Hiawatha Golf Course
  Ponds / Wetland

Existing Ponds

- 1 60th & 1st - Wet
- 2 Bancroft Meadows - Dry - Bloomington & 42nd
- 3 Sibley at 39th & Longfellow S - Dry
- 4 Edison at 22nd & Quincy NE - Dry
- 5 Cedar Lake - Cedar Meadows
- 6 Nokomis Wetland Restoration
- 7 Shingle Creek Regional Stormwater Pond
- 8 Southwest Calhoun Pond - Wetland
- 9 Longfellow House
- 10 Lake Harriet
- 11 Wirth Parkway
- 12 King's Highway Detention Basin
- 13 SENA Wetlands - 31st Ave & 46th St E

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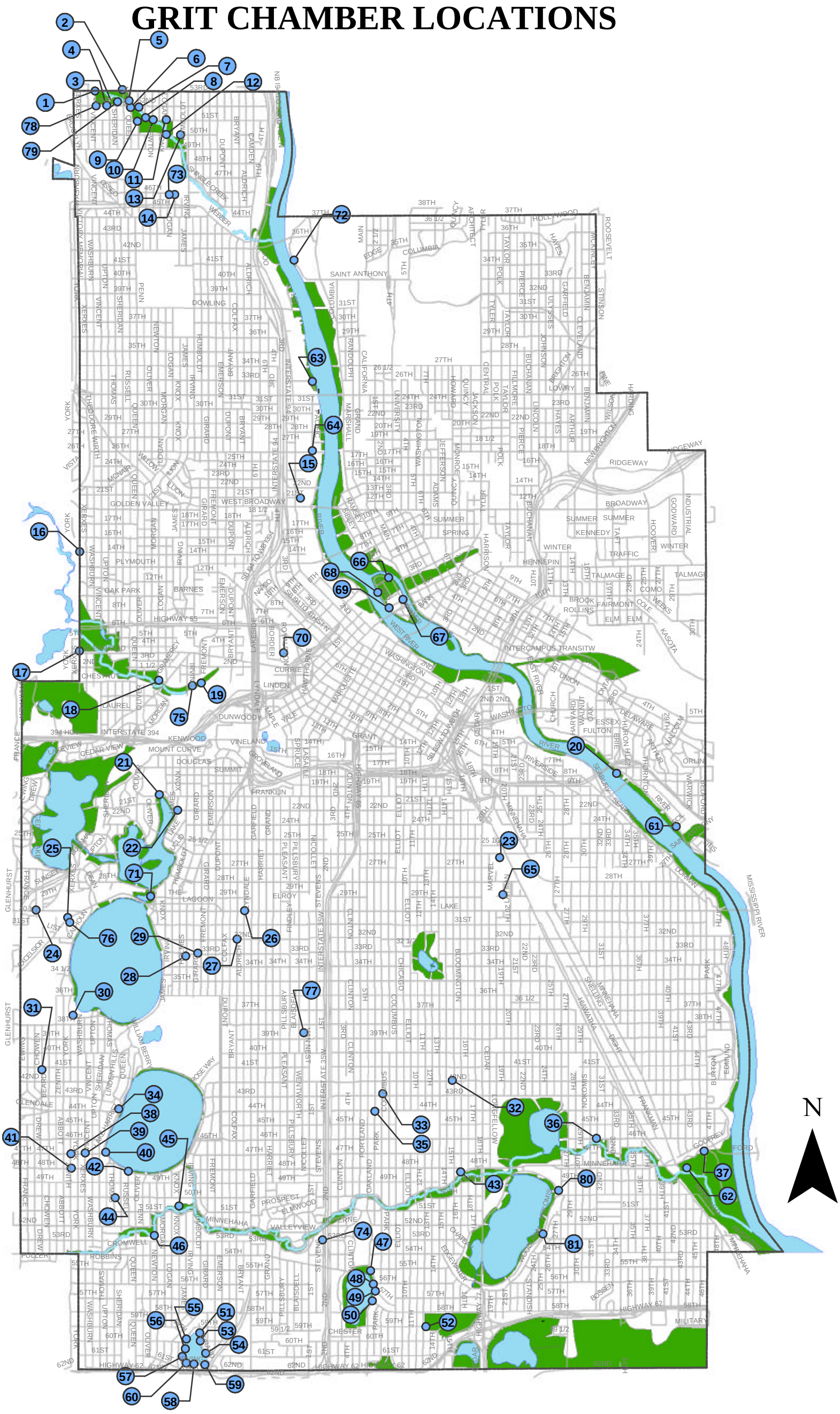
CITY OF MINNEAPOLIS

GRIT CHAMBER LOCATIONS



CITY OF MINNEAPOLIS PUBLIC WORKS DEPARTMENT
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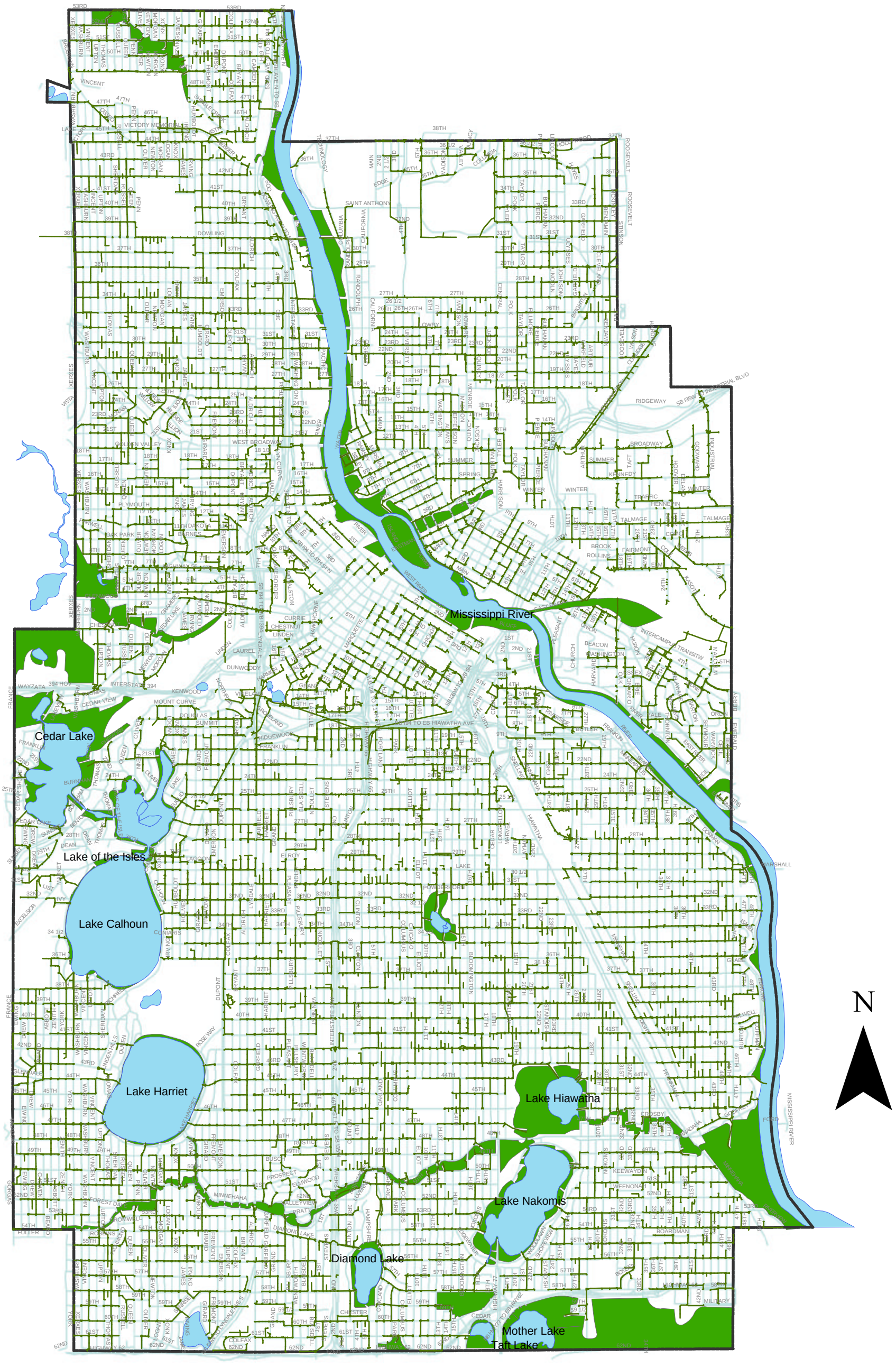
A-137

STORM DRAIN SYSTEM



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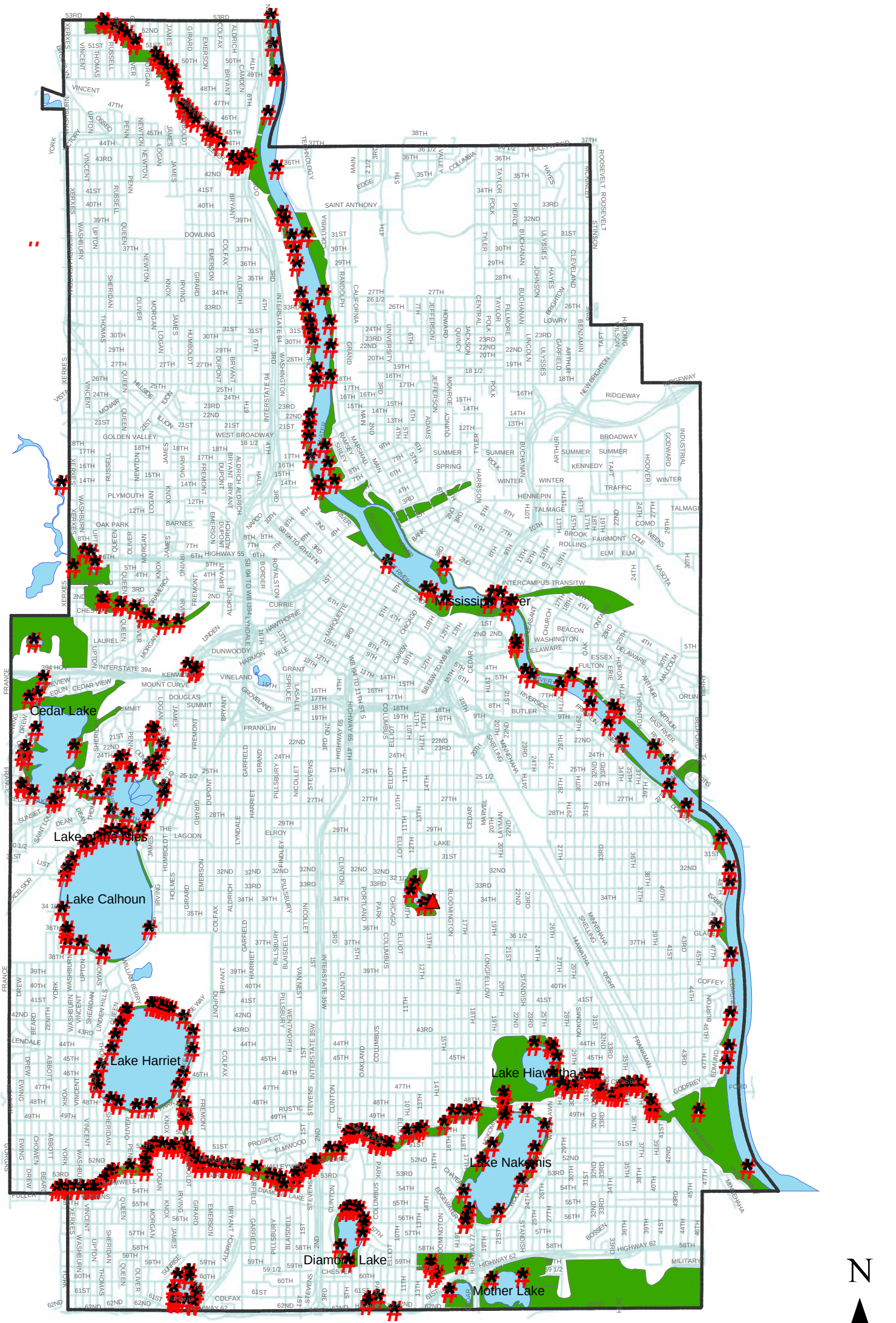
STORM DRAIN OUTFALL LOCATIONS



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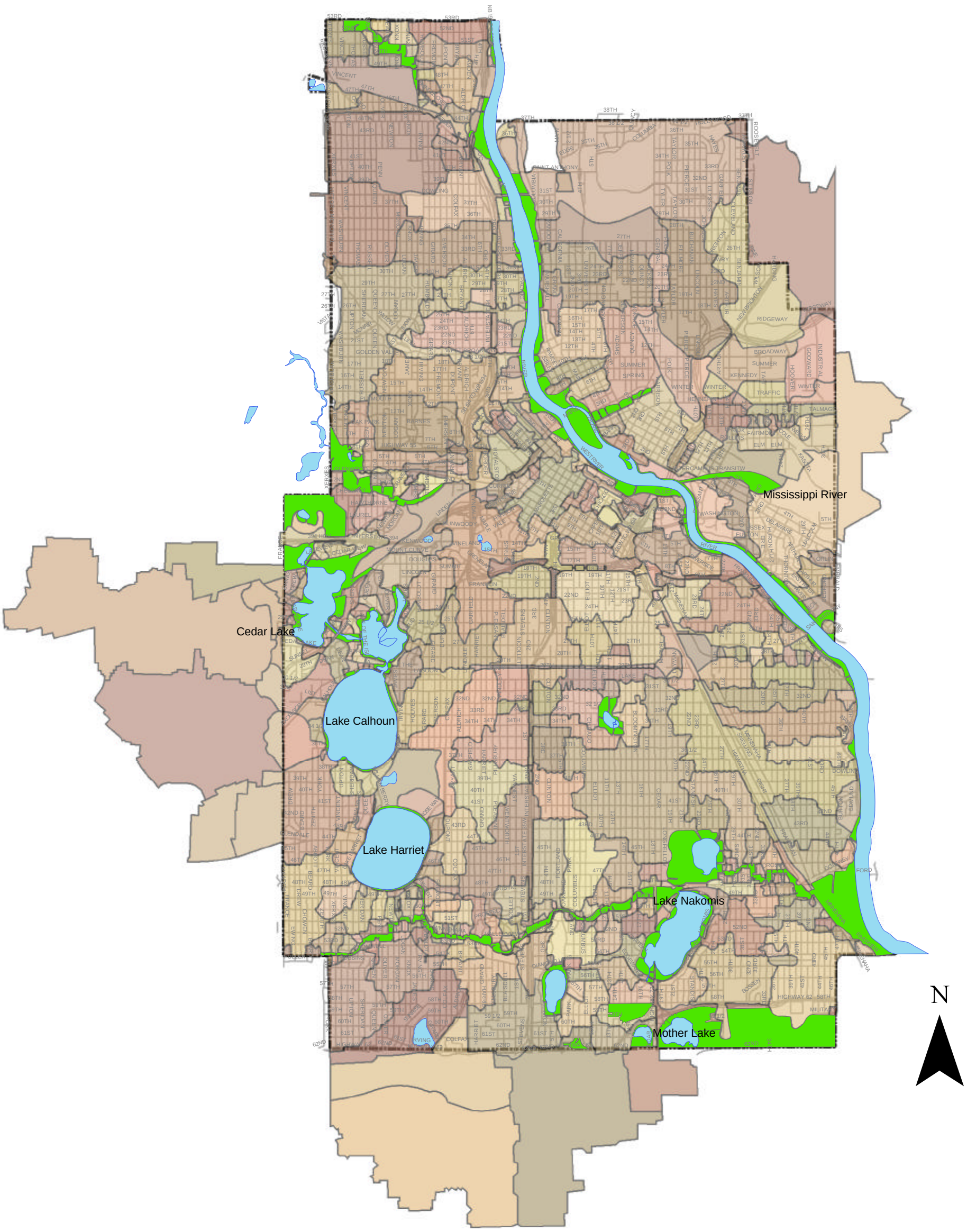
STORM WATER RUNOFF DRAINAGE BOUNDARIES



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ESTIMATES OF ANNUAL AND SEASONAL POLLUTANT LOADS

Statistics for event mean concentrations were calculated using Microsoft Excel spreadsheets. FLUX and P8 were used to calculate flow-weighted mean concentrations and snowmelt runoffs respectively.

All flow weighted mean concentrations were calculated using the model FLUX . FLUX calculates total mass discharge and associated error statistics based on six different calculation methods. Calculation methods 1-Direct Mean Loading and 5-Regression, Second-Order (Walker 1987) were ignored because they are inappropriate for storm sewer applications where the daily flow file contains a significant number of zero flows (Bruce Wilson, personal communication, 2001). Sample concentrations and associated daily average flows were used as input for these calculations. In order to achieve the most accurate and precise results, the data was often stratified by flow or by season.

The model P8 was used to calculate daily flows for the snowmelt events during January through April. Daily temperature and hourly precipitation files obtained from the National Oceanic and Atmospheric Administration (NOAA) National Data Center (NNDC) were used as input for P8.

A description of FLUX as described in the FLUX manual (Walker 1996):

> "FLUX is an interactive program designed for use in estimating the loadings of nutrients or other water quality components passing a tributary sampling station over a given period of time. These estimates can be used in formulating reservoir nutrient balances over annual or seasonal averaging periods appropriate for application of empirical eutrophication models.
>
> Using six calculation techniques, FLUX maps the flow/concentration relationship developed from the sample record onto the entire flow record to calculate total mass discharge and associated error statistics. In many cases, stratifying the data increases the accuracy and precision of loading estimates."

A description of P8 as described in the software's introduction:

> "P8 is a model for predicting the generation and transport of stormwater runoff pollutants in small urban catchments…
>
> Simulations are driven by hourly rainfall and daily air-temperature time series…"

The following formula was used to calculate the total annual pollutant load. Conversion factors were used to convert acres to square meters and adjust units on the concentration data units.

$$L = [(P)\ (Pj)\ (Rv)\ (C/1000)\ (A*4046.9)]$$

where: L = seasonal pollutant load, kilograms/season
P = seasonal precipitation, inches/season (meters/season)
Pj = correction factor for storms which do not produce runoff = 0.85
Rv = runoff coefficient
C = median event mean concentration of pollutants, mg/L
A = area, acres
Conversion factors 4046.9 for acres to square meters
1000 for liters to cubic meters

The flow weighted mean concentration (FWMC) expressed as a mean of all sites was used for the annual load estimation calculations as it most accurately reflects storm water loadings on an annual basis. The seasonal loadings were calculated from the pooled data using the median event mean concentration as there were too few data points from each watershed to use FLUX to determine with a reasonable degree of accuracy a seasonal FWMC for each site. The median of the data set is a better representation of the runoff data than the mean values (Bannerman, et al, 1992). The annual load and a summation of the seasonal loads will not be equal due to this difference in calculation methods.

Season loads were calculated on the following basis.

Season	Inclusive dates	Precipitation for period
Winter/snowmelt	01/01/01 – 04/15/01	7.26 inches (0.184 m)
Spring	04/16/01 – 05/31/01	7.88 inches (0.200 m)
Summer	06/01/01 – 08/31/01	10.80 inches (0.274 m)
Fall	09/01/01 – 12/31/01	8.29 inches (0.211 m)

$$L = [(P)\ (Pj)\ (Rv)\ (C/1000)\ (A*4046.9)]$$

where: L = seasonal pollutant load, kilograms/season
P = seasonal precipitation, inches/season (meters/season)
Pj = correction factor for storms which do not produce runoff = 0.85
Rv = runoff coefficient
C = median event mean concentration of pollutants, mg/L
A = area, acres
Conversion factors 4046.9 for acres to square meters
1000 for liters to cubic meters

Flow Weighted Mean Concentration (FWMC) and related statistics

Site	TP (mg/L) FWMC	TDP (mg/L) FWMC	TKN (mg/L) FWMC	NO3NO2 (mg/L) FWMC	NH3 (mg/L) FWMC	CL (mg/L) FWMC	BOD (mg/L) FWMC
1	0.541	0.159	3.09	0.358	0.587	150	10.3
2	0.652	0.179	2.28	0.373	0.479	7.81	12.5
3	0.255	0.0488	1.72	0.608	0.388	12.4	8.70
4	0.377	0.0889	2.19	0.357	0.585	3.54	16.4
5	0.525	0.0859	1.77	0.296	0.43	13.3	12.8
MEAN	**0.470**	**0.112**	**2.21**	**0.398**	**0.494**	**37.41**	**12.1**
MEDIAN	**0.525**	**0.0889**	**2.19**	**0.358**	**0.479**	**12.36**	**12.5**
SD	**0.155**	**0.0546**	**0.552**	**0.121**	**0.0901**	**63.06**	**2.93**

Site	TSS (mg/L) FWMC	TDS (mg/L) FWMC	Cd (µ/L) FWMC	Cu (µ/L) FWMC	Pb (µ/L) FWMC	Zn (µ/L) FWMC
1	163	1074	0.290	16.2	37.9	153
2	140	122	0.360	8.91	12.3	104
3	86	115	0.710	14.0	9.39	151
4	97	131	0.500	19.1	36.3	176
5	92	89	0.800	17.2	20.7	314
MEAN	**116**	**306**	**0.532**	**15.1**	**23.3**	**180**
MEDIAN	**97**	**122**	**0.500**	**16.2**	**20.7**	**153**
SD	**34**	**429**	**0.219**	**3.91**	**13.3**	**79.5**

SD= standard deviation. FWMC = flow weighted mean concentration

Season	Statistical Method	TP mg/L	TDP mg/L	TKN mg/L	NO3NO2 mg/L	NH3 mg/L	Cl mg/L	BOD mg/L	TSS mg/L	TDS mg/L	Cd ug/L	Cu ug/L	Pb ug/L	Zn ug/L
Snowmelt (1/1/01-4/15/01)	MEAN (geometric)	0.525	0.131	2.22	0.408	0.557	81.0	9.47	149	400	0.623	27.5	24.3	233
	MEAN (arithmetic)	0.645	0.152	2.77	0.482	0.769	703	12.4	188	1290	0.850	42.6	32.6	365
	MEDIAN	0.570	0.174	2.38	0.364	0.536	310	10.0	129	702	0.606	28.5	27.0	360
	MAX	1.81	0.287	5.67	1.68	2.99	4880	39.0	406	8200	2.11	120	69.8	1090
	MIN	0.211	0.043	0.600	0.238	0.224	2.50	3.00	30	47	0.250	5.00	2.50	28.0
	SD	0.451	0.076	1.68	0.379	0.765	1307	9.93	124	2180	0.668	39.2	22.0	321
Spring (4/16/01-5/31/01)	MEAN (geometric)	0.367	0.053	2.79	0.372	0.562	2.50	15.0	100	67	NA	4.61	16.9	137
	MEAN (arithmetic)	0.504	0.083	3.06	0.429	0.698	2.50	17.0	190	70	NA	7.81	28.1	146
	MEDIAN	0.492	0.057	2.96	0.340	0.615	2.50	13.0	97	63	NA	5.70	19.9	125
	MAX	1.48	0.175	5.38	0.774	2.32	2.50	40.0	639	118	NA	21.0	86.0	234
	MIN	0.047	0.003	1.50	0.161	0.250	2.50	9.00	13	38	NA	0.75	2.50	77.0
	SD	0.372	0.064	1.32	0.230	0.576	0.00	9.80	223	24	NA	7.47	27.7	52.0
Summer (6/1/01-8/31/01)	MEAN (geometric)	0.405	0.077	2.44	0.335	0.424	2.03	9.45	95	74	0.380	15.5	18.5	186
	MEAN (arithmetic)	0.501	0.106	2.80	0.416	0.552	3.14	12.2	126	82	0.547	18.6	27.9	231
	MEDIAN	0.386	0.071	2.52	0.333	0.405	1.00	9.50	94	68	0.250	12.6	21.5	187
	MAX	1.68	0.344	8.48	1.15	1.79	18.3	31.0	379	179	3.54	48.6	102	588
	MIN	0.132	0.016	0.782	0.101	0.050	1.00	2.00	18	30	0.250	5.00	2.50	49.0
	SD	0.372	0.086	1.62	0.294	0.416	3.77	8.57	93	39	0.709	11.8	26.2	157
Fall (9/1/01-11/30/01)	MEAN (geometric)	0.512	0.117	1.48	0.072	0.160	2.36	24.0	31	79	0.428	14.4	8.34	69.6
	MEAN (arithmetic)	0.630	0.252	1.91	0.251	0.419	3.76	39.9	43	119	0.839	16.0	9.88	115
	MEDIAN	0.563	0.074	1.59	0.031	0.097	1.65	22.6	32	94	0.250	15.6	10.3	66.3
	MAX	1.79	1.18	4.17	1.56	1.75	10.4	131	90	339	4.70	34.7	17.8	342
	MIN	0.200	0.034	0.303	0.015	0.050	1.00	5.00	3	5	0.250	6.30	2.50	13.0
	SD	0.451	0.358	1.31	0.444	0.602	3.72	40.4	30	97	1.34	8.08	5.12	120

Seasonal runoff concentration data summary statistics.

Supporting Documents

Bannerman, R.T., D.W. Owens, R. Dodds, and P. Hughes. 1992. Sources of Pollutants in Wisconsin Stormwater. WI Dept. of Natural Resources, Madison, WI.

Walker, W. W., 1996. *Simplified Procedures for Eutrophication Assessment and Prediction: User Manual*. Instruction Report W-96-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

2001 ANNUAL POLLUTANT LOADINGS BY RECEIVING WATER

2001 ANNUAL POLLUTANT LOADINGS BY RECEIVING WATER - KILOGRAMS PER YEAR

WATERSHED	RUNOFF	AREA	BOD	TSS	TDS	TKN	NH3-N	NO2-NO3	TP	TDP	Cd	Cu	Pb	Zn
	COEFF.		mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l	mg\l
Mean Flow Weighted Mean Concentration - all 2001 sites			12.1	116	306	2.21	0.494	0.398	0.470	0.112	0.000532	0.015	0.023	0.180
Mississippi River (Minneapolis)	0.46	18077	301,461.3	2,890,042.7	7,623,733.3	55,060.3	12,307.6	9,915.8	11,709.7	2,790.4	13.3	376.2	580.5	4,484.5
Shingle Creek	0.44	1365	21,862.1	209,587.5	938,309.9	3,993.0	892.6	719.1	849.2	202.4	1.0	27.3	42.1	325.2
Ryan Lake (Minneapolis)	0.45	49	811.4	7,778.5	34,823.8	148.2	33.1	26.7	31.5	7.5	0.0	1.0	1.6	12.1
Bassett Creek	0.44	2293	36,539.2	350,293.6	1,568,242.4	6,673.7	1,491.8	1,201.9	1,419.3	338.2	1.6	45.6	70.4	543.6
New Bassett Creek Tunnel	0.45	219	3,559.8	34,127.2	152,785.3	650.2	145.3	117.1	138.3	33.0	0.2	4.4	6.9	53.0
Brownie Lake (Minneapolis)	0.45	34	549.6	5,269.0	23,589.2	100.4	22.4	18.1	21.3	5.1	0.0	0.7	1.1	8.2
Cedar Lake (Minneapolis)	0.38	224	3,047.7	29,217.4	130,804.5	556.6	124.4	100.2	118.4	28.2	0.1	3.8	5.9	45.3
Lake of the Isles	0.42	760	11,598.0	111,187.8	497,780.9	2,118.3	473.5	381.5	450.5	107.4	0.5	14.5	22.3	172.5
Lake Calhoun (Minneapolis)	0.46	1249	20,690.2	198,352.5	888,011.5	3,779.0	844.7	680.6	803.7	191.5	0.9	25.8	39.8	307.8
Cemetary Lake	0.60	205	4,410.1	42,278.9	189,279.9	805.5	180.0	145.1	171.3	40.8	0.2	5.5	8.5	65.6
Sanctuary Pond	0.60	68	1,469.2	14,084.6	63,055.9	268.3	60.0	48.3	57.1	13.6	0.1	1.8	2.8	21.9
Lake Harriet	0.46	863	14,477.2	138,790.0	621,354.3	2,644.2	591.1	476.2	562.3	134.0	0.6	18.1	27.9	215.4
Hart Lake (Minneapolis)	0.55	3	57.2	548.1	2,453.6	10.4	2.3	1.9	2.2	0.5	0.0	0.1	0.1	0.9
Silver Lake (Minneapolis)	0.44	28	447.6	4,291.1	19,211.1	81.8	18.3	14.7	17.4	4.1	0.0	0.6	0.9	6.7
Crystal Lake (Minneapolis)	0.45	469	7,651.0	73,348.8	328,377.8	1,397.4	312.4	251.7	297.2	70.8	0.3	9.5	14.7	113.8
Legion Lake (Minneapolis)	0.45	49	805.1	7,718.7	34,556.3	147.1	32.9	26.5	31.3	7.5	0.0	1.0	1.6	12.0
Richfield Lake (Minneapolis)	0.32	715	8,285.2	79,428.2	355,595.0	1,513.2	338.3	272.5	321.8	76.7	0.4	10.3	16.0	123.3
Minnehaha Creek	0.44	3213	51,341.3	492,197.5	2,203,537.4	9,377.2	2,096.1	1,688.7	1,994.2	475.2	2.3	64.1	98.9	763.8
Diamond Lake	0.47	685	11,558.6	110,810.0	496,089.6	2,111.1	471.9	380.2	449.0	107.0	0.5	14.4	22.3	171.9
Lake Nokomis	0.40	620	9,015.5	86,429.2	386,938.2	1,646.6	368.1	296.5	350.2	83.4	0.4	11.3	17.4	134.1
Taft Lake	0.37	100	1,325.7	12,709.5	56,899.5	242.1	54.1	43.6	51.5	12.3	0.1	1.7	2.6	19.7
Mother Lake (Minneapolis)	0.48	49	855.0	8,197.1	36,697.7	156.2	34.9	28.1	33.2	7.9	0.0	1.1	1.6	12.7
Unnamed Wetland W of Mother Lake	0.41	41	603.9	5,789.5	25,919.2	110.3	24.7	19.9	23.5	5.6	0.0	0.8	1.2	9.0
Lake Hiawatha	0.46	1008	16,764.2	160,714.9	719,510.7	3,061.9	684.4	551.4	651.2	155.2	0.7	20.9	32.3	249.4
Birch Pond	0.10	31	112.9	1,082.1	4,844.4	20.6	4.6	3.7	4.4	1.0	0.0	0.1	0.2	1.7
Powderhorn Lake	0.46	286	4,768.1	45,711.2	204,646.0	870.9	194.7	156.8	185.2	44.1	0.2	6.0	9.2	70.9
Grass Lake	0.46	386	6,399.3	61,349.0	274,655.8	1,168.8	261.3	210.5	248.6	59.2	0.3	8.0	12.3	95.2
Unnamed Wetland on Hwy 62	0.47	17	288.3	2,764.3	12,375.7	52.7	11.8	9.5	11.2	2.7	0.0	0.4	0.6	4.3
Unnamed Wetland on Ewing Ave S	0.47	22	367.7	3,525.2	15,782.3	67.2	15.0	12.1	14.3	3.4	0.0	0.5	0.7	5.5
ANNUAL TOTAL KILOGRAMS - Minneapolis		33,127.7	541,122.9	5,187,624.1	17,909,861.0	98,833.2	22,092.1	17,798.9	21,018.8	5,008.7	23.8	675.3	1,042.0	8,049.8

Annual Precipitation = 32.43 inches 0.87 meters

2001 POLLUTANT LOADINGS BY OUTFALL

2001 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2001 sites			12.1	116	306	2.21	0.494	0.398	0.470	0.112	0.000532	0.015	0.023	0.180
Precipitation (meters)	**0.87**	**32.43 inches**												
10-010	0.43	113.55	1,773.9	17,006.2	44,861.1	324.0	72.4	58.3	68.9	16.4	0.1	2.2	3.4	26.4
10-020	0.45	7.81	127.3	1,220.1	3,218.4	23.2	5.2	4.2	4.9	1.2	0.0	0.2	0.2	1.9
10-030	0.10	4.05	14.7	140.6	370.9	2.7	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.2
10-040	0.45	167.42	2,709.2	25,972.5	68,513.6	494.8	110.6	89.1	105.2	25.1	0.1	3.4	5.2	40.3
10-050	0.46	114.18	1,882.1	18,043.3	47,597.0	343.8	76.8	61.9	73.1	17.4	0.1	2.3	3.6	28.0
10-060	0.60	10.5	228.1	2,187.1	5,769.3	41.7	9.3	7.5	8.9	2.1	0.0	0.3	0.4	3.4
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	424.3	4,067.4	10,729.5	77.5	17.3	14.0	16.5	3.9	0.0	0.5	0.8	6.3
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	250.4	2,400.6	6,332.6	45.7	10.2	8.2	9.7	2.3	0.0	0.3	0.5	3.7
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	18,284.8	175,292.0	462,408.2	3,339.6	746.5	601.4	710.2	169.2	0.8	22.8	35.2	272.0
10-110	0.47	300.11	5,070.0	48,605.3	128,217.3	926.0	207.0	166.8	196.9	46.9	0.2	6.3	9.8	75.4
10-120A/B	0.44	372.78	5,875.5	56,327.2	148,587.2	1,073.1	239.9	193.3	228.2	54.4	0.3	7.3	11.3	87.4
10-130	0.45	336.46	5,501.2	52,738.7	139,121.0	1,004.8	224.6	180.9	213.7	50.9	0.2	6.9	10.6	81.8
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	4,597.7	44,077.3	116,272.9	839.7	187.7	151.2	178.6	42.6	0.2	5.7	8.9	68.4
10-150	0.47	157.15	2,668.2	25,579.3	67,476.5	487.3	108.9	87.8	103.6	24.7	0.1	3.3	5.1	39.7
10-160	0.00	17	1.5	14.8	38.9	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	3,207.3	30,748.1	81,111.3	585.8	130.9	105.5	124.6	29.7	0.1	4.0	6.2	47.7
10-180	0.45	284.26	4,583.8	43,944.3	115,921.9	837.2	187.1	150.8	178.1	42.4	0.2	5.7	8.8	68.2
10-190	0.59	14.58	312.4	2,995.1	7,900.8	57.1	12.8	10.3	12.1	2.9	0.0	0.4	0.6	4.6
10-200	0.40	42.44	610.2	5,849.6	15,430.9	111.4	24.9	20.1	23.7	5.6	0.0	0.8	1.2	9.1
10-210	0.49	98.32	1,750.2	16,778.4	44,260.4	319.7	71.5	57.6	68.0	16.2	0.1	2.2	3.4	26.0
10-220	0.56	18.83	381.2	3,654.6	9,640.6	69.6	15.6	12.5	14.8	3.5	0.0	0.5	0.7	5.7
10-230	0.47	235.02	4,022.9	38,566.6	101,735.9	734.8	164.2	132.3	156.3	37.2	0.2	5.0	7.7	59.8
10-240	0.51	103.83	1,931.5	18,516.6	48,845.4	352.8	78.9	63.5	75.0	17.9	0.1	2.4	3.7	28.7
10-250	0.49	242.96	4,300.9	41,231.7	108,766.3	785.5	175.6	141.5	167.1	39.8	0.2	5.4	8.3	64.0
10-260	0.56	23.77	479.6	4,597.5	12,127.8	87.6	19.6	15.8	18.6	4.4	0.0	0.6	0.9	7.1
10-270	0.47	72.45	1,243.2	11,917.9	31,438.6	227.1	50.8	40.9	48.3	11.5	0.1	1.6	2.4	18.5
10-280	0.44	55.08	885.2	8,486.3	22,386.4	161.7	36.1	29.1	34.4	8.2	0.0	1.1	1.7	13.2
10-290	0.10	6.83	24.7	237.1	625.5	4.5	1.0	0.8	1.0	0.2	0.0	0.0	0.0	0.4
10-300	0.36	17.74	231.6	2,220.7	5,858.0	42.3	9.5	7.6	9.0	2.1	0.0	0.3	0.4	3.4
10-310	0.47	60.29	1,031.0	9,883.7	26,072.4	188.3	42.1	33.9	40.0	9.5	0.0	1.3	2.0	15.3
10-320	0.45	341.99	5,594.7	53,635.0	141,485.3	1,021.8	228.4	184.0	217.3	51.8	0.2	7.0	10.8	83.2
10-330	0.35	21.61	275.1	2,637.5	6,957.5	50.2	11.2	9.0	10.7	2.5	0.0	0.3	0.5	4.1
10-340	0.45	20.74	338.9	3,248.7	8,569.8	61.9	13.8	11.1	13.2	3.1	0.0	0.4	0.7	5.0
10-350	0.60	28.16	610.7	5,854.7	15,444.3	111.5	24.9	20.1	23.7	5.7	0.0	0.8	1.2	9.1
10-360	0.59	29.02	622.8	5,970.7	15,750.3	113.8	25.4	20.5	24.2	5.8	0.0	0.8	1.2	9.3
10-370	0.59	14.46	308.7	2,959.5	7,807.0	56.4	12.6	10.2	12.0	2.9	0.0	0.4	0.6	4.6
10-380	0.45	14.38	231.8	2,222.3	5,862.3	42.3	9.5	7.6	9.0	2.1	0.0	0.3	0.4	3.4
10-390	0.49	41.97	749.4	7,183.9	18,950.7	136.9	30.6	24.6	29.1	6.9	0.0	0.9	1.4	11.1
10-400A	0.10	1.07	3.9	37.1	98.0	0.7	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
10-400B	0.47	17.66	301.6	2,891.2	7,626.8	55.1	12.3	9.9	11.7	2.8	0.0	0.4	0.6	4.5
10-400C	0.57	50.25	1,029.5	9,869.7	26,035.7	188.0	42.0	33.9	40.0	9.5	0.0	1.3	2.0	15.3
10-410A	0.50	46.22	833.2	7,987.9	21,071.5	152.2	34.0	27.4	32.4	7.7	0.0	1.0	1.6	12.4
10-410B	0.32	21.29	243.9	2,338.5	6,168.7	44.6	10.0	8.0	9.5	2.3	0.0	0.3	0.5	3.6
10-410C	0.53	22.8	435.8	4,177.6	11,020.2	79.6	17.8	14.3	16.9	4.0	0.0	0.5	0.8	6.5
10-410D	0.60	27.34	594.3	5,696.9	15,028.2	108.5	24.3	19.5	23.1	5.5	0.0	0.7	1.1	8.8
10-410E	0.58	256.04	5,335.1	51,146.9	134,921.9	974.4	217.8	175.5	207.2	49.4	0.2	6.7	10.3	79.4
10-410F	0.59	37.92	807.7	7,743.4	20,426.5	147.5	33.0	26.6	31.4	7.5	0.0	1.0	1.6	12.0
10-420A	0.27	23.05	227.5	2,180.6	5,752.2	41.5	9.3	7.5	8.8	2.1	0.0	0.3	0.4	3.4
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	2,717.7	26,053.6	68,727.6	496.4	111.0	89.4	105.6	25.2	0.1	3.4	5.2	40.4
10-430A	0.00	8.14	0.7	7.1	18.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	1,058.8	10,150.3	26,775.9	193.4	43.2	34.8	41.1	9.8	0.0	1.3	2.0	15.8
10-430C	0.48	44.83	779.9	7,476.3	19,721.9	142.4	31.8	25.7	30.3	7.2	0.0	1.0	1.5	11.6
10-430D	0.49	85.79	1,527.2	14,641.0	38,622.0	278.9	62.4	50.2	59.3	14.1	0.1	1.9	2.9	22.7
10-430E	0.56	86.66	1,749.8	16,775.1	44,251.4	319.6	71.4	57.6	68.0	16.2	0.1	2.2	3.4	26.0
10-430F	0.10	377.97	1,368.7	13,121.3	34,613.0	250.0	55.9	45.0	53.2	12.7	0.1	1.7	2.6	20.4
10-430G	0.50	125.89	2,259.2	21,658.5	57,133.6	412.6	92.2	74.3	87.8	20.9	0.1	2.8	4.4	33.6
10-430H	0.49	33.18	590.4	5,659.9	14,930.6	107.8	24.1	19.4	22.9	5.5	0.0	0.7	1.1	8.8
10-430I	0.59	32.61	695.1	6,663.5	17,577.9	127.0	28.4	22.9	27.0	6.4	0.0	0.9	1.3	10.3
10-430J	0.43	532.36	8,365.5	80,198.2	211,557.3	1,527.9	341.5	275.2	324.9	77.4	0.4	10.4	16.1	124.4
10-430K	0.48	337.06	5,830.0	55,890.5	147,435.3	1,064.8	238.0	191.8	226.5	54.0	0.3	7.3	11.2	86.7
10-430L	0.45	84.4	1,377.6	13,206.9	34,839.0	251.6	56.2	45.3	53.5	12.8	0.1	1.7	2.7	20.5
10-430M	0.54	75.94	1,491.5	14,298.6	37,718.8	272.4	60.9	49.1	57.9	13.8	0.1	1.9	2.9	22.2
10-430N	0.44	26.43	424.9	4,073.0	10,744.3	77.6	17.3	14.0	16.5	3.9	0.0	0.5	0.8	6.3
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	29.1	278.8	735.4	5.3	1.2	1.0	1.1	0.3	0.0	0.0	0.1	0.4
10-430R	0.47	150.32	2,544.6	24,394.3	64,350.6	464.8	103.9	83.7	98.8	23.6	0.1	3.2	4.9	37.9
10-430S	0.10	5.15	18.6	178.8	471.6	3.4	0.8	0.6	0.7	0.2	0.0	0.0	0.0	0.3
10-430T	0.46	262.47	4,344.7	41,651.3	109,873.3	793.5	177.4	142.9	168.8	40.2	0.2	5.4	8.4	64.6
10-430U	0.47	431.37	7,339.4	70,361.1	185,607.6	1,340.5	299.6	241.4	285.1	67.9	0.3	9.2	14.1	109.2
10-430V	0.46	329.11	5,539.7	53,107.9	140,094.9	1,011.8	226.2	182.2	215.2	51.3	0.2	6.9	10.7	82.4
10-440A	0.46	23.18	384.5	3,686.6	9,724.9	70.2	15.7	12.6	14.9	3.6	0.0	0.5	0.7	5.7
10-440B	0.49	34.23	610.8	5,855.9	15,447.6	111.6	24.9	20.1	23.7	5.7	0.0	0.8	1.2	9.1
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	15,478.9	148,392.6	391,449.5	2,827.1	631.9	509.1	601.2	143.3	0.7	19.3	29.8	230.3
10-440F	0.46	538.85	8,980.1	86,090.3	227,100.4	1,640.2	366.6	295.4	348.8	83.1	0.4	11.2	17.3	133.6
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	63.8	611.6	1,613.4	11.7	2.6	2.1	2.5	0.6	0.0	0.1	0.1	0.9
10-450C	0.59	55.64	1,196.5	11,470.4	30,258.1	218.5	48.8	39.4	46.5	11.1	0.1	1.5	2.3	17.8

2001 POLLUTANT LOADINGS BY OUTFALL

2001 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2001 sites			12.1	116	306	2.21	0.494	0.398	0.470	0.112	0.000532	0.015	0.023	0.180
Precipitation (meters)	**0.87**	**32.43 inches**												
10-450D	0.45	4.62	75.3	721.7	1,903.9	13.8	3.1	2.5	2.9	0.7	0.0	0.1	0.1	1.1
10-450E	0.44	3.2	51.2	491.0	1,295.2	9.4	2.1	1.7	2.0	0.5	0.0	0.1	0.1	0.8
10-450F	0.46	158.55	2,637.7	25,287.3	66,706.1	481.8	107.7	86.8	102.5	24.4	0.1	3.3	5.1	39.2
10-450G/H	0.48	75.02	1,305.3	12,513.6	33,010.0	238.4	53.3	42.9	50.7	12.1	0.1	1.6	2.5	19.4
10-450I	0.49	243.64	4,333.9	41,547.7	109,600.0	791.6	176.9	142.6	168.3	40.1	0.2	5.4	8.3	64.5
10-450J	0.49	17.16	301.7	2,892.0	7,629.0	55.1	12.3	9.9	11.7	2.8	0.0	0.4	0.6	4.5
10-450K	0.58	37.01	776.3	7,442.5	19,632.7	141.8	31.7	25.5	30.2	7.2	0.0	1.0	1.5	11.5
10-450L	0.51	213.41	3,903.1	37,417.7	98,705.3	712.9	159.3	128.4	151.6	36.1	0.2	4.9	7.5	58.1
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	136.4	1,307.9	3,450.0	24.9	5.6	4.5	5.3	1.3	0.0	0.2	0.3	2.0
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	4,138.3	39,672.5	104,653.4	755.8	169.0	136.1	160.7	38.3	0.2	5.2	8.0	61.6
10-460F	0.49	14.75	264.2	2,533.2	6,682.3	48.3	10.8	8.7	10.3	2.4	0.0	0.3	0.5	3.9
10-460G	0.51	79.66	1,473.5	14,125.8	37,262.8	269.1	60.2	48.5	57.2	13.6	0.1	1.8	2.8	21.9
10-460H	0.48	12.35	214.4	2,055.3	5,421.9	39.2	8.8	7.1	8.3	2.0	0.0	0.3	0.4	3.2
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	90.0	862.8	2,276.0	16.4	3.7	3.0	3.5	0.8	0.0	0.1	0.2	1.3
10-460K	0.36	5.48	71.4	684.3	1,805.1	13.0	2.9	2.3	2.8	0.7	0.0	0.1	0.1	1.1
10-460L	0.46	3.5	58.7	563.1	1,485.4	10.7	2.4	1.9	2.3	0.5	0.0	0.1	0.1	0.9
10-460M	0.48	9.55	165.5	1,586.7	4,185.5	30.2	6.8	5.4	6.4	1.5	0.0	0.2	0.3	2.5
10-460N	0.45	3.85	62.7	601.4	1,586.6	11.5	2.6	2.1	2.4	0.6	0.0	0.1	0.1	0.9
10-460O	0.45	4.15	68.2	653.6	1,724.2	12.5	2.8	2.2	2.6	0.6	0.0	0.1	0.1	1.0
10-460P	0.45	4.34	70.7	678.0	1,788.5	12.9	2.9	2.3	2.7	0.7	0.0	0.1	0.1	1.1
10-460Q	0.56	19.73	403.1	3,864.1	10,193.3	73.6	16.5	13.3	15.7	3.7	0.0	0.5	0.8	6.0
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	4,772.2	45,749.7	120,684.6	871.6	194.8	157.0	185.4	44.2	0.2	6.0	9.2	71.0
10-465	0.10	8.56	31.0	297.2	783.9	5.7	1.3	1.0	1.2	0.3	0.0	0.0	0.1	0.5
10-470	0.38	25.6	353.8	3,391.7	8,947.0	64.6	14.4	11.6	13.7	3.3	0.0	0.4	0.7	5.3
10-480	0.58	39.66	833.2	7,987.9	21,071.6	152.2	34.0	27.4	32.4	7.7	0.0	1.0	1.6	12.4
10-485	0.00	7.27	0.7	6.3	16.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	2,369.8	22,719.0	59,931.2	432.8	96.8	77.9	92.1	21.9	0.1	3.0	4.6	35.3
10-500A	0.26	26.21	249.1	2,387.9	6,299.2	45.5	10.2	8.2	9.7	2.3	0.0	0.3	0.5	3.7
10-500B	0.46	8.48	141.3	1,355.0	3,574.4	25.8	5.8	4.6	5.5	1.3	0.0	0.2	0.3	2.1
10-500C	0.44	111.36	1,755.6	16,830.3	44,397.1	320.6	71.7	57.7	68.2	16.2	0.1	2.2	3.4	26.1
10-500D	0.24	3.83	33.0	316.6	835.1	6.0	1.3	1.1	1.3	0.3	0.0	0.0	0.1	0.5
10-500E	0.53	23.34	450.0	4,314.1	11,380.3	82.2	18.4	14.8	17.5	4.2	0.0	0.6	0.9	6.7
10-500F	0.49	12.04	215.3	2,063.9	5,444.4	39.3	8.8	7.1	8.4	2.0	0.0	0.3	0.4	3.2
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	28.4	272.5	718.9	5.2	1.2	0.9	1.1	0.3	0.0	0.0	0.1	0.4
10-510	0.51	62.36	1,148.6	11,011.2	29,046.8	209.8	46.9	37.8	44.6	10.6	0.1	1.4	2.2	17.1
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	1,895.9	18,176.0	47,947.1	346.3	77.4	62.4	73.6	17.5	0.1	2.4	3.7	28.2
10-540	0.12	53.9	231.1	2,215.9	5,845.4	42.2	9.4	7.6	9.0	2.1	0.0	0.3	0.4	3.4
10-550	0.46	25.83	430.2	4,124.0	10,878.9	78.6	17.6	14.1	16.7	4.0	0.0	0.5	0.8	6.4
10-560A/B	0.44	600.63	9,515.3	91,221.1	240,635.0	1,737.9	388.5	313.0	369.6	88.1	0.4	11.9	18.3	141.5
10-570A	0.54	14.64	288.3	2,763.6	7,290.3	52.7	11.8	9.5	11.2	2.7	0.0	0.4	0.6	4.3
10-570B	0.44	228.18	3,606.8	34,577.6	91,213.4	658.8	147.3	118.6	140.1	33.4	0.2	4.5	6.9	53.7
10-580	0.45	73.39	1,192.8	11,435.0	30,164.8	217.9	48.7	39.2	46.3	11.0	0.1	1.5	2.3	17.7
10-600	0.48	89.24	1,562.8	14,982.0	39,521.5	285.4	63.8	51.4	60.7	14.5	0.1	2.0	3.0	23.2
10-610	0.46	25.6	424.9	4,073.4	10,745.3	77.6	17.3	14.0	16.5	3.9	0.0	0.5	0.8	6.3
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	22.6	216.6	571.4	4.1	0.9	0.7	0.9	0.2	0.0	0.0	0.0	0.3
10-630B	0.45	4.68	76.3	731.1	1,928.6	13.9	3.1	2.5	3.0	0.7	0.0	0.1	0.1	1.1
10-630C	0.48	96.03	1,680.0	16,106.2	42,487.1	306.9	68.6	55.3	65.3	15.6	0.1	2.1	3.2	25.0
10-630D	0.45	6.37	103.8	995.1	2,625.0	19.0	4.2	3.4	4.0	1.0	0.0	0.1	0.2	1.5
10-630E	0.45	8.52	138.8	1,331.0	3,511.0	25.4	5.7	4.6	5.4	1.3	0.0	0.2	0.3	2.1
10-630F	0.54	17.56	343.5	3,293.3	8,687.5	62.7	14.0	11.3	13.3	3.2	0.0	0.4	0.7	5.1
10-630G	0.45	5.9	96.1	921.7	2,431.3	17.6	3.9	3.2	3.7	0.9	0.0	0.1	0.2	1.4
10-630H	0.30	25.63	281.1	2,694.8	7,108.6	51.3	11.5	9.2	10.9	2.6	0.0	0.4	0.5	4.2
10-630I	0.47	12.48	210.2	2,014.7	5,314.6	38.4	8.6	6.9	8.2	1.9	0.0	0.3	0.4	3.1
10-630J	0.55	14.69	294.5	2,823.5	7,448.2	53.8	12.0	9.7	11.4	2.7	0.0	0.4	0.6	4.4
10-630K	0.47	95.29	1,633.1	15,656.4	41,300.4	298.3	66.7	53.7	63.4	15.1	0.1	2.0	3.1	24.3
10-630L	0.52	100.42	1,894.5	18,162.5	47,911.5	346.0	77.3	62.3	73.6	17.5	0.1	2.4	3.6	28.2
10-630M	0.50	11.71	210.5	2,018.4	5,324.5	38.5	8.6	6.9	8.2	1.9	0.0	0.3	0.4	3.1
10-630N	0.45	8.45	137.7	1,320.0	3,482.2	25.1	5.6	4.5	5.3	1.3	0.0	0.2	0.3	2.0
10-630O	0.36	5.77	76.1	729.3	1,923.8	13.9	3.1	2.5	3.0	0.7	0.0	0.1	0.1	1.1
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	1,014.6	9,726.4	25,657.7	185.3	41.4	33.4	39.4	9.4	0.0	1.3	2.0	15.1
10-630S	0.22	37.02	291.4	2,793.7	7,369.5	53.2	11.9	9.6	11.3	2.7	0.0	0.4	0.6	4.3
10-630T	0.56	7.72	157.2	1,507.5	3,976.7	28.7	6.4	5.2	6.1	1.5	0.0	0.2	0.3	2.3
10-630U	0.52	115.42	2,186.3	20,959.3	55,289.1	399.3	89.3	71.9	84.9	20.2	0.1	2.7	4.2	32.5
10-630V	0.11	33.85	129.4	1,240.9	3,273.5	23.6	5.3	4.3	5.0	1.2	0.0	0.2	0.2	1.9
10-630W	0.47	23.68	406.2	3,894.1	10,272.3	74.2	16.6	13.4	15.8	3.8	0.0	0.5	0.8	6.0
10-630X	0.44	14.78	236.8	2,269.9	5,987.7	43.2	9.7	7.8	9.2	2.2	0.0	0.3	0.5	3.5
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	778.4	7,462.5	19,685.4	142.2	31.8	25.6	30.2	7.2	0.0	1.0	1.5	11.6
10-640	0.46	258.18	4,275.8	40,991.5	108,132.8	781.0	174.6	140.6	166.1	39.6	0.2	5.3	8.2	63.6
10-650	0.56	19.53	393.9	3,776.6	9,962.3	71.9	16.1	13.0	15.3	3.6	0.0	0.5	0.8	5.9
10-660	0.46	306.37	5,139.4	49,270.3	129,971.6	938.7	209.8	169.0	199.6	47.6	0.2	6.4	9.9	76.5
10-670	0.45	137.88	2,243.5	21,507.8	56,736.0	409.8	91.6	73.8	87.1	20.8	0.1	2.8	4.3	33.4
10-680	0.46	707.95	11,754.4	112,687.2	297,261.0	2,146.9	479.9	386.6	456.6	108.8	0.5	14.7	22.6	174.9
10-690	0.50	70.63	1,279.5	12,266.5	32,358.2	233.7	52.2	42.1	49.7	11.8	0.1	1.6	2.5	19.0
10-700	0.46	222.07	3,734.1	35,798.0	94,432.7	682.0	152.5	122.8	145.0	34.6	0.2	4.7	7.2	55.5
10-710	0.33	29.95	361.3	3,463.6	9,136.6	66.0	14.7	11.9	14.0	3.3	0.0	0.5	0.7	5.4
10-720A	0.44	15.77	253.2	2,427.5	6,403.7	46.2	10.3	8.3	9.8	2.3	0.0	0.3	0.5	3.8
10-720B	0.48	422.18	7,365.3	70,609.8	186,263.8	1,345.2	300.7	242.3	286.1	68.2	0.3	9.2	14.2	109.6

2001 POLLUTANT LOADINGS BY OUTFALL

2001 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2001 sites			12.1	116	306	2.21	0.494	0.398	0.470	0.112	0.000532	0.015	0.023	0.180
Precipitation (meters)	**0.87**	**32.43 inches**												
10-720C	0.43	26.35	409.7	3,927.9	10,361.6	74.8	16.7	13.5	15.9	3.8	0.0	0.5	0.8	6.1
10-720D	0.46	22.95	378.3	3,627.2	9,568.2	69.1	15.4	12.4	14.7	3.5	0.0	0.5	0.7	5.6
10-720E	0.46	18.39	303.5	2,909.4	7,674.9	55.4	12.4	10.0	11.8	2.8	0.0	0.4	0.6	4.5
10-720F	0.48	317.75	5,520.8	52,926.5	139,616.6	1,008.3	225.4	181.6	214.4	51.1	0.2	6.9	10.6	82.1
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	74.1	710.8	1,875.0	13.5	3.0	2.4	2.9	0.7	0.0	0.1	0.1	1.1
10-720I	0.45	87.27	1,409.3	13,510.6	35,640.0	257.4	57.5	46.4	54.7	13.0	0.1	1.8	2.7	21.0
10-720J	0.36	3.71	48.0	460.1	1,213.7	8.8	2.0	1.6	1.9	0.4	0.0	0.1	0.1	0.7
10-720K	0.55	32.76	651.4	6,244.6	16,472.9	119.0	26.6	21.4	25.3	6.0	0.0	0.8	1.3	9.7
10-720L	0.45	4.57	74.5	713.9	1,883.3	13.6	3.0	2.4	2.9	0.7	0.0	0.1	0.1	1.1
20-010	0.42	93.99	1,428.8	13,697.7	36,133.6	261.0	58.3	47.0	55.5	13.2	0.1	1.8	2.8	21.3
20-020	0.44	15.09	239.7	2,297.9	6,061.8	43.8	9.8	7.9	9.3	2.2	0.0	0.3	0.5	3.6
20-030	0.45	7.95	129.5	1,241.9	3,276.1	23.7	5.3	4.3	5.0	1.2	0.0	0.2	0.2	1.9
20-040	0.37	6.79	91.7	878.8	2,318.2	16.7	3.7	3.0	3.6	0.8	0.0	0.1	0.2	1.4
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	96.3	923.2	2,435.5	17.6	3.9	3.2	3.7	0.9	0.0	0.1	0.2	1.4
20-070	0.44	39.07	627.3	6,013.7	15,863.8	114.6	25.6	20.6	24.4	5.8	0.0	0.8	1.2	9.3
20-080	0.45	33.72	553.6	5,307.4	14,000.4	101.1	22.6	18.2	21.5	5.1	0.0	0.7	1.1	8.2
20-090	0.55	9.95	199.2	1,909.3	5,036.6	36.4	8.1	6.6	7.7	1.8	0.0	0.2	0.4	3.0
20-100	0.10	0.99	3.6	34.4	90.7	0.7	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
20-110	0.24	216.04	1,876.9	17,993.6	47,466.0	342.8	76.6	61.7	72.9	17.4	0.1	2.3	3.6	27.9
20-120	0.47	10.22	173.0	1,658.4	4,374.9	31.6	7.1	5.7	6.7	1.6	0.0	0.2	0.3	2.6
20-130	0.45	16.12	262.7	2,518.2	6,642.9	48.0	10.7	8.6	10.2	2.4	0.0	0.3	0.5	3.9
20-140	0.44	2.97	47.5	455.0	1,200.3	8.7	1.9	1.6	1.8	0.4	0.0	0.1	0.1	0.7
20-150	0.45	14.48	236.0	2,262.0	5,967.1	43.1	9.6	7.8	9.2	2.2	0.0	0.3	0.5	3.5
20-160	0.54	3.21	62.8	602.1	1,588.3	11.5	2.6	2.1	2.4	0.6	0.0	0.1	0.1	0.9
20-170	0.37	4.94	66.6	638.9	1,685.5	12.2	2.7	2.2	2.6	0.6	0.0	0.1	0.1	1.0
20-180	0.51	5.3	97.1	931.2	2,456.4	17.7	4.0	3.2	3.8	0.9	0.0	0.1	0.2	1.4
20-190	0.45	1.35	22.0	210.9	556.3	4.0	0.9	0.7	0.9	0.2	0.0	0.0	0.0	0.3
20-200	0.45	13.84	225.5	2,162.1	5,703.4	41.2	9.2	7.4	8.8	2.1	0.0	0.3	0.4	3.4
20-210A	0.44	92.9	1,477.7	14,166.6	37,370.5	269.9	60.3	48.6	57.4	13.7	0.1	1.8	2.8	22.0
20-210B	0.50	620.78	11,342.1	108,734.5	286,834.0	2,071.6	463.1	373.1	440.6	105.0	0.5	14.2	21.8	168.7
20-220	0.46	26.38	440.4	4,222.0	11,137.3	80.4	18.0	14.5	17.1	4.1	0.0	0.5	0.8	6.6
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	524.4	5,027.8	13,262.9	95.8	21.4	17.3	20.4	4.9	0.0	0.7	1.0	7.8
20-250	0.57	6.28	130.0	1,246.4	3,287.9	23.7	5.3	4.3	5.1	1.2	0.0	0.2	0.3	1.9
20-260	0.60	3.5	76.0	729.0	1,923.1	13.9	3.1	2.5	3.0	0.7	0.0	0.1	0.1	1.1
20-270	0.48	42.81	739.0	7,084.7	18,689.0	135.0	30.2	24.3	28.7	6.8	0.0	0.9	1.4	11.0
20-280	0.54	8.98	174.8	1,675.5	4,419.8	31.9	7.1	5.7	6.8	1.6	0.0	0.2	0.3	2.6
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	803.3	7,701.2	20,315.1	146.7	32.8	26.4	31.2	7.4	0.0	1.0	1.5	12.0
40-010	0.45	719.17	11,669.9	111,876.7	295,123.0	2,131.4	476.4	383.9	453.3	108.0	0.5	14.6	22.5	173.6
40-020	0.45	15.36	250.3	2,399.5	6,329.7	45.7	10.2	8.2	9.7	2.3	0.0	0.3	0.5	3.7
40-030	0.42	51.02	771.8	7,399.0	19,517.9	141.0	31.5	25.4	30.0	7.1	0.0	1.0	1.5	11.5
40-040	0.43	65.39	1,028.1	9,856.3	26,000.3	187.8	42.0	33.8	39.9	9.5	0.0	1.3	2.0	15.3
40-050	0.45	10.28	167.5	1,605.9	4,236.3	30.6	6.8	5.5	6.5	1.6	0.0	0.2	0.3	2.5
40-060	0.45	3.2	52.1	499.9	1,318.7	9.5	2.1	1.7	2.0	0.5	0.0	0.1	0.1	0.8
40-070	0.38	7.98	109.3	1,048.0	2,764.6	20.0	4.5	3.6	4.2	1.0	0.0	0.1	0.2	1.6
40-080	0.41	60.51	894.8	8,578.7	22,630.0	163.4	36.5	29.4	34.8	8.3	0.0	1.1	1.7	13.3
40-090	0.46	20.65	347.6	3,332.5	8,791.0	63.5	14.2	11.4	13.5	3.2	0.0	0.4	0.7	5.2
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-110	0.44	2.61	41.9	402.1	1,060.8	7.7	1.7	1.4	1.6	0.4	0.0	0.1	0.1	0.6
40-120	0.44	65.87	1,045.4	10,022.0	26,437.4	190.9	42.7	34.4	40.6	9.7	0.0	1.3	2.0	15.6
40-130	0.45	35.01	572.9	5,491.9	14,487.3	104.6	23.4	18.8	22.3	5.3	0.0	0.7	1.1	8.5
40-140	0.35	125.46	1,579.8	15,145.0	39,951.4	288.5	64.5	52.0	61.4	14.6	0.1	2.0	3.0	23.5
40-150	0.47	24.31	417.0	3,998.0	10,546.3	76.2	17.0	13.7	16.2	3.9	0.0	0.5	0.8	6.2
40-160	0.49	30.99	554.8	5,318.4	14,029.5	101.3	22.6	18.2	21.5	5.1	0.0	0.7	1.1	8.3
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	327.5	3,139.7	8,282.3	59.8	13.4	10.8	12.7	3.0	0.0	0.4	0.6	4.9
40-190	0.53	65.53	1,254.7	12,028.9	31,731.5	229.2	51.2	41.3	48.7	11.6	0.1	1.6	2.4	18.7
40-200	0.46	24.75	414.3	3,972.2	10,478.5	75.7	16.9	13.6	16.1	3.8	0.0	0.5	0.8	6.2
40-210	0.54	17.26	340.5	3,264.6	8,611.8	62.2	13.9	11.2	13.2	3.2	0.0	0.4	0.7	5.1
40-220	0.47	100.58	1,702.6	16,322.9	43,058.7	311.0	69.5	56.0	66.1	15.8	0.1	2.1	3.3	25.3
40-230	0.44	13.78	222.0	2,128.0	5,613.4	40.5	9.1	7.3	8.6	2.1	0.0	0.3	0.4	3.3
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	25.0	239.5	631.9	4.6	1.0	0.8	1.0	0.2	0.0	0.0	0.0	0.4
40-260	0.45	3.49	56.9	545.2	1,438.2	10.4	2.3	1.9	2.2	0.5	0.0	0.1	0.1	0.8
40-270	0.45	9.59	156.3	1,498.1	3,952.0	28.5	6.4	5.1	6.1	1.4	0.0	0.2	0.3	2.3
40-280	0.53	12.76	243.0	2,329.5	6,145.0	44.4	9.9	8.0	9.4	2.2	0.0	0.3	0.5	3.6
40-290	0.51	13.73	254.6	2,440.5	6,437.9	46.5	10.4	8.4	9.9	2.4	0.0	0.3	0.5	3.8
40-300	0.52	10.38	195.8	1,877.5	4,952.7	35.8	8.0	6.4	7.6	1.8	0.0	0.2	0.4	2.9
40-310	0.45	97.86	1,604.0	15,377.4	40,564.4	293.0	65.5	52.8	62.3	14.8	0.1	2.0	3.1	23.9
40-320	0.60	9.43	204.9	1,964.2	5,181.4	37.4	8.4	6.7	8.0	1.9	0.0	0.3	0.4	3.0
40-330	0.59	15.34	329.2	3,156.3	8,326.0	60.1	13.4	10.8	12.8	3.0	0.0	0.4	0.6	4.9
40-340	0.53	35.27	680.6	6,525.1	17,212.8	124.3	27.8	22.4	26.4	6.3	0.0	0.8	1.3	10.1
40-350	0.60	8.99	195.3	1,872.5	4,939.6	35.7	8.0	6.4	7.6	1.8	0.0	0.2	0.4	2.9
40-360	0.60	8.09	175.8	1,685.1	4,445.1	32.1	7.2	5.8	6.8	1.6	0.0	0.2	0.3	2.6
40-370	0.58	12.41	259.9	2,492.0	6,573.8	47.5	10.6	8.6	10.1	2.4	0.0	0.3	0.5	3.9
40-380	0.39	24.92	355.0	3,403.5	8,978.3	64.8	14.5	11.7	13.8	3.3	0.0	0.4	0.7	5.3
40-390	0.58	5.72	120.1	1,151.6	3,037.9	21.9	4.9	4.0	4.7	1.1	0.0	0.1	0.2	1.8
40-400	0.10	1.07	3.9	37.1	98.0	0.7	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
41-010	0.38	94.73	1,294.8	12,412.6	32,743.5	236.5	52.9	42.6	50.3	12.0	0.1	1.6	2.5	19.3
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	1,099.2	10,537.7	27,797.8	200.8	44.9	36.2	42.7	10.2	0.0	1.4	2.1	16.4
41-040	0.57	35.59	738.5	7,079.5	18,675.2	134.9	30.1	24.3	28.7	6.8	0.0	0.9	1.4	11.0
41-050	0.60	10.48	227.7	2,182.9	5,758.3	41.6	9.3	7.5	8.8	2.1	0.0	0.3	0.4	3.4
41-060	0.60	2.95	64.1	614.5	1,620.9	11.7	2.6	2.1	2.5	0.6	0.0	0.1	0.1	1.0

2001 POLLUTANT LOADINGS BY OUTFALL

2001 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2001 sites			12.1	116	306	2.21	0.494	0.398	0.470	0.112	0.000532	0.015	0.023	0.180
Precipitation (meters)	**0.87**	**32.43 inches**												
51-010	0.45	29.63	484.3	4,642.5	12,246.5	88.4	19.8	15.9	18.8	4.5	0.0	0.6	0.9	7.2
51-020	0.45	4.55	74.1	710.8	1,875.0	13.5	3.0	2.4	2.9	0.7	0.0	0.1	0.1	1.1
52-010	0.28	45.29	453.2	4,344.9	11,461.5	82.8	18.5	14.9	17.6	4.2	0.0	0.6	0.9	6.7
52-020	0.45	6.09	99.2	951.4	2,509.6	18.1	4.1	3.3	3.9	0.9	0.0	0.1	0.2	1.5
52-030	0.45	7.18	117.0	1,121.6	2,958.8	21.4	4.8	3.8	4.5	1.1	0.0	0.1	0.2	1.7
52-040	0.41	4.54	68.0	651.5	1,718.5	12.4	2.8	2.2	2.6	0.6	0.0	0.1	0.1	1.0
52-050	0.44	15.3	241.0	2,310.6	6,095.1	44.0	9.8	7.9	9.4	2.2	0.0	0.3	0.5	3.6
52-060	0.10	3.22	11.7	111.8	294.9	2.1	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
52-070	0.42	86.94	1,332.3	12,772.1	33,692.0	243.3	54.4	43.8	51.7	12.3	0.1	1.7	2.6	19.8
52-080	0.24	8.08	70.8	678.9	1,790.9	12.9	2.9	2.3	2.8	0.7	0.0	0.1	0.1	1.1
52-090	0.45	4.89	79.7	763.9	2,015.1	14.6	3.3	2.6	3.1	0.7	0.0	0.1	0.2	1.2
52-100A/B	0.27	11.89	114.8	1,100.5	2,903.1	21.0	4.7	3.8	4.5	1.1	0.0	0.1	0.2	1.7
52-110	0.45	8.84	142.9	1,369.9	3,613.7	26.1	5.8	4.7	5.6	1.3	0.0	0.2	0.3	2.1
52-120	0.45	14.74	240.2	2,302.7	6,074.2	43.9	9.8	7.9	9.3	2.2	0.0	0.3	0.5	3.6
52-130	0.31	7.18	81.8	784.6	2,069.6	14.9	3.3	2.7	3.2	0.8	0.0	0.1	0.2	1.2
53-010	0.45	7.03	114.6	1,098.2	2,897.0	20.9	4.7	3.8	4.4	1.1	0.0	0.1	0.2	1.7
53-020	0.28	12.38	123.9	1,187.8	3,133.2	22.6	5.1	4.1	4.8	1.1	0.0	0.2	0.2	1.8
53-030	0.44	11.37	179.9	1,724.4	4,548.8	32.9	7.3	5.9	7.0	1.7	0.0	0.2	0.3	2.7
53-040	0.45	2.78	45.3	434.3	1,145.6	8.3	1.8	1.5	1.8	0.4	0.0	0.1	0.1	0.7
53-050	0.45	13.66	222.6	2,133.9	5,629.2	40.7	9.1	7.3	8.6	2.1	0.0	0.3	0.4	3.3
53-060	0.45	20.37	331.9	3,182.2	8,394.3	60.6	13.6	10.9	12.9	3.1	0.0	0.4	0.6	4.9
53-070	0.45	4.89	79.7	763.9	2,015.1	14.6	3.3	2.6	3.1	0.7	0.0	0.1	0.2	1.2
53-080	0.39	5.81	82.9	795.1	2,097.4	15.1	3.4	2.7	3.2	0.8	0.0	0.1	0.2	1.2
53-090	0.46	59.59	990.8	9,498.7	25,057.0	181.0	40.5	32.6	38.5	9.2	0.0	1.2	1.9	14.7
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	64.0	613.3	1,617.9	11.7	2.6	2.1	2.5	0.6	0.0	0.1	0.1	1.0
53-120A/B	0.46	129.79	2,141.3	20,528.5	54,152.9	391.1	87.4	70.4	83.2	19.8	0.1	2.7	4.1	31.9
53-130	0.45	5.02	81.8	784.2	2,068.7	14.9	3.3	2.7	3.2	0.8	0.0	0.1	0.2	1.2
53-140	0.45	6.36	103.6	993.5	2,620.9	18.9	4.2	3.4	4.0	1.0	0.0	0.1	0.2	1.5
53-150	0.48	90.4	1,583.8	15,183.3	40,052.5	289.3	64.7	52.1	61.5	14.7	0.1	2.0	3.0	23.6
53-160	0.47	252.19	4,317.4	41,390.1	109,184.3	788.6	176.3	142.0	167.7	40.0	0.2	5.4	8.3	64.2
53-170	0.36	6.39	83.5	800.5	2,111.6	15.3	3.4	2.7	3.2	0.8	0.0	0.1	0.2	1.2
53-180	0.10	8.09	29.3	280.8	740.9	5.4	1.2	1.0	1.1	0.3	0.0	0.0	0.1	0.4
53-190	0.30	11.41	124.2	1,190.3	3,140.0	22.7	5.1	4.1	4.8	1.1	0.0	0.2	0.2	1.8
54-010A/B	0.44	84.93	1,338.1	12,827.9	33,839.0	244.4	54.6	44.0	52.0	12.4	0.1	1.7	2.6	19.9
54-040A/B	0.49	255.14	4,572.7	43,837.9	115,641.4	835.2	186.7	150.4	177.6	42.3	0.2	5.7	8.8	68.0
54-050	0.17	9.27	58.4	559.6	1,476.1	10.7	2.4	1.9	2.3	0.5	0.0	0.1	0.1	0.9
54-060	0.44	32.13	511.1	4,899.5	12,924.5	93.3	20.9	16.8	19.9	4.7	0.0	0.6	1.0	7.6
54-070	0.36	60.8	789.5	7,568.5	19,965.1	144.2	32.2	26.0	30.7	7.3	0.0	1.0	1.5	11.7
54-080A/B/C	0.46	414.26	6,856.8	65,734.5	173,403.1	1,252.4	279.9	225.5	266.3	63.5	0.3	8.6	13.2	102.0
54-090	0.10	3.55	12.9	123.2	325.1	2.3	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
54-100A/B	0.60	114.24	2,464.3	23,624.6	62,320.1	450.1	100.6	81.1	95.7	22.8	0.1	3.1	4.7	36.7
54-110	0.45	24.55	400.0	3,835.2	10,116.9	73.1	16.3	13.2	15.5	3.7	0.0	0.5	0.8	6.0
54-120	0.46	62.08	1,027.2	9,847.7	25,977.5	187.6	41.9	33.8	39.9	9.5	0.0	1.3	2.0	15.3
54-130	0.10	1.07	3.9	37.1	98.0	0.7	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
54-140A/B	0.41	113.01	1,669.4	16,003.8	42,216.9	304.9	68.2	54.9	64.8	15.5	0.1	2.1	3.2	24.8
54-150	0.45	55.34	892.4	8,555.4	22,568.5	163.0	36.4	29.4	34.7	8.3	0.0	1.1	1.7	13.3
54-160	0.60	2.62	56.9	545.7	1,439.6	10.4	2.3	1.9	2.2	0.5	0.0	0.1	0.1	0.8
54-170	0.59	8.08	174.0	1,667.9	4,399.7	31.8	7.1	5.7	6.8	1.6	0.0	0.2	0.3	2.6
54-180	0.60	2.82	61.3	587.4	1,549.5	11.2	2.5	2.0	2.4	0.6	0.0	0.1	0.1	0.9
54-190	0.10	2.2	8.0	76.4	201.5	1.5	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.1
54-200	0.10	2.13	7.7	73.9	195.1	1.4	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.1
54-210	0.10	1.14	4.1	39.6	104.4	0.8	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
55-010	0.60	14.98	325.5	3,120.2	8,230.9	59.4	13.3	10.7	12.6	3.0	0.0	0.4	0.6	4.8
55-020	0.60	189.58	4,092.2	39,231.1	103,488.9	747.4	167.1	134.6	159.0	37.9	0.2	5.1	7.9	60.9
56-010	0.60	67.62	1,469.2	14,084.6	37,154.2	268.3	60.0	48.3	57.1	13.6	0.1	1.8	2.8	21.9
57-010	0.53	26.1	504.2	4,833.5	12,750.4	92.1	20.6	16.6	19.6	4.7	0.0	0.6	1.0	7.5
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	296.9	2,846.3	7,508.3	54.2	12.1	9.8	11.5	2.7	0.0	0.4	0.6	4.4
57-040	0.35	39.88	503.9	4,831.1	12,744.0	92.0	20.6	16.6	19.6	4.7	0.0	0.6	1.0	7.5
57-050	0.45	7.9	128.7	1,234.1	3,255.5	23.5	5.3	4.2	5.0	1.2	0.0	0.2	0.2	1.9
57-060	0.46	26.11	437.2	4,191.7	11,057.4	79.9	17.9	14.4	17.0	4.0	0.0	0.5	0.8	6.5
57-070	0.45	81.33	1,328.5	12,735.6	33,595.5	242.6	54.2	43.7	51.6	12.3	0.1	1.7	2.6	19.8
57-080	0.42	5.54	84.8	812.9	2,144.5	15.5	3.5	2.8	3.3	0.8	0.0	0.1	0.2	1.3
57-090	0.47	77.77	1,321.6	12,670.3	33,423.3	241.4	54.0	43.5	51.3	12.2	0.1	1.6	2.5	19.7
57-100A/B	0.47	313.43	5,361.7	51,401.8	135,594.4	979.3	218.9	176.4	208.3	49.6	0.2	6.7	10.3	79.8
57-110	0.54	21.6	423.0	4,055.1	10,697.2	77.3	17.3	13.9	16.4	3.9	0.0	0.5	0.8	6.3
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	4.2	40.3	106.2	0.8	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
57-140	0.10	1.55	5.6	53.8	141.9	1.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.1
57-150	0.43	35.68	557.6	5,346.0	14,102.4	101.9	22.8	18.3	21.7	5.2	0.0	0.7	1.1	8.3
57-160	0.10	1.89	6.8	65.6	173.1	1.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.1
61-010	0.55	2.86	57.1	547.8	1,445.0	10.4	2.3	1.9	2.2	0.5	0.0	0.1	0.1	0.9
62-010	0.45	27.84	455.8	4,369.2	11,525.7	83.2	18.6	15.0	17.7	4.2	0.0	0.6	0.9	6.8
63-010	0.45	388.79	6,365.4	61,023.5	160,975.8	1,162.6	259.9	209.4	247.3	58.9	0.3	7.9	12.3	94.7
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	405.7	3,889.3	10,259.8	74.1	16.6	13.3	15.8	3.8	0.0	0.5	0.8	6.0
64-110	0.45	6.01	97.9	938.9	2,476.7	17.9	4.0	3.2	3.8	0.9	0.0	0.1	0.2	1.5
64-120	0.45	16.04	261.4	2,505.7	6,610.0	47.7	10.7	8.6	10.2	2.4	0.0	0.3	0.5	3.9
64-130	0.45	2.44	39.8	381.2	1,005.5	7.3	1.6	1.3	1.5	0.4	0.0	0.0	0.1	0.6
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	737.0	7,065.0	18,637.1	134.6	30.1	24.2	28.6	6.8	0.0	0.9	1.4	11.0
70-010	0.46	6.23	103.5	991.9	2,616.5	18.9	4.2	3.4	4.0	1.0	0.0	0.1	0.2	1.5
70-015	0.45	11.69	190.5	1,826.2	4,817.4	34.8	7.8	6.3	7.4	1.8	0.0	0.2	0.4	2.8
70-020	0.45	37.55	611.9	5,866.0	15,474.1	111.8	25.0	20.1	23.8	5.7	0.0	0.8	1.2	9.1
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	219.5	2,104.2	5,550.7	40.1	9.0	7.2	8.5	2.0	0.0	0.3	0.4	3.3

2001 POLLUTANT LOADINGS BY OUTFALL

2001 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2001 sites			12.1	116	306	2.21	0.494	0.398	0.470	0.112	0.000532	0.015	0.023	0.180
Precipitation (meters)	**0.87**	**32.43 inches**												
70-035	0.45	4.53	73.8	707.7	1,866.8	13.5	3.0	2.4	2.9	0.7	0.0	0.1	0.1	1.1
70-040	0.45	2.42	39.4	378.0	997.3	7.2	1.6	1.3	1.5	0.4	0.0	0.0	0.1	0.6
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	283.7	2,719.8	7,174.5	51.8	11.6	9.3	11.0	2.6	0.0	0.4	0.5	4.2
70-055	0.46	333.43	5,603.7	53,721.6	141,713.9	1,023.5	228.8	184.3	217.7	51.9	0.2	7.0	10.8	83.4
70-060	0.45	3.53	57.5	551.4	1,454.7	10.5	2.3	1.9	2.2	0.5	0.0	0.1	0.1	0.9
70-065	0.45	1.89	30.8	295.3	778.9	5.6	1.3	1.0	1.2	0.3	0.0	0.0	0.1	0.5
70-070	0.45	5.8	94.5	906.1	2,390.1	17.3	3.9	3.1	3.7	0.9	0.0	0.1	0.2	1.4
70-075	0.43	5	78.1	748.8	1,975.2	14.3	3.2	2.6	3.0	0.7	0.0	0.1	0.2	1.2
70-080	0.46	11.96	200.1	1,918.1	5,059.9	36.5	8.2	6.6	7.8	1.9	0.0	0.2	0.4	3.0
70-085	0.45	229.48	3,716.4	35,628.6	93,985.9	678.8	151.7	122.2	144.4	34.4	0.2	4.6	7.2	55.3
70-090	0.45	18.57	302.6	2,901.0	7,652.6	55.3	12.4	10.0	11.8	2.8	0.0	0.4	0.6	4.5
70-095	0.45	9.99	162.8	1,560.6	4,116.8	29.7	6.6	5.4	6.3	1.5	0.0	0.2	0.3	2.4
70-100	0.45	9.64	157.1	1,505.9	3,972.6	28.7	6.4	5.2	6.1	1.5	0.0	0.2	0.3	2.3
70-105	0.45	1.63	26.6	254.6	671.7	4.9	1.1	0.9	1.0	0.2	0.0	0.0	0.1	0.4
70-110	0.45	18.13	295.4	2,832.2	7,471.2	54.0	12.1	9.7	11.5	2.7	0.0	0.4	0.6	4.4
70-115	0.45	3.71	60.5	579.6	1,528.9	11.0	2.5	2.0	2.3	0.6	0.0	0.1	0.1	0.9
70-120	0.45	4.22	68.8	659.2	1,739.0	12.6	2.8	2.3	2.7	0.6	0.0	0.1	0.1	1.0
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	613.0	5,876.9	15,502.7	112.0	25.0	20.2	23.8	5.7	0.0	0.8	1.2	9.1
70-135	0.45	7.46	121.6	1,165.4	3,074.2	22.2	5.0	4.0	4.7	1.1	0.0	0.2	0.2	1.8
70-140	0.60	0.78	16.9	162.5	428.6	3.1	0.7	0.6	0.7	0.2	0.0	0.0	0.0	0.3
70-145	0.60	9.19	199.7	1,914.2	5,049.5	36.5	8.2	6.6	7.8	1.8	0.0	0.2	0.4	3.0
70-150	0.45	4.51	73.5	704.5	1,858.5	13.4	3.0	2.4	2.9	0.7	0.0	0.1	0.1	1.1
70-155	0.45	2.05	33.4	320.2	844.8	6.1	1.4	1.1	1.3	0.3	0.0	0.0	0.1	0.5
70-160	0.45	2.95	48.1	460.8	1,215.7	8.8	2.0	1.6	1.9	0.4	0.0	0.1	0.1	0.7
70-165	0.45	27.77	452.5	4,338.2	11,443.8	82.6	18.5	14.9	17.6	4.2	0.0	0.6	0.9	6.7
70-170	0.45	23.74	386.8	3,708.6	9,783.1	70.7	15.8	12.7	15.0	3.6	0.0	0.5	0.7	5.8
70-175	0.46	30.89	511.4	4,903.0	12,933.8	93.4	20.9	16.8	19.9	4.7	0.0	0.6	1.0	7.6
70-180	0.45	1.14	18.6	178.1	469.8	3.4	0.8	0.6	0.7	0.2	0.0	0.0	0.0	0.3
70-185	0.45	1.53	24.9	239.0	630.5	4.6	1.0	0.8	1.0	0.2	0.0	0.0	0.0	0.4
70-190	0.17	15.04	93.7	898.6	2,370.3	17.1	3.8	3.1	3.6	0.9	0.0	0.1	0.2	1.4
70-195	0.45	46.02	754.0	7,228.4	19,068.0	137.7	30.8	24.8	29.3	7.0	0.0	0.9	1.5	11.2
70-200	0.45	31.52	513.6	4,924.0	12,989.2	93.8	21.0	16.9	20.0	4.8	0.0	0.6	1.0	7.6
70-205	0.45	1.39	22.7	217.1	572.8	4.1	0.9	0.7	0.9	0.2	0.0	0.0	0.0	0.3
70-210	0.45	3.58	58.3	559.3	1,475.3	10.7	2.4	1.9	2.3	0.5	0.0	0.1	0.1	0.9
70-215	0.45	5.93	96.6	926.4	2,443.7	17.6	3.9	3.2	3.8	0.9	0.0	0.1	0.2	1.4
70-220	0.45	4.54	74.0	709.2	1,870.9	13.5	3.0	2.4	2.9	0.7	0.0	0.1	0.1	1.1
70-225	0.45	4.99	81.3	779.5	2,056.3	14.9	3.3	2.7	3.2	0.8	0.0	0.1	0.2	1.2
70-230	0.45	4.72	76.9	737.3	1,945.1	14.0	3.1	2.5	3.0	0.7	0.0	0.1	0.1	1.1
70-235	0.45	5.04	82.1	787.3	2,076.9	15.0	3.4	2.7	3.2	0.8	0.0	0.1	0.2	1.2
70-240	0.45	4.52	73.7	706.1	1,862.7	13.5	3.0	2.4	2.9	0.7	0.0	0.1	0.1	1.1
70-245	0.44	9.98	158.6	1,520.9	4,011.9	29.0	6.5	5.2	6.2	1.5	0.0	0.2	0.3	2.4
70-250	0.48	41.27	720.9	6,910.7	18,229.9	131.7	29.4	23.7	28.0	6.7	0.0	0.9	1.4	10.7
70-255	0.45	45.37	739.5	7,089.7	18,702.2	135.1	30.2	24.3	28.7	6.8	0.0	0.9	1.4	11.0
70-260	0.46	24.9	412.7	3,956.9	10,437.9	75.4	16.9	13.6	16.0	3.8	0.0	0.5	0.8	6.1
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	75.9	728.0	1,920.4	13.9	3.1	2.5	2.9	0.7	0.0	0.1	0.1	1.1
70-275	0.45	4.28	69.7	668.6	1,763.8	12.7	2.8	2.3	2.7	0.6	0.0	0.1	0.1	1.0
70-280	0.45	9.39	153.3	1,469.4	3,876.1	28.0	6.3	5.0	6.0	1.4	0.0	0.2	0.3	2.3
70-285	0.45	19.03	309.8	2,969.6	7,833.6	56.6	12.6	10.2	12.0	2.9	0.0	0.4	0.6	4.6
70-290	0.45	2.37	38.3	367.1	968.4	7.0	1.6	1.3	1.5	0.4	0.0	0.0	0.1	0.6
70-295	0.45	7.18	117.0	1,121.6	2,958.8	21.4	4.8	3.8	4.5	1.1	0.0	0.1	0.2	1.7
70-300	0.10	0.4	1.4	13.9	36.6	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	204.8	1,963.0	5,178.4	37.4	8.4	6.7	8.0	1.9	0.0	0.3	0.4	3.0
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	62.9	603.0	1,590.6	11.5	2.6	2.1	2.4	0.6	0.0	0.1	0.1	0.9
70-320	0.44	2.32	36.9	353.7	933.0	6.7	1.5	1.2	1.4	0.3	0.0	0.0	0.1	0.5
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	4,766.0	45,690.2	120,527.6	870.5	194.6	156.8	185.1	44.1	0.2	5.9	9.2	70.9
70-335	0.45	1.99	32.4	310.9	820.1	5.9	1.3	1.1	1.3	0.3	0.0	0.0	0.1	0.5
70-340	0.39	22.25	317.0	3,038.9	8,016.3	57.9	12.9	10.4	12.3	2.9	0.0	0.4	0.6	4.7
70-345	0.45	3.81	62.1	595.2	1,570.1	11.3	2.5	2.0	2.4	0.6	0.0	0.1	0.1	0.9
70-350	0.49	314.4	5,625.5	53,930.4	142,264.7	1,027.5	229.7	185.0	218.5	52.1	0.2	7.0	10.8	83.7
70-355	0.45	1.29	21.0	201.5	531.6	3.8	0.9	0.7	0.8	0.2	0.0	0.0	0.0	0.3
70-360	0.45	131.96	2,171.9	20,821.1	54,924.7	396.7	88.7	71.4	84.4	20.1	0.1	2.7	4.2	32.3
70-365	0.45	6.7	109.2	1,046.7	2,761.0	19.9	4.5	3.6	4.2	1.0	0.0	0.1	0.2	1.6
70-370	0.44	3.75	60.2	576.7	1,521.2	11.0	2.5	2.0	2.3	0.6	0.0	0.1	0.1	0.9
70-375	0.47	7.1	121.5	1,164.9	3,073.0	22.2	5.0	4.0	4.7	1.1	0.0	0.2	0.2	1.8
70-380	0.45	14.4	234.7	2,249.5	5,934.1	42.9	9.6	7.7	9.1	2.2	0.0	0.3	0.5	3.5
70-385	0.45	14.97	243.9	2,338.6	6,169.0	44.6	10.0	8.0	9.5	2.3	0.0	0.3	0.5	3.6
70-390	0.46	58.11	974.8	9,344.8	24,651.0	178.0	39.8	32.1	37.9	9.0	0.0	1.2	1.9	14.5
70-395	0.43	57.19	889.5	8,527.6	22,495.2	162.5	36.3	29.3	34.6	8.2	0.0	1.1	1.7	13.2
70-400	0.44	9.67	153.7	1,473.1	3,886.1	28.1	6.3	5.1	6.0	1.4	0.0	0.2	0.3	2.3
70-405	0.25	7.16	64.8	621.6	1,639.8	11.8	2.6	2.1	2.5	0.6	0.0	0.1	0.1	1.0
70-410	0.43	5.8	90.1	863.5	2,277.9	16.5	3.7	3.0	3.5	0.8	0.0	0.1	0.2	1.3
70-415	0.45	120.75	1,985.0	19,029.3	50,198.0	362.5	81.0	65.3	77.1	18.4	0.1	2.5	3.8	29.5
70-420	0.45	16.99	276.9	2,654.1	7,001.4	50.6	11.3	9.1	10.8	2.6	0.0	0.3	0.5	4.1
70-425	0.51	20.63	381.7	3,659.6	9,653.7	69.7	15.6	12.6	14.8	3.5	0.0	0.5	0.7	5.7
70-430	0.10	6.19	22.4	214.9	566.9	4.1	0.9	0.7	0.9	0.2	0.0	0.0	0.0	0.3
70-435	0.10	9.16	33.2	318.0	838.8	6.1	1.4	1.1	1.3	0.3	0.0	0.0	0.1	0.5
70-440	0.50	34.48	620.2	5,945.5	15,683.8	113.3	25.3	20.4	24.1	5.7	0.0	0.8	1.2	9.2
70-445	0.45	5.6	91.3	874.8	2,307.7	16.7	3.7	3.0	3.5	0.8	0.0	0.1	0.2	1.4
70-450	0.45	2.65	43.2	414.0	1,092.0	7.9	1.8	1.4	1.7	0.4	0.0	0.1	0.1	0.6
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	43.5	417.1	1,100.3	7.9	1.8	1.4	1.7	0.4	0.0	0.1	0.1	0.6
70-465	0.45	2.58	42.0	403.0	1,063.2	7.7	1.7	1.4	1.6	0.4	0.0	0.1	0.1	0.6

2001 POLLUTANT LOADINGS BY OUTFALL

2001 POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS PER YEAR

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Mean Flow Weighted Mean Concentration - all 2001 sites			12.1	116	306	2.21	0.494	0.398	0.470	0.112	0.000532	0.015	0.023	0.180
Precipitation (meters)	**0.87**	**32.43 inches**												
70-470	0.38	8.55	118.9	1,139.9	3,007.1	21.7	4.9	3.9	4.6	1.1	0.0	0.1	0.2	1.8
70-475	0.46	229.14	3,819.6	36,617.5	96,594.5	697.6	155.9	125.6	148.4	35.4	0.2	4.8	7.4	56.8
70-480	0.60	0.31	6.7	64.6	170.3	1.2	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.1
70-485	0.45	13.36	217.7	2,087.1	5,505.6	39.8	8.9	7.2	8.5	2.0	0.0	0.3	0.4	3.2
70-490	0.47	48.75	828.6	7,943.4	20,954.0	151.3	33.8	27.3	32.2	7.7	0.0	1.0	1.6	12.3
70-495	0.45	7.74	126.1	1,209.1	3,189.6	23.0	5.1	4.1	4.9	1.2	0.0	0.2	0.2	1.9
70-500	0.45	0.56	9.1	87.5	230.8	1.7	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.1
70-505	0.41	8.12	121.0	1,160.4	3,060.9	22.1	4.9	4.0	4.7	1.1	0.0	0.2	0.2	1.8
70-510	0.45	41.82	683.7	6,554.4	17,290.0	124.9	27.9	22.5	26.6	6.3	0.0	0.9	1.3	10.2
70-515	0.47	62.73	1,067.5	10,233.5	26,995.2	195.0	43.6	35.1	41.5	9.9	0.0	1.3	2.1	15.9
70-520	0.45	6.05	98.6	945.1	2,493.2	18.0	4.0	3.2	3.8	0.9	0.0	0.1	0.2	1.5
70-525	0.45	6.23	101.5	973.2	2,567.3	18.5	4.1	3.3	3.9	0.9	0.0	0.1	0.2	1.5
70-530	0.45	1.67	27.2	260.9	688.2	5.0	1.1	0.9	1.1	0.3	0.0	0.0	0.1	0.4
70-535	0.45	30.24	493.9	4,735.0	12,490.6	90.2	20.2	16.2	19.2	4.6	0.0	0.6	1.0	7.3
70-540	0.21	5.1	39.4	377.9	997.0	7.2	1.6	1.3	1.5	0.4	0.0	0.0	0.1	0.6
70-545	0.45	1.89	30.8	295.3	778.9	5.6	1.3	1.0	1.2	0.3	0.0	0.0	0.1	0.5
70-550	0.26	1.3	12.2	116.8	308.2	2.2	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
70-555	0.45	1.73	28.2	270.3	712.9	5.1	1.2	0.9	1.1	0.3	0.0	0.0	0.1	0.4
70-560	0.45	3.33	54.3	520.2	1,372.3	9.9	2.2	1.8	2.1	0.5	0.0	0.1	0.1	0.8
70-565	0.24	16.63	144.9	1,388.8	3,663.4	26.5	5.9	4.8	5.6	1.3	0.0	0.2	0.3	2.2
70-570	0.45	1.23	20.0	192.1	506.9	3.7	0.8	0.7	0.8	0.2	0.0	0.0	0.0	0.3
70-575	0.45	15.39	250.5	2,401.8	6,335.8	45.8	10.2	8.2	9.7	2.3	0.0	0.3	0.5	3.7
70-580	0.43	119.93	1,883.9	18,060.6	47,642.6	344.1	76.9	62.0	73.2	17.4	0.1	2.4	3.6	28.0
71-010	0.10	1.12	4.1	38.9	102.6	0.7	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
71-020	0.45	14.05	228.9	2,194.9	5,789.9	41.8	9.3	7.5	8.9	2.1	0.0	0.3	0.4	3.4
71-030	0.45	28.58	468.3	4,489.1	11,842.0	85.5	19.1	15.4	18.2	4.3	0.0	0.6	0.9	7.0
71-040	0.22	20.93	166.4	1,594.8	4,206.9	30.4	6.8	5.5	6.5	1.5	0.0	0.2	0.3	2.5
71-050	0.46	120.42	1,997.1	19,146.0	50,505.8	364.8	81.5	65.7	77.6	18.5	0.1	2.5	3.8	29.7
71-060	0.45	3.11	50.7	485.8	1,281.6	9.3	2.1	1.7	2.0	0.5	0.0	0.1	0.1	0.8
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	1,681.8	16,123.3	42,532.3	307.2	68.7	55.3	65.3	15.6	0.1	2.1	3.2	25.0
71-090	0.45	6.5	104.9	1,005.4	2,652.1	19.2	4.3	3.4	4.1	1.0	0.0	0.1	0.2	1.6
71-100	0.10	1.99	7.2	69.1	182.2	1.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.1
72-010	0.18	17.32	109.8	1,052.8	2,777.3	20.1	4.5	3.6	4.3	1.0	0.0	0.1	0.2	1.6
72-020	0.40	24.7	353.4	3,388.1	8,937.7	64.5	14.4	11.6	13.7	3.3	0.0	0.4	0.7	5.3
72-030	0.10	5.25	19.0	182.3	480.8	3.5	0.8	0.6	0.7	0.2	0.0	0.0	0.0	0.3
72-040	0.42	166.54	2,512.0	24,081.8	63,526.1	458.8	102.6	82.6	97.6	23.3	0.1	3.1	4.8	37.4
72-050	0.10	5.16	18.7	179.1	472.5	3.4	0.8	0.6	0.7	0.2	0.0	0.0	0.0	0.3
72-060	0.36	113.04	1,480.6	14,194.6	37,444.4	270.4	60.4	48.7	57.5	13.7	0.1	1.8	2.9	22.0
72-070	0.10	2.21	8.0	76.7	202.4	1.5	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.1
72-080	0.60	4.74	103.0	987.3	2,604.4	18.8	4.2	3.4	4.0	1.0	0.0	0.1	0.2	1.5
72-090	0.45	68.71	1,112.6	10,666.2	28,136.8	203.2	45.4	36.6	43.2	10.3	0.0	1.4	2.1	16.6
72-100	0.46	68.32	1,145.5	10,981.3	28,967.8	209.2	46.8	37.7	44.5	10.6	0.1	1.4	2.2	17.0
72-110	0.10	3.22	11.7	111.8	294.9	2.1	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
72-120	0.45	62.98	1,026.3	9,838.6	25,953.6	187.4	41.9	33.8	39.9	9.5	0.0	1.3	2.0	15.3
72-130	0.46	58.06	959.4	9,197.6	24,262.6	175.2	39.2	31.6	37.3	8.9	0.0	1.2	1.8	14.3
72-140	0.10	10.19	36.9	353.7	933.2	6.7	1.5	1.2	1.4	0.3	0.0	0.0	0.1	0.5
72-150	0.10	4.76	17.2	165.2	435.9	3.1	0.7	0.6	0.7	0.2	0.0	0.0	0.0	0.3
72-160	0.10	4.55	16.5	158.0	416.7	3.0	0.7	0.5	0.6	0.2	0.0	0.0	0.0	0.2
73-010	0.44	20.76	329.9	3,163.0	8,343.7	60.3	13.5	10.9	12.8	3.1	0.0	0.4	0.6	4.9
73-020	0.44	57.47	921.0	8,829.8	23,292.4	168.2	37.6	30.3	35.8	8.5	0.0	1.1	1.8	13.7
73-030	0.10	21.56	78.1	748.5	1,974.4	14.3	3.2	2.6	3.0	0.7	0.0	0.1	0.2	1.2
74-010	0.48	44.39	769.4	7,376.2	19,458.0	140.5	31.4	25.3	29.9	7.1	0.0	1.0	1.5	11.4
74-020	0.45	4.41	71.9	688.9	1,817.3	13.1	2.9	2.4	2.8	0.7	0.0	0.1	0.1	1.1
75-005	0.45	12.39	201.7	1,933.2	5,099.7	36.8	8.2	6.6	7.8	1.9	0.0	0.3	0.4	3.0
75-010	0.60	3.65	79.3	760.3	2,005.5	14.5	3.2	2.6	3.1	0.7	0.0	0.1	0.2	1.2
75-020	0.45	1.53	24.9	239.0	630.5	4.6	1.0	0.8	1.0	0.2	0.0	0.0	0.0	0.4
75-030	0.45	8.38	136.6	1,309.1	3,453.3	24.9	5.6	4.5	5.3	1.3	0.0	0.2	0.3	2.0
75-040	0.45	14.74	240.2	2,302.7	6,074.2	43.9	9.8	7.9	9.3	2.2	0.0	0.3	0.5	3.6
76-010	0.46	907.31	15,239.5	146,097.4	385,394.9	2,783.4	622.2	501.3	591.9	141.1	0.7	19.0	29.3	226.7
76-020	0.46	88.62	1,462.3	14,018.6	36,980.2	267.1	59.7	48.1	56.8	13.5	0.1	1.8	2.8	21.8
76-030	0.45	7.55	123.0	1,179.4	3,111.3	22.5	5.0	4.0	4.8	1.1	0.0	0.2	0.2	1.8
76-040	0.19	4.67	31.5	301.8	796.0	5.7	1.3	1.0	1.2	0.3	0.0	0.0	0.1	0.5
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	112.9	1,082.1	2,854.4	20.6	4.6	3.7	4.4	1.0	0.0	0.1	0.2	1.7
82-010	0.49	23.53	414.6	3,974.6	10,484.6	75.7	16.9	13.6	16.1	3.8	0.0	0.5	0.8	6.2
82-020	0.45	73.45	1,209.7	11,597.0	30,592.1	220.9	49.4	39.8	47.0	11.2	0.1	1.5	2.3	18.0
82-030	0.45	90.04	1,482.5	14,212.8	37,492.3	270.8	60.5	48.8	57.6	13.7	0.1	1.9	2.9	22.1
82-040	0.46	98.49	1,654.5	15,861.3	41,841.1	302.2	67.5	54.4	64.3	15.3	0.1	2.1	3.2	24.6
83-010	0.45	6.59	107.4	1,029.5	2,715.7	19.6	4.4	3.5	4.2	1.0	0.0	0.1	0.2	1.6
83-015	0.45	0.99	16.1	154.7	408.0	2.9	0.7	0.5	0.6	0.1	0.0	0.0	0.0	0.2
83-020	0.43	85.96	1,353.3	12,974.2	34,225.0	247.2	55.3	44.5	52.6	12.5	0.1	1.7	2.6	20.1
83-025	0.45	51.23	834.8	8,003.0	21,111.5	152.5	34.1	27.5	32.4	7.7	0.0	1.0	1.6	12.4
83-030	0.60	0.82	17.8	170.8	450.6	3.3	0.7	0.6	0.7	0.2	0.0	0.0	0.0	0.3
83-040	0.10	1.08	3.9	37.5	98.9	0.7	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
83-050	0.45	40.4	660.1	6,328.5	16,694.0	120.6	27.0	21.7	25.6	6.1	0.0	0.8	1.3	9.8
83-060	0.45	10.05	163.8	1,570.0	4,141.5	29.9	6.7	5.4	6.4	1.5	0.0	0.2	0.3	2.4
83-070	0.10	1.19	4.3	41.3	109.0	0.8	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
83-080	0.48	178.63	3,075.4	29,482.8	77,773.6	561.7	125.6	101.2	119.5	28.5	0.1	3.8	5.9	45.7
83-090	0.41	9.16	135.9	1,303.1	3,437.4	24.8	5.5	4.5	5.3	1.3	0.0	0.2	0.3	2.0
84-010	0.47	21.56	367.2	3,520.3	9,286.3	67.1	15.0	12.1	14.3	3.4	0.0	0.5	0.7	5.5
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANNUAL SUMMATION (kg)			**489,138.21**	**4,689,258.88**	**12,369,941.52**	**89,338.47**	**19,969.77**	**16,089.01**	**18,999.58**	**4,527.56**	**21.51**	**610.41**	**941.89**	**7,276.44**

2001 SPRING POLLUTANT LOADINGS BY OUTFALL

2001 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/16/01 - 05/31/01) note(1): no EMC data for Cadmium - median FWMC used

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd (1) mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	97	63	2.96	0.615	0.340	0.492	0.057	0.000500	0.006	0.020	0.125
Precipitation (meters)	0.200	7.88 inches												
10-010	0.43	113.55	438.1	3,269.1	2,123.2	99.8	20.7	11.5	16.6	1.9	0.0	0.2	0.7	4.2
10-020	0.45	7.81	31.4	234.5	152.3	7.2	1.5	0.8	1.2	0.1	0.0	0.0	0.0	0.3
10-030	0.10	4.05	3.6	27.0	17.6	0.8	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
10-040	0.45	167.42	669.1	4,992.7	3,242.7	152.4	31.7	17.5	25.3	2.9	0.0	0.3	1.0	6.4
10-050	0.46	114.18	464.8	3,468.5	2,252.7	105.8	22.0	12.2	17.6	2.0	0.0	0.2	0.7	4.5
10-060	0.60	10.5	56.3	420.4	273.1	12.8	2.7	1.5	2.1	0.2	0.0	0.0	0.1	0.5
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	104.8	781.9	507.8	23.9	5.0	2.7	4.0	0.5	0.0	0.0	0.2	1.0
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	61.8	461.5	299.7	14.1	2.9	1.6	2.3	0.3	0.0	0.0	0.1	0.6
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	4,516.0	33,696.6	21,885.4	1,028.3	213.6	118.1	170.9	19.8	0.2	2.0	6.9	43.4
10-110	0.47	300.11	1,252.2	9,343.5	6,068.4	285.1	59.2	32.8	47.4	5.5	0.0	0.5	1.9	12.0
10-120A/B	0.44	372.78	1,451.2	10,827.9	7,032.5	330.4	68.7	38.0	54.9	6.4	0.1	0.6	2.2	14.0
10-130	0.45	336.46	1,358.7	10,138.0	6,584.5	309.4	64.3	35.5	51.4	6.0	0.1	0.6	2.1	13.1
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	1,135.6	8,473.0	5,503.1	258.6	53.7	29.7	43.0	5.0	0.0	0.5	1.7	10.9
10-150	0.47	157.15	659.0	4,917.1	3,193.6	150.0	31.2	17.2	24.9	2.9	0.0	0.3	1.0	6.3
10-160	0.00	17	0.4	2.8	1.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	792.2	5,910.8	3,838.9	180.4	37.5	20.7	30.0	3.5	0.0	0.3	1.2	7.6
10-180	0.45	284.26	1,132.1	8,447.5	5,486.5	257.8	53.6	29.6	42.8	5.0	0.0	0.5	1.7	10.9
10-190	0.59	14.58	77.2	575.7	373.9	17.6	3.7	2.0	2.9	0.3	0.0	0.0	0.1	0.7
10-200	0.40	42.44	150.7	1,124.5	730.3	34.3	7.1	3.9	5.7	0.7	0.0	0.1	0.2	1.4
10-210	0.49	98.32	432.3	3,225.3	2,094.8	98.4	20.4	11.3	16.4	1.9	0.0	0.2	0.7	4.2
10-220	0.56	18.83	94.2	702.5	456.3	21.4	4.5	2.5	3.6	0.4	0.0	0.0	0.1	0.9
10-230	0.47	235.02	993.6	7,413.7	4,815.1	226.2	47.0	26.0	37.6	4.4	0.0	0.4	1.5	9.6
10-240	0.51	103.83	477.0	3,559.5	2,311.8	108.6	22.6	12.5	18.1	2.1	0.0	0.2	0.7	4.6
10-250	0.49	242.96	1,062.3	7,926.0	5,147.8	241.9	50.3	27.8	40.2	4.7	0.0	0.5	1.6	10.2
10-260	0.56	23.77	118.4	883.8	574.0	27.0	5.6	3.1	4.5	0.5	0.0	0.1	0.2	1.1
10-270	0.47	72.45	307.0	2,291.0	1,488.0	69.9	14.5	8.0	11.6	1.3	0.0	0.1	0.5	3.0
10-280	0.44	55.08	218.6	1,631.3	1,059.5	49.8	10.3	5.7	8.3	1.0	0.0	0.1	0.3	2.1
10-290	0.10	6.83	6.1	45.6	29.6	1.4	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.1
10-300	0.36	17.74	57.2	426.9	277.3	13.0	2.7	1.5	2.2	0.3	0.0	0.0	0.1	0.6
10-310	0.47	60.29	254.6	1,899.9	1,234.0	58.0	12.0	6.7	9.6	1.1	0.0	0.1	0.4	2.4
10-320	0.45	341.99	1,381.8	10,310.3	6,696.4	314.6	65.4	36.1	52.3	6.1	0.1	0.6	2.1	13.3
10-330	0.35	21.61	67.9	507.0	329.3	15.5	3.2	1.8	2.6	0.3	0.0	0.0	0.1	0.7
10-340	0.45	20.74	83.7	624.5	405.6	19.1	4.0	2.2	3.2	0.4	0.0	0.0	0.1	0.8
10-350	0.60	28.16	150.8	1,125.5	731.0	34.3	7.1	3.9	5.7	0.7	0.0	0.1	0.2	1.5
10-360	0.59	29.02	153.8	1,147.8	745.5	35.0	7.3	4.0	5.8	0.7	0.0	0.1	0.2	1.5
10-370	0.59	14.46	76.2	568.9	369.5	17.4	3.6	2.0	2.9	0.3	0.0	0.0	0.1	0.7
10-380	0.45	14.38	57.3	427.2	277.5	13.0	2.7	1.5	2.2	0.3	0.0	0.0	0.1	0.6
10-390	0.49	41.97	185.1	1,381.0	896.9	42.1	8.8	4.8	7.0	0.8	0.0	0.1	0.3	1.8
10-400A	0.10	1.07	1.0	7.1	4.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-400B	0.47	17.66	74.5	555.8	361.0	17.0	3.5	1.9	2.8	0.3	0.0	0.0	0.1	0.7
10-400C	0.57	50.25	254.3	1,897.3	1,232.3	57.9	12.0	6.7	9.6	1.1	0.0	0.1	0.4	2.4
10-410A	0.50	46.22	205.8	1,535.5	997.3	46.9	9.7	5.4	7.8	0.9	0.0	0.1	0.3	2.0
10-410B	0.32	21.29	60.2	449.5	292.0	13.7	2.9	1.6	2.3	0.3	0.0	0.0	0.1	0.6
10-410C	0.53	22.8	107.6	803.1	521.6	24.5	5.1	2.8	4.1	0.5	0.0	0.0	0.2	1.0
10-410D	0.60	27.34	146.8	1,095.1	711.3	33.4	6.9	3.8	5.6	0.6	0.0	0.1	0.2	1.4
10-410E	0.58	256.04	1,317.7	9,832.0	6,385.8	300.0	62.3	34.5	49.9	5.8	0.1	0.6	2.0	12.7
10-410F	0.59	37.92	199.5	1,488.5	966.8	45.4	9.4	5.2	7.6	0.9	0.0	0.1	0.3	1.9
10-420A	0.27	23.05	56.2	419.2	272.2	12.8	2.7	1.5	2.1	0.2	0.0	0.0	0.1	0.5
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	671.2	5,008.3	3,252.8	152.8	31.8	17.6	25.4	2.9	0.0	0.3	1.0	6.5
10-430A	0.00	8.14	0.2	1.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	261.5	1,951.2	1,267.3	59.5	12.4	6.8	9.9	1.1	0.0	0.1	0.4	2.5
10-430C	0.48	44.83	192.6	1,437.2	933.4	43.9	9.1	5.0	7.3	0.8	0.0	0.1	0.3	1.9
10-430D	0.49	85.79	377.2	2,814.5	1,828.0	85.9	17.8	9.9	14.3	1.7	0.0	0.2	0.6	3.6
10-430E	0.56	86.66	432.2	3,224.7	2,094.4	98.4	20.4	11.3	16.4	1.9	0.0	0.2	0.7	4.2
10-430F	0.10	377.97	338.0	2,522.3	1,638.2	77.0	16.0	8.8	12.8	1.5	0.0	0.1	0.5	3.3
10-430G	0.50	125.89	558.0	4,163.4	2,704.1	127.0	26.4	14.6	21.1	2.4	0.0	0.2	0.9	5.4
10-430H	0.49	33.18	145.8	1,088.0	706.7	33.2	6.9	3.8	5.5	0.6	0.0	0.1	0.2	1.4
10-430I	0.59	32.61	171.7	1,280.9	832.0	39.1	8.1	4.5	6.5	0.8	0.0	0.1	0.3	1.7
10-430J	0.43	532.36	2,066.1	15,416.6	10,012.9	470.4	97.7	54.0	78.2	9.1	0.1	0.9	3.2	19.9
10-430K	0.48	337.06	1,439.9	10,743.9	6,978.0	327.9	68.1	37.7	54.5	6.3	0.1	0.6	2.2	13.8
10-430L	0.45	84.4	340.2	2,538.8	1,648.9	77.5	16.1	8.9	12.9	1.5	0.0	0.1	0.5	3.3
10-430M	0.54	75.94	368.4	2,748.6	1,785.2	83.9	17.4	9.6	13.9	1.6	0.0	0.2	0.6	3.5
10-430N	0.44	26.43	104.9	783.0	508.5	23.9	5.0	2.7	4.0	0.5	0.0	0.0	0.2	1.0
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	7.2	53.6	34.8	1.6	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
10-430R	0.47	150.32	628.5	4,689.4	3,045.7	143.1	29.7	16.4	23.8	2.8	0.0	0.3	1.0	6.0
10-430S	0.10	5.15	4.6	34.4	22.3	1.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
10-430T	0.46	262.47	1,073.1	8,006.7	5,200.2	244.3	50.8	28.1	40.6	4.7	0.0	0.5	1.6	10.3
10-430U	0.47	431.37	1,812.7	13,525.6	8,784.7	412.7	85.8	47.4	68.6	7.9	0.1	0.8	2.8	17.4
10-430V	0.46	329.11	1,368.2	10,209.0	6,630.6	311.5	64.7	35.8	51.8	6.0	0.1	0.6	2.1	13.2
10-440A	0.46	23.18	95.0	708.7	460.3	21.6	4.5	2.5	3.6	0.4	0.0	0.0	0.1	0.9
10-440B	0.49	34.23	150.9	1,125.7	731.1	34.4	7.1	3.9	5.7	0.7	0.0	0.1	0.2	1.5
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	3,823.0	28,525.7	18,527.0	870.5	180.9	100.0	144.7	16.8	0.1	1.7	5.9	36.8
10-440F	0.46	538.85	2,217.9	16,549.3	10,748.5	505.0	104.9	58.0	83.9	9.7	0.1	1.0	3.4	21.3
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	15.8	117.6	76.4	3.6	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.2

2001 SPRING POLLUTANT LOADINGS BY OUTFALL

2001 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/16/01 - 05/31/01) note(1): no EMC data for Cadmium - median FWMC used

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd (1) mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	97	63	2.96	0.615	0.340	0.492	0.057	0.000500	0.006	0.020	0.125
Precipitation (meters)	0.200	7.88 inches												
10-450C	0.59	55.64	295.5	2,205.0	1,432.1	67.3	14.0	7.7	11.2	1.3	0.0	0.1	0.5	2.8
10-450D	0.45	4.62	18.6	138.7	90.1	4.2	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
10-450E	0.44	3.2	12.6	94.4	61.3	2.9	0.6	0.3	0.5	0.1	0.0	0.0	0.0	0.1
10-450F	0.46	158.55	651.5	4,861.0	3,157.1	148.3	30.8	17.0	24.7	2.9	0.0	0.3	1.0	6.3
10-450G/H	0.48	75.02	322.4	2,405.5	1,562.3	73.4	15.3	8.4	12.2	1.4	0.0	0.1	0.5	3.1
10-450I	0.49	243.64	1,070.4	7,986.8	5,187.3	243.7	50.6	28.0	40.5	4.7	0.0	0.5	1.6	10.3
10-450J	0.49	17.16	74.5	555.9	361.1	17.0	3.5	1.9	2.8	0.3	0.0	0.0	0.1	0.7
10-450K	0.58	37.01	191.7	1,430.7	929.2	43.7	9.1	5.0	7.3	0.8	0.0	0.1	0.3	1.8
10-450L	0.51	213.41	964.0	7,192.9	4,671.7	219.5	45.6	25.2	36.5	4.2	0.0	0.4	1.5	9.3
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	33.7	251.4	163.3	7.7	1.6	0.9	1.3	0.1	0.0	0.0	0.1	0.3
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	1,022.1	7,626.3	4,953.2	232.7	48.4	26.7	38.7	4.5	0.0	0.4	1.6	9.8
10-460F	0.49	14.75	65.3	487.0	316.3	14.9	3.1	1.7	2.5	0.3	0.0	0.0	0.1	0.6
10-460G	0.51	79.66	363.9	2,715.4	1,763.6	82.9	17.2	9.5	13.8	1.6	0.0	0.2	0.6	3.5
10-460H	0.48	12.35	53.0	395.1	256.6	12.1	2.5	1.4	2.0	0.2	0.0	0.0	0.1	0.5
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	22.2	165.9	107.7	5.1	1.1	0.6	0.8	0.1	0.0	0.0	0.0	0.2
10-460K	0.36	5.48	17.6	131.5	85.4	4.0	0.8	0.5	0.7	0.1	0.0	0.0	0.0	0.2
10-460L	0.46	3.5	14.5	108.2	70.3	3.3	0.7	0.4	0.5	0.1	0.0	0.0	0.0	0.1
10-460M	0.48	9.55	40.9	305.0	198.1	9.3	1.9	1.1	1.5	0.2	0.0	0.0	0.1	0.4
10-460N	0.45	3.85	15.5	115.6	75.1	3.5	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.1
10-460O	0.45	4.15	16.8	125.6	81.6	3.8	0.8	0.4	0.6	0.1	0.0	0.0	0.0	0.2
10-460P	0.45	4.34	17.5	130.3	84.6	4.0	0.8	0.5	0.7	0.1	0.0	0.0	0.0	0.2
10-460Q	0.56	19.73	99.6	742.8	482.4	22.7	4.7	2.6	3.8	0.4	0.0	0.0	0.2	1.0
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	1,178.6	8,794.5	5,711.9	268.4	55.8	30.8	44.6	5.2	0.0	0.5	1.8	11.3
10-465	0.10	8.56	7.7	57.1	37.1	1.7	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
10-470	0.38	25.6	87.4	652.0	423.5	19.9	4.1	2.3	3.3	0.4	0.0	0.0	0.1	0.8
10-480	0.58	39.66	205.8	1,535.5	997.3	46.9	9.7	5.4	7.8	0.9	0.0	0.1	0.3	2.0
10-485	0.00	7.27	0.2	1.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	585.3	4,367.3	2,836.5	133.3	27.7	15.3	22.2	2.6	0.0	0.3	0.9	5.6
10-500A	0.26	26.21	61.5	459.0	298.1	14.0	2.9	1.6	2.3	0.3	0.0	0.0	0.1	0.6
10-500B	0.46	8.48	34.9	260.5	169.2	7.9	1.7	0.9	1.3	0.2	0.0	0.0	0.1	0.3
10-500C	0.44	111.36	433.6	3,235.3	2,101.3	98.7	20.5	11.3	16.4	1.9	0.0	0.2	0.7	4.2
10-500D	0.24	3.83	8.2	60.9	39.5	1.9	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
10-500E	0.53	23.34	111.1	829.3	538.6	25.3	5.3	2.9	4.2	0.5	0.0	0.0	0.2	1.1
10-500F	0.49	12.04	53.2	396.7	257.7	12.1	2.5	1.4	2.0	0.2	0.0	0.0	0.1	0.5
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	7.0	52.4	34.0	1.6	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
10-510	0.51	62.36	283.7	2,116.7	1,374.8	64.6	13.4	7.4	10.7	1.2	0.0	0.1	0.4	2.7
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	468.3	3,494.0	2,269.3	106.6	22.2	12.2	17.7	2.1	0.0	0.2	0.7	4.5
10-540	0.12	53.9	57.1	426.0	276.7	13.0	2.7	1.5	2.2	0.3	0.0	0.0	0.1	0.5
10-550	0.46	25.83	106.2	792.8	514.9	24.2	5.0	2.8	4.0	0.5	0.0	0.0	0.2	1.0
10-560A/B	0.44	600.63	2,350.1	17,535.6	11,389.1	535.1	111.2	61.5	88.9	10.3	0.1	1.0	3.6	22.6
10-570A	0.54	14.64	71.2	531.3	345.0	16.2	3.4	1.9	2.7	0.3	0.0	0.0	0.1	0.7
10-570B	0.44	228.18	890.8	6,646.9	4,317.1	202.8	42.1	23.3	33.7	3.9	0.0	0.4	1.4	8.6
10-580	0.45	73.39	294.6	2,198.2	1,427.7	67.1	13.9	7.7	11.1	1.3	0.0	0.1	0.5	2.8
10-600	0.48	89.24	386.0	2,880.0	1,870.5	87.9	18.3	10.1	14.6	1.7	0.0	0.2	0.6	3.7
10-610	0.46	25.6	104.9	783.0	508.6	23.9	5.0	2.7	4.0	0.5	0.0	0.0	0.2	1.0
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	5.6	41.6	27.0	1.3	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.1
10-630B	0.45	4.68	18.8	140.5	91.3	4.3	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
10-630C	0.48	96.03	414.9	3,096.1	2,010.9	94.5	19.6	10.9	15.7	1.8	0.0	0.2	0.6	4.0
10-630D	0.45	6.37	25.6	191.3	124.2	5.8	1.2	0.7	1.0	0.1	0.0	0.0	0.0	0.2
10-630E	0.45	8.52	34.3	255.9	166.2	7.8	1.6	0.9	1.3	0.2	0.0	0.0	0.1	0.3
10-630F	0.54	17.56	84.8	633.1	411.2	19.3	4.0	2.2	3.2	0.4	0.0	0.0	0.1	0.8
10-630G	0.45	5.9	23.7	177.2	115.1	5.4	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.2
10-630H	0.30	25.63	69.4	518.0	336.4	15.8	3.3	1.8	2.6	0.3	0.0	0.0	0.1	0.7
10-630I	0.47	12.48	51.9	387.3	251.5	11.8	2.5	1.4	2.0	0.2	0.0	0.0	0.1	0.5
10-630J	0.55	14.69	72.7	542.8	352.5	16.6	3.4	1.9	2.8	0.3	0.0	0.0	0.1	0.7
10-630K	0.47	95.29	403.4	3,009.6	1,954.7	91.8	19.1	10.5	15.3	1.8	0.0	0.2	0.6	3.9
10-630L	0.52	100.42	467.9	3,491.4	2,267.6	106.5	22.1	12.2	17.7	2.1	0.0	0.2	0.7	4.5
10-630M	0.50	11.71	52.0	388.0	252.0	11.8	2.5	1.4	2.0	0.2	0.0	0.0	0.1	0.5
10-630N	0.45	8.45	34.0	253.8	164.8	7.7	1.6	0.9	1.3	0.1	0.0	0.0	0.1	0.3
10-630O	0.36	5.77	18.8	140.2	91.1	4.3	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	250.6	1,869.7	1,214.4	57.1	11.9	6.6	9.5	1.1	0.0	0.1	0.4	2.4
10-630S	0.22	37.02	72.0	537.0	348.8	16.4	3.4	1.9	2.7	0.3	0.0	0.0	0.1	0.7
10-630T	0.56	7.72	38.8	289.8	188.2	8.8	1.8	1.0	1.5	0.2	0.0	0.0	0.1	0.4
10-630U	0.52	115.42	540.0	4,029.0	2,616.8	122.9	25.5	14.1	20.4	2.4	0.0	0.2	0.8	5.2
10-630V	0.11	33.85	32.0	238.5	154.9	7.3	1.5	0.8	1.2	0.1	0.0	0.0	0.0	0.3
10-630W	0.47	23.68	100.3	748.6	486.2	22.8	4.7	2.6	3.8	0.4	0.0	0.0	0.2	1.0
10-630X	0.44	14.78	58.5	436.3	283.4	13.3	2.8	1.5	2.2	0.3	0.0	0.0	0.1	0.6
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	192.3	1,434.5	931.7	43.8	9.1	5.0	7.3	0.8	0.0	0.1	0.3	1.8
10-640	0.46	258.18	1,056.1	7,879.9	5,117.8	240.5	50.0	27.6	40.0	4.6	0.0	0.5	1.6	10.2
10-650	0.56	19.53	97.3	726.0	471.5	22.2	4.6	2.5	3.7	0.4	0.0	0.0	0.1	0.9
10-660	0.46	306.37	1,269.3	9,471.3	6,151.5	289.0	60.0	33.2	48.0	5.6	0.0	0.6	1.9	12.2
10-670	0.45	137.88	554.1	4,134.5	2,685.3	126.2	26.2	14.5	21.0	2.4	0.0	0.2	0.8	5.3
10-680	0.46	707.95	2,903.2	21,662.0	14,069.1	661.0	137.3	75.9	109.9	12.7	0.1	1.3	4.4	27.9
10-690	0.50	70.63	316.0	2,358.0	1,531.5	72.0	15.0	8.3	12.0	1.4	0.0	0.1	0.5	3.0
10-700	0.46	222.07	922.3	6,881.5	4,469.4	210.0	43.6	24.1	34.9	4.0	0.0	0.4	1.4	8.9
10-710	0.33	29.95	89.2	665.8	432.4	20.3	4.2	2.3	3.4	0.4	0.0	0.0	0.1	0.9

2001 SPRING POLLUTANT LOADINGS BY OUTFALL

2001 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/16/01 - 05/31/01) note(1): no EMC data for Cadmium - median FWMC used

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd (1) mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	97	63	2.96	0.615	0.340	0.492	0.057	0.000500	0.006	0.020	0.125
Precipitation (meters)	0.200	7.88 inches												
10-720A	0.44	15.77	62.5	466.6	303.1	14.2	3.0	1.6	2.4	0.3	0.0	0.0	0.1	0.6
10-720B	0.48	422.18	1,819.1	13,573.4	8,815.7	414.2	86.1	47.6	68.8	8.0	0.1	0.8	2.8	17.5
10-720C	0.43	26.35	101.2	755.1	490.4	23.0	4.8	2.6	3.8	0.4	0.0	0.0	0.2	1.0
10-720D	0.46	22.95	93.4	697.3	452.9	21.3	4.4	2.4	3.5	0.4	0.0	0.0	0.1	0.9
10-720E	0.46	18.39	75.0	559.3	363.2	17.1	3.5	2.0	2.8	0.3	0.0	0.0	0.1	0.7
10-720F	0.48	317.75	1,363.5	10,174.1	6,608.0	310.5	64.5	35.7	51.6	6.0	0.1	0.6	2.1	13.1
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	18.3	136.6	88.7	4.2	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
10-720I	0.45	87.27	348.1	2,597.2	1,686.8	79.3	16.5	9.1	13.2	1.5	0.0	0.2	0.5	3.3
10-720J	0.36	3.71	11.9	88.4	57.4	2.7	0.6	0.3	0.4	0.1	0.0	0.0	0.0	0.1
10-720K	0.55	32.76	160.9	1,200.4	779.7	36.6	7.6	4.2	6.1	0.7	0.0	0.1	0.2	1.5
10-720L	0.45	4.57	18.4	137.2	89.1	4.2	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
20-010	0.42	93.99	352.9	2,633.1	1,710.2	80.4	16.7	9.2	13.4	1.5	0.0	0.2	0.5	3.4
20-020	0.44	15.09	59.2	441.7	286.9	13.5	2.8	1.5	2.2	0.3	0.0	0.0	0.1	0.6
20-030	0.45	7.95	32.0	238.7	155.1	7.3	1.5	0.8	1.2	0.1	0.0	0.0	0.0	0.3
20-040	0.37	6.79	22.6	168.9	109.7	5.2	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.2
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	23.8	177.5	115.3	5.4	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.2
20-070	0.44	39.07	154.9	1,156.0	750.8	35.3	7.3	4.1	5.9	0.7	0.0	0.1	0.2	1.5
20-080	0.45	33.72	136.7	1,020.2	662.6	31.1	6.5	3.6	5.2	0.6	0.0	0.1	0.2	1.3
20-090	0.55	9.95	49.2	367.0	238.4	11.2	2.3	1.3	1.9	0.2	0.0	0.0	0.1	0.5
20-100	0.10	0.99	0.9	6.6	4.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-110	0.24	216.04	463.6	3,458.9	2,246.5	105.6	21.9	12.1	17.5	2.0	0.0	0.2	0.7	4.5
20-120	0.47	10.22	42.7	318.8	207.1	9.7	2.0	1.1	1.6	0.2	0.0	0.0	0.1	0.4
20-130	0.45	16.12	64.9	484.1	314.4	14.8	3.1	1.7	2.5	0.3	0.0	0.0	0.1	0.6
20-140	0.44	2.97	11.7	87.5	56.8	2.7	0.6	0.3	0.4	0.1	0.0	0.0	0.0	0.1
20-150	0.45	14.48	58.3	434.8	282.4	13.3	2.8	1.5	2.2	0.3	0.0	0.0	0.1	0.6
20-160	0.54	3.21	15.5	115.7	75.2	3.5	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.1
20-170	0.37	4.94	16.5	122.8	79.8	3.7	0.8	0.4	0.6	0.1	0.0	0.0	0.0	0.2
20-180	0.51	5.3	24.0	179.0	116.3	5.5	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.2
20-190	0.45	1.35	5.4	40.5	26.3	1.2	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.1
20-200	0.45	13.84	55.7	415.6	269.9	12.7	2.6	1.5	2.1	0.2	0.0	0.0	0.1	0.5
20-210A	0.44	92.9	365.0	2,723.3	1,768.7	83.1	17.3	9.5	13.8	1.6	0.0	0.2	0.6	3.5
20-210B	0.50	620.78	2,801.3	20,902.2	13,575.6	637.8	132.5	73.3	106.0	12.3	0.1	1.2	4.3	26.9
20-220	0.46	26.38	108.8	811.6	527.1	24.8	5.1	2.8	4.1	0.5	0.0	0.0	0.2	1.0
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	129.5	966.5	627.7	29.5	6.1	3.4	4.9	0.6	0.0	0.1	0.2	1.2
20-250	0.57	6.28	32.1	239.6	155.6	7.3	1.5	0.8	1.2	0.1	0.0	0.0	0.0	0.3
20-260	0.60	3.5	18.8	140.1	91.0	4.3	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
20-270	0.48	42.81	182.5	1,361.9	884.5	41.6	8.6	4.8	6.9	0.8	0.0	0.1	0.3	1.8
20-280	0.54	8.98	43.2	322.1	209.2	9.8	2.0	1.1	1.6	0.2	0.0	0.0	0.1	0.4
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	198.4	1,480.4	961.5	45.2	9.4	5.2	7.5	0.9	0.0	0.1	0.3	1.9
40-010	0.45	719.17	2,882.3	21,506.2	13,968.0	656.3	136.4	75.4	109.1	12.6	0.1	1.3	4.4	27.7
40-020	0.45	15.36	61.8	461.3	299.6	14.1	2.9	1.6	2.3	0.3	0.0	0.0	0.1	0.6
40-030	0.42	51.02	190.6	1,422.3	923.8	43.4	9.0	5.0	7.2	0.8	0.0	0.1	0.3	1.8
40-040	0.43	65.39	253.9	1,894.7	1,230.6	57.8	12.0	6.6	9.6	1.1	0.0	0.1	0.4	2.4
40-050	0.45	10.28	41.4	308.7	200.5	9.4	2.0	1.1	1.6	0.2	0.0	0.0	0.1	0.4
40-060	0.45	3.2	12.9	96.1	62.4	2.9	0.6	0.3	0.5	0.1	0.0	0.0	0.0	0.1
40-070	0.38	7.98	27.0	201.5	130.8	6.1	1.3	0.7	1.0	0.1	0.0	0.0	0.0	0.3
40-080	0.41	60.51	221.0	1,649.1	1,071.1	50.3	10.5	5.8	8.4	1.0	0.0	0.1	0.3	2.1
40-090	0.46	20.65	85.9	640.6	416.1	19.5	4.1	2.2	3.2	0.4	0.0	0.0	0.1	0.8
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-110	0.44	2.61	10.4	77.3	50.2	2.4	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.1
40-120	0.44	65.87	258.2	1,926.5	1,251.3	58.8	12.2	6.8	9.8	1.1	0.0	0.1	0.4	2.5
40-130	0.45	35.01	141.5	1,055.7	685.7	32.2	6.7	3.7	5.4	0.6	0.0	0.1	0.2	1.4
40-140	0.35	125.46	390.2	2,911.3	1,890.9	88.8	18.5	10.2	14.8	1.7	0.0	0.2	0.6	3.8
40-150	0.47	24.31	103.0	768.5	499.2	23.5	4.9	2.7	3.9	0.5	0.0	0.0	0.2	1.0
40-160	0.49	30.99	137.0	1,022.4	664.0	31.2	6.5	3.6	5.2	0.6	0.0	0.1	0.2	1.3
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	80.9	603.5	392.0	18.4	3.8	2.1	3.1	0.4	0.0	0.0	0.1	0.8
40-190	0.53	65.53	309.9	2,312.3	1,501.8	70.6	14.7	8.1	11.7	1.4	0.0	0.1	0.5	3.0
40-200	0.46	24.75	102.3	763.6	495.9	23.3	4.8	2.7	3.9	0.4	0.0	0.0	0.2	1.0
40-210	0.54	17.26	84.1	627.6	407.6	19.2	4.0	2.2	3.2	0.4	0.0	0.0	0.1	0.8
40-220	0.47	100.58	420.5	3,137.8	2,037.9	95.8	19.9	11.0	15.9	1.8	0.0	0.2	0.6	4.0
40-230	0.44	13.78	54.8	409.1	265.7	12.5	2.6	1.4	2.1	0.2	0.0	0.0	0.1	0.5
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	6.2	46.0	29.9	1.4	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.1
40-260	0.45	3.49	14.0	104.8	68.1	3.2	0.7	0.4	0.5	0.1	0.0	0.0	0.0	0.1
40-270	0.45	9.59	38.6	288.0	187.0	8.8	1.8	1.0	1.5	0.2	0.0	0.0	0.1	0.4
40-280	0.53	12.76	60.0	447.8	290.8	13.7	2.8	1.6	2.3	0.3	0.0	0.0	0.1	0.6
40-290	0.51	13.73	62.9	469.1	304.7	14.3	3.0	1.6	2.4	0.3	0.0	0.0	0.1	0.6
40-300	0.52	10.38	48.4	360.9	234.4	11.0	2.3	1.3	1.8	0.2	0.0	0.0	0.1	0.5
40-310	0.45	97.86	396.2	2,956.0	1,919.9	90.2	18.7	10.4	15.0	1.7	0.0	0.2	0.6	3.8
40-320	0.60	9.43	50.6	377.6	245.2	11.5	2.4	1.3	1.9	0.2	0.0	0.0	0.1	0.5
40-330	0.59	15.34	81.3	606.7	394.1	18.5	3.8	2.1	3.1	0.4	0.0	0.0	0.1	0.8
40-340	0.53	35.27	168.1	1,254.3	814.7	38.3	8.0	4.4	6.4	0.7	0.0	0.1	0.3	1.6
40-350	0.60	8.99	48.2	360.0	233.8	11.0	2.3	1.3	1.8	0.2	0.0	0.0	0.1	0.5
40-360	0.60	8.09	43.4	323.9	210.4	9.9	2.1	1.1	1.6	0.2	0.0	0.0	0.1	0.4
40-370	0.58	12.41	64.2	479.0	311.1	14.6	3.0	1.7	2.4	0.3	0.0	0.0	0.1	0.6
40-380	0.39	24.92	87.7	654.3	424.9	20.0	4.1	2.3	3.3	0.4	0.0	0.0	0.1	0.8
40-390	0.58	5.72	29.7	221.4	143.8	6.8	1.4	0.8	1.1	0.1	0.0	0.0	0.0	0.3
40-400	0.10	1.07	1.0	7.1	4.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-010	0.38	94.73	319.8	2,386.1	1,549.7	72.8	15.1	8.4	12.1	1.4	0.0	0.1	0.5	3.1
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	271.5	2,025.7	1,315.7	61.8	12.8	7.1	10.3	1.2	0.0	0.1	0.4	2.6

2001 SPRING POLLUTANT LOADINGS BY OUTFALL

2001 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/16/01 - 05/31/01) note(1): no EMC data for Cadmium - median FWMC used

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd (1) mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	97	63	2.96	0.615	0.340	0.492	0.057	0.000500	0.006	0.020	0.125
Precipitation (meters)	0.200	7.88 inches												
41-040	0.57	35.59	182.4	1,360.9	883.9	41.5	8.6	4.8	6.9	0.8	0.0	0.1	0.3	1.8
41-050	0.60	10.48	56.2	419.6	272.5	12.8	2.7	1.5	2.1	0.2	0.0	0.0	0.1	0.5
41-060	0.60	2.95	15.8	118.1	76.7	3.6	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.2
51-010	0.45	29.63	119.6	892.4	579.6	27.2	5.7	3.1	4.5	0.5	0.0	0.1	0.2	1.2
51-020	0.45	4.55	18.3	136.6	88.7	4.2	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
52-010	0.28	45.29	111.9	835.2	542.5	25.5	5.3	2.9	4.2	0.5	0.0	0.0	0.2	1.1
52-020	0.45	6.09	24.5	182.9	118.8	5.6	1.2	0.6	0.9	0.1	0.0	0.0	0.0	0.2
52-030	0.45	7.18	28.9	215.6	140.0	6.6	1.4	0.8	1.1	0.1	0.0	0.0	0.0	0.3
52-040	0.41	4.54	16.8	125.2	81.3	3.8	0.8	0.4	0.6	0.1	0.0	0.0	0.0	0.2
52-050	0.44	15.3	59.5	444.2	288.5	13.6	2.8	1.6	2.3	0.3	0.0	0.0	0.1	0.6
52-060	0.10	3.22	2.9	21.5	14.0	0.7	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
52-070	0.42	86.94	329.0	2,455.2	1,594.6	74.9	15.6	8.6	12.5	1.4	0.0	0.1	0.5	3.2
52-080	0.24	8.08	17.5	130.5	84.8	4.0	0.8	0.5	0.7	0.1	0.0	0.0	0.0	0.2
52-090	0.45	4.89	19.7	146.8	95.4	4.5	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
52-100A/B	0.27	11.89	28.4	211.6	137.4	6.5	1.3	0.7	1.1	0.1	0.0	0.0	0.0	0.3
52-110	0.45	8.84	35.3	263.3	171.0	8.0	1.7	0.9	1.3	0.2	0.0	0.0	0.1	0.3
52-120	0.45	14.74	59.3	442.6	287.5	13.5	2.8	1.6	2.2	0.3	0.0	0.0	0.1	0.6
52-130	0.31	7.18	20.2	150.8	98.0	4.6	1.0	0.5	0.8	0.1	0.0	0.0	0.0	0.2
53-010	0.45	7.03	28.3	211.1	137.1	6.4	1.3	0.7	1.1	0.1	0.0	0.0	0.0	0.3
53-020	0.28	12.38	30.6	228.3	148.3	7.0	1.4	0.8	1.2	0.1	0.0	0.0	0.0	0.3
53-030	0.44	11.37	44.4	331.5	215.3	10.1	2.1	1.2	1.7	0.2	0.0	0.0	0.1	0.4
53-040	0.45	2.78	11.2	83.5	54.2	2.5	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.1
53-050	0.45	13.66	55.0	410.2	266.4	12.5	2.6	1.4	2.1	0.2	0.0	0.0	0.1	0.5
53-060	0.45	20.37	82.0	611.7	397.3	18.7	3.9	2.1	3.1	0.4	0.0	0.0	0.1	0.8
53-070	0.45	4.89	19.7	146.8	95.4	4.5	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
53-080	0.39	5.81	20.5	152.8	99.3	4.7	1.0	0.5	0.8	0.1	0.0	0.0	0.0	0.2
53-090	0.46	59.59	244.7	1,826.0	1,185.9	55.7	11.6	6.4	9.3	1.1	0.0	0.1	0.4	2.4
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	15.8	117.9	76.6	3.6	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.2
53-120A/B	0.46	129.79	528.9	3,946.2	2,563.0	120.4	25.0	13.8	20.0	2.3	0.0	0.2	0.8	5.1
53-130	0.45	5.02	20.2	150.8	97.9	4.6	1.0	0.5	0.8	0.1	0.0	0.0	0.0	0.2
53-140	0.45	6.36	25.6	191.0	124.0	5.8	1.2	0.7	1.0	0.1	0.0	0.0	0.0	0.2
53-150	0.48	90.4	391.2	2,918.7	1,895.7	89.1	18.5	10.2	14.8	1.7	0.0	0.2	0.6	3.8
53-160	0.47	252.19	1,066.3	7,956.5	5,167.6	242.8	50.4	27.9	40.4	4.7	0.0	0.5	1.6	10.3
53-170	0.36	6.39	20.6	153.9	99.9	4.7	1.0	0.5	0.8	0.1	0.0	0.0	0.0	0.2
53-180	0.10	8.09	7.2	54.0	35.1	1.6	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
53-190	0.30	11.41	30.7	228.8	148.6	7.0	1.5	0.8	1.2	0.1	0.0	0.0	0.0	0.3
54-010A/B	0.44	84.93	330.5	2,465.9	1,601.6	75.2	15.6	8.6	12.5	1.4	0.0	0.1	0.5	3.2
54-040A/B	0.49	255.14	1,129.4	8,427.0	5,473.2	257.2	53.4	29.5	42.7	5.0	0.0	0.5	1.7	10.9
54-050	0.17	9.27	14.4	107.6	69.9	3.3	0.7	0.4	0.5	0.1	0.0	0.0	0.0	0.1
54-060	0.44	32.13	126.2	941.8	611.7	28.7	6.0	3.3	4.8	0.6	0.0	0.1	0.2	1.2
54-070	0.36	60.8	195.0	1,454.9	944.9	44.4	9.2	5.1	7.4	0.9	0.0	0.1	0.3	1.9
54-080A/B/C	0.46	414.26	1,693.5	12,636.2	8,207.0	385.6	80.1	44.3	64.1	7.4	0.1	0.7	2.6	16.3
54-090	0.10	3.55	3.2	23.7	15.4	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
54-100A/B	0.60	114.24	608.6	4,541.4	2,949.6	138.6	28.8	15.9	23.0	2.7	0.0	0.3	0.9	5.9
54-110	0.45	24.55	98.8	737.2	478.8	22.5	4.7	2.6	3.7	0.4	0.0	0.0	0.2	1.0
54-120	0.46	62.08	253.7	1,893.0	1,229.5	57.8	12.0	6.6	9.6	1.1	0.0	0.1	0.4	2.4
54-130	0.10	1.07	1.0	7.1	4.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54-140A/B	0.41	113.01	412.3	3,076.4	1,998.1	93.9	19.5	10.8	15.6	1.8	0.0	0.2	0.6	4.0
54-150	0.45	55.34	220.4	1,644.6	1,068.2	50.2	10.4	5.8	8.3	1.0	0.0	0.1	0.3	2.1
54-160	0.60	2.62	14.1	104.9	68.1	3.2	0.7	0.4	0.5	0.1	0.0	0.0	0.0	0.1
54-170	0.59	8.08	43.0	320.6	208.2	9.8	2.0	1.1	1.6	0.2	0.0	0.0	0.1	0.4
54-180	0.60	2.82	15.1	112.9	73.3	3.4	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.1
54-190	0.10	2.2	2.0	14.7	9.5	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
54-200	0.10	2.13	1.9	14.2	9.2	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
54-210	0.10	1.14	1.0	7.6	4.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55-010	0.60	14.98	80.4	599.8	389.6	18.3	3.8	2.1	3.0	0.4	0.0	0.0	0.1	0.8
55-020	0.60	189.58	1,010.7	7,541.4	4,898.1	230.1	47.8	26.4	38.3	4.4	0.0	0.4	1.5	9.7
56-010	0.60	67.62	362.9	2,707.5	1,758.5	82.6	17.2	9.5	13.7	1.6	0.0	0.2	0.6	3.5
57-010	0.53	26.1	124.5	929.1	603.5	28.4	5.9	3.3	4.7	0.5	0.0	0.1	0.2	1.2
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	73.3	547.1	355.4	16.7	3.5	1.9	2.8	0.3	0.0	0.0	0.1	0.7
57-040	0.35	39.88	124.5	928.7	603.2	28.3	5.9	3.3	4.7	0.5	0.0	0.1	0.2	1.2
57-050	0.45	7.9	31.8	237.2	154.1	7.2	1.5	0.8	1.2	0.1	0.0	0.0	0.0	0.3
57-060	0.46	26.11	108.0	805.8	523.3	24.6	5.1	2.8	4.1	0.5	0.0	0.0	0.2	1.0
57-070	0.45	81.33	328.1	2,448.2	1,590.1	74.7	15.5	8.6	12.4	1.4	0.0	0.1	0.5	3.2
57-080	0.42	5.54	20.9	156.3	101.5	4.8	1.0	0.5	0.8	0.1	0.0	0.0	0.0	0.2
57-090	0.47	77.77	326.4	2,435.6	1,581.9	74.3	15.4	8.5	12.4	1.4	0.0	0.1	0.5	3.1
57-100A/B	0.47	313.43	1,324.3	9,881.0	6,417.6	301.5	62.6	34.6	50.1	5.8	0.1	0.6	2.0	12.7
57-110	0.54	21.6	104.5	779.5	506.3	23.8	4.9	2.7	4.0	0.5	0.0	0.0	0.2	1.0
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	1.0	7.7	5.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-140	0.10	1.55	1.4	10.3	6.7	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
57-150	0.43	35.68	137.7	1,027.7	667.5	31.4	6.5	3.6	5.2	0.6	0.0	0.1	0.2	1.3
57-160	0.10	1.89	1.7	12.6	8.2	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
61-010	0.55	2.86	14.1	105.3	68.4	3.2	0.7	0.4	0.5	0.1	0.0	0.0	0.0	0.1
62-010	0.45	27.84	112.6	839.9	545.5	25.6	5.3	2.9	4.3	0.5	0.0	0.0	0.2	1.1
63-010	0.45	388.79	1,572.1	11,730.6	7,618.9	358.0	74.4	41.1	59.5	6.9	0.1	0.7	2.4	15.1
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	100.2	747.6	485.6	22.8	4.7	2.6	3.8	0.4	0.0	0.0	0.2	1.0
64-110	0.45	6.01	24.2	180.5	117.2	5.5	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.2
64-120	0.45	16.04	64.6	481.7	312.8	14.7	3.1	1.7	2.4	0.3	0.0	0.0	0.1	0.6
64-130	0.45	2.44	9.8	73.3	47.6	2.2	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.1
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	182.0	1,358.1	882.1	41.4	8.6	4.8	6.9	0.8	0.0	0.1	0.3	1.8
70-010	0.46	6.23	25.6	190.7	123.8	5.8	1.2	0.7	1.0	0.1	0.0	0.0	0.0	0.2

2001 SPRING POLLUTANT LOADINGS BY OUTFALL

2001 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/16/01 - 05/31/01) note(1): no EMC data for Cadmium - median FWMC used

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd (1) mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	97	63	2.96	0.615	0.340	0.492	0.057	0.000500	0.006	0.020	0.125
Precipitation (meters)	0.200	7.88 inches												
70-015	0.45	11.69	47.0	351.1	228.0	10.7	2.2	1.2	1.8	0.2	0.0	0.0	0.1	0.5
70-020	0.45	37.55	151.1	1,127.6	732.4	34.4	7.1	4.0	5.7	0.7	0.0	0.1	0.2	1.5
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	54.2	404.5	262.7	12.3	2.6	1.4	2.1	0.2	0.0	0.0	0.1	0.5
70-035	0.45	4.53	18.2	136.0	88.4	4.2	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
70-040	0.45	2.42	9.7	72.7	47.2	2.2	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.1
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	70.1	522.8	339.6	16.0	3.3	1.8	2.7	0.3	0.0	0.0	0.1	0.7
70-055	0.46	333.43	1,384.0	10,327.0	6,707.2	315.1	65.5	36.2	52.4	6.1	0.1	0.6	2.1	13.3
70-060	0.45	3.53	14.2	106.0	68.8	3.2	0.7	0.4	0.5	0.1	0.0	0.0	0.0	0.1
70-065	0.45	1.89	7.6	56.8	36.9	1.7	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-070	0.45	5.8	23.3	174.2	113.1	5.3	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.2
70-075	0.43	5	19.3	143.9	93.5	4.4	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
70-080	0.46	11.96	49.4	368.7	239.5	11.3	2.3	1.3	1.9	0.2	0.0	0.0	0.1	0.5
70-085	0.45	229.48	917.9	6,848.9	4,448.3	209.0	43.4	24.0	34.7	4.0	0.0	0.4	1.4	8.8
70-090	0.45	18.57	74.7	557.7	362.2	17.0	3.5	2.0	2.8	0.3	0.0	0.0	0.1	0.7
70-095	0.45	9.99	40.2	300.0	194.8	9.2	1.9	1.1	1.5	0.2	0.0	0.0	0.1	0.4
70-100	0.45	9.64	38.8	289.5	188.0	8.8	1.8	1.0	1.5	0.2	0.0	0.0	0.1	0.4
70-105	0.45	1.63	6.6	48.9	31.8	1.5	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.1
70-110	0.45	18.13	73.0	544.4	353.6	16.6	3.5	1.9	2.8	0.3	0.0	0.0	0.1	0.7
70-115	0.45	3.71	14.9	111.4	72.4	3.4	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.1
70-120	0.45	4.22	17.0	126.7	82.3	3.9	0.8	0.4	0.6	0.1	0.0	0.0	0.0	0.2
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	151.4	1,129.7	733.7	34.5	7.2	4.0	5.7	0.7	0.0	0.1	0.2	1.5
70-135	0.45	7.46	30.0	224.0	145.5	6.8	1.4	0.8	1.1	0.1	0.0	0.0	0.0	0.3
70-140	0.60	0.78	4.2	31.2	20.3	1.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
70-145	0.60	9.19	49.3	368.0	239.0	11.2	2.3	1.3	1.9	0.2	0.0	0.0	0.1	0.5
70-150	0.45	4.51	18.2	135.4	88.0	4.1	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
70-155	0.45	2.05	8.3	61.6	40.0	1.9	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-160	0.45	2.95	11.9	88.6	57.5	2.7	0.6	0.3	0.4	0.1	0.0	0.0	0.0	0.1
70-165	0.45	27.77	111.8	833.9	541.6	25.4	5.3	2.9	4.2	0.5	0.0	0.0	0.2	1.1
70-170	0.45	23.74	95.5	712.9	463.0	21.8	4.5	2.5	3.6	0.4	0.0	0.0	0.1	0.9
70-175	0.46	30.89	126.3	942.5	612.1	28.8	6.0	3.3	4.8	0.6	0.0	0.1	0.2	1.2
70-180	0.45	1.14	4.6	34.2	22.2	1.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
70-185	0.45	1.53	6.2	45.9	29.8	1.4	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.1
70-190	0.17	15.04	23.1	172.7	112.2	5.3	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.2
70-195	0.45	46.02	186.2	1,389.5	902.5	42.4	8.8	4.9	7.0	0.8	0.0	0.1	0.3	1.8
70-200	0.45	31.52	126.9	946.5	614.8	28.9	6.0	3.3	4.8	0.6	0.0	0.1	0.2	1.2
70-205	0.45	1.39	5.6	41.7	27.1	1.3	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.1
70-210	0.45	3.58	14.4	107.5	69.8	3.3	0.7	0.4	0.5	0.1	0.0	0.0	0.0	0.1
70-215	0.45	5.93	23.9	178.1	115.7	5.4	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.2
70-220	0.45	4.54	18.3	136.3	88.5	4.2	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
70-225	0.45	4.99	20.1	149.8	97.3	4.6	1.0	0.5	0.8	0.1	0.0	0.0	0.0	0.2
70-230	0.45	4.72	19.0	141.7	92.1	4.3	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
70-235	0.45	5.04	20.3	151.4	98.3	4.6	1.0	0.5	0.8	0.1	0.0	0.0	0.0	0.2
70-240	0.45	4.52	18.2	135.7	88.2	4.1	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
70-245	0.44	9.98	39.2	292.4	189.9	8.9	1.9	1.0	1.5	0.2	0.0	0.0	0.1	0.4
70-250	0.48	41.27	178.0	1,328.4	862.8	40.5	8.4	4.7	6.7	0.8	0.0	0.1	0.3	1.7
70-255	0.45	45.37	182.7	1,362.9	885.2	41.6	8.6	4.8	6.9	0.8	0.0	0.1	0.3	1.8
70-260	0.46	24.9	101.9	760.6	494.0	23.2	4.8	2.7	3.9	0.4	0.0	0.0	0.2	1.0
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	18.8	139.9	90.9	4.3	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
70-275	0.45	4.28	17.2	128.5	83.5	3.9	0.8	0.5	0.7	0.1	0.0	0.0	0.0	0.2
70-280	0.45	9.39	37.9	282.5	183.5	8.6	1.8	1.0	1.4	0.2	0.0	0.0	0.1	0.4
70-285	0.45	19.03	76.5	570.8	370.8	17.4	3.6	2.0	2.9	0.3	0.0	0.0	0.1	0.7
70-290	0.45	2.37	9.5	70.6	45.8	2.2	0.4	0.2	0.4	0.0	0.0	0.0	0.0	0.1
70-295	0.45	7.18	28.9	215.6	140.0	6.6	1.4	0.8	1.1	0.1	0.0	0.0	0.0	0.3
70-300	0.10	0.4	0.4	2.7	1.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	50.6	377.4	245.1	11.5	2.4	1.3	1.9	0.2	0.0	0.0	0.1	0.5
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	15.5	115.9	75.3	3.5	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.1
70-320	0.44	2.32	9.1	68.0	44.2	2.1	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	1,177.1	8,783.1	5,704.5	268.0	55.7	30.8	44.5	5.2	0.0	0.5	1.8	11.3
70-335	0.45	1.99	8.0	59.8	38.8	1.8	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-340	0.39	22.25	78.3	584.2	379.4	17.8	3.7	2.0	3.0	0.3	0.0	0.0	0.1	0.8
70-345	0.45	3.81	15.3	114.4	74.3	3.5	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.1
70-350	0.49	314.4	1,389.4	10,367.1	6,733.3	316.4	65.7	36.3	52.6	6.1	0.1	0.6	2.1	13.4
70-355	0.45	1.29	5.2	38.7	25.2	1.2	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
70-360	0.45	131.96	536.4	4,002.5	2,599.5	122.1	25.4	14.0	20.3	2.4	0.0	0.2	0.8	5.2
70-365	0.45	6.7	27.0	201.2	130.7	6.1	1.3	0.7	1.0	0.1	0.0	0.0	0.0	0.3
70-370	0.44	3.75	14.9	110.9	72.0	3.4	0.7	0.4	0.6	0.1	0.0	0.0	0.0	0.1
70-375	0.47	7.1	30.0	223.9	145.4	6.8	1.4	0.8	1.1	0.1	0.0	0.0	0.0	0.3
70-380	0.45	14.4	58.0	432.4	280.9	13.2	2.7	1.5	2.2	0.3	0.0	0.0	0.1	0.6
70-385	0.45	14.97	60.2	449.5	292.0	13.7	2.9	1.6	2.3	0.3	0.0	0.0	0.1	0.6
70-390	0.46	58.11	240.8	1,796.4	1,166.7	54.8	11.4	6.3	9.1	1.1	0.0	0.1	0.4	2.3
70-395	0.43	57.19	219.7	1,639.3	1,064.7	50.0	10.4	5.7	8.3	1.0	0.0	0.1	0.3	2.1
70-400	0.44	9.67	38.0	283.2	183.9	8.6	1.8	1.0	1.4	0.2	0.0	0.0	0.1	0.4
70-405	0.25	7.16	16.0	119.5	77.6	3.6	0.8	0.4	0.6	0.1	0.0	0.0	0.0	0.2
70-410	0.43	5.8	22.2	166.0	107.8	5.1	1.1	0.6	0.8	0.1	0.0	0.0	0.0	0.2
70-415	0.45	120.75	490.3	3,658.0	2,375.8	111.6	23.2	12.8	18.6	2.1	0.0	0.2	0.8	4.7
70-420	0.45	16.99	68.4	510.2	331.4	15.6	3.2	1.8	2.6	0.3	0.0	0.0	0.1	0.7
70-425	0.51	20.63	94.3	703.5	456.9	21.5	4.5	2.5	3.6	0.4	0.0	0.0	0.1	0.9
70-430	0.10	6.19	5.5	41.3	26.8	1.3	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.1
70-435	0.10	9.16	8.2	61.1	39.7	1.9	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-440	0.50	34.48	153.2	1,142.9	742.3	34.9	7.2	4.0	5.8	0.7	0.0	0.1	0.2	1.5

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Spring Median Event Mean Concentration			13.0	97	63	2.96	0.615	0.340	0.492	0.057	0.000500	0.006	0.020	0.125
Precipitation (meters)	0.200	7.88 inches												
70-445	0.45	5.6	22.5	168.2	109.2	5.1	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.2
70-450	0.45	2.65	10.7	79.6	51.7	2.4	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.1
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	10.7	80.2	52.1	2.4	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.1
70-465	0.45	2.58	10.4	77.5	50.3	2.4	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.1
70-470	0.38	8.55	29.4	219.1	142.3	6.7	1.4	0.8	1.1	0.1	0.0	0.0	0.0	0.3
70-475	0.46	229.14	943.4	7,039.0	4,571.7	214.8	44.6	24.7	35.7	4.1	0.0	0.4	1.4	9.1
70-480	0.60	0.31	1.7	12.4	8.1	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70-485	0.45	13.36	53.8	401.2	260.6	12.2	2.5	1.4	2.0	0.2	0.0	0.0	0.1	0.5
70-490	0.47	48.75	204.6	1,527.0	991.7	46.6	9.7	5.4	7.7	0.9	0.0	0.1	0.3	2.0
70-495	0.45	7.74	31.2	232.4	151.0	7.1	1.5	0.8	1.2	0.1	0.0	0.0	0.0	0.3
70-500	0.45	0.56	2.3	16.8	10.9	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-505	0.41	8.12	29.9	223.1	144.9	6.8	1.4	0.8	1.1	0.1	0.0	0.0	0.0	0.3
70-510	0.45	41.82	168.9	1,260.0	818.3	38.4	8.0	4.4	6.4	0.7	0.0	0.1	0.3	1.6
70-515	0.47	62.73	263.6	1,967.2	1,277.7	60.0	12.5	6.9	10.0	1.2	0.0	0.1	0.4	2.5
70-520	0.45	6.05	24.3	181.7	118.0	5.5	1.2	0.6	0.9	0.1	0.0	0.0	0.0	0.2
70-525	0.45	6.23	25.1	187.1	121.5	5.7	1.2	0.7	0.9	0.1	0.0	0.0	0.0	0.2
70-530	0.45	1.67	6.7	50.2	32.6	1.5	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-535	0.45	30.24	122.0	910.2	591.2	27.8	5.8	3.2	4.6	0.5	0.0	0.1	0.2	1.2
70-540	0.21	5.1	9.7	72.7	47.2	2.2	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.1
70-545	0.45	1.89	7.6	56.8	36.9	1.7	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-550	0.26	1.3	3.0	22.5	14.6	0.7	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-555	0.45	1.73	7.0	52.0	33.7	1.6	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-560	0.45	3.33	13.4	100.0	64.9	3.1	0.6	0.4	0.5	0.1	0.0	0.0	0.0	0.1
70-565	0.24	16.63	35.8	267.0	173.4	8.1	1.7	0.9	1.4	0.2	0.0	0.0	0.1	0.3
70-570	0.45	1.23	5.0	36.9	24.0	1.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
70-575	0.45	15.39	61.9	461.7	299.9	14.1	2.9	1.6	2.3	0.3	0.0	0.0	0.1	0.6
70-580	0.43	119.93	465.3	3,471.8	2,254.9	105.9	22.0	12.2	17.6	2.0	0.0	0.2	0.7	4.5
71-010	0.10	1.12	1.0	7.5	4.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-020	0.45	14.05	56.5	421.9	274.0	12.9	2.7	1.5	2.1	0.2	0.0	0.0	0.1	0.5
71-030	0.45	28.58	115.7	862.9	560.5	26.3	5.5	3.0	4.4	0.5	0.0	0.1	0.2	1.1
71-040	0.22	20.93	41.1	306.6	199.1	9.4	1.9	1.1	1.6	0.2	0.0	0.0	0.1	0.4
71-050	0.46	120.42	493.3	3,680.5	2,390.4	112.3	23.3	12.9	18.7	2.2	0.0	0.2	0.8	4.7
71-060	0.45	3.11	12.5	93.4	60.7	2.8	0.6	0.3	0.5	0.1	0.0	0.0	0.0	0.1
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	415.4	3,099.4	2,013.0	94.6	19.7	10.9	15.7	1.8	0.0	0.2	0.6	4.0
71-090	0.45	6.5	25.9	193.3	125.5	5.9	1.2	0.7	1.0	0.1	0.0	0.0	0.0	0.2
71-100	0.10	1.99	1.8	13.3	8.6	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
72-010	0.18	17.32	27.1	202.4	131.4	6.2	1.3	0.7	1.0	0.1	0.0	0.0	0.0	0.3
72-020	0.40	24.7	87.3	651.3	423.0	19.9	4.1	2.3	3.3	0.4	0.0	0.0	0.1	0.8
72-030	0.10	5.25	4.7	35.0	22.8	1.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
72-040	0.42	166.54	620.4	4,629.3	3,006.6	141.3	29.4	16.2	23.5	2.7	0.0	0.3	0.9	6.0
72-050	0.10	5.16	4.6	34.4	22.4	1.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
72-060	0.36	113.04	365.7	2,728.6	1,772.2	83.3	17.3	9.6	13.8	1.6	0.0	0.2	0.6	3.5
72-070	0.10	2.21	2.0	14.7	9.6	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
72-080	0.60	4.74	25.4	189.8	123.3	5.8	1.2	0.7	1.0	0.1	0.0	0.0	0.0	0.2
72-090	0.45	68.71	274.8	2,050.4	1,331.7	62.6	13.0	7.2	10.4	1.2	0.0	0.1	0.4	2.6
72-100	0.46	68.32	282.9	2,110.9	1,371.0	64.4	13.4	7.4	10.7	1.2	0.0	0.1	0.4	2.7
72-110	0.10	3.22	2.9	21.5	14.0	0.7	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
72-120	0.45	62.98	253.5	1,891.3	1,228.4	57.7	12.0	6.6	9.6	1.1	0.0	0.1	0.4	2.4
72-130	0.46	58.06	237.0	1,768.1	1,148.3	54.0	11.2	6.2	9.0	1.0	0.0	0.1	0.4	2.3
72-140	0.10	10.19	9.1	68.0	44.2	2.1	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
72-150	0.10	4.76	4.3	31.8	20.6	1.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
72-160	0.10	4.55	4.1	30.4	19.7	0.9	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
73-010	0.44	20.76	81.5	608.0	394.9	18.6	3.9	2.1	3.1	0.4	0.0	0.0	0.1	0.8
73-020	0.44	57.47	227.5	1,697.4	1,102.4	51.8	10.8	5.9	8.6	1.0	0.0	0.1	0.3	2.2
73-030	0.10	21.56	19.3	143.9	93.4	4.4	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
74-010	0.48	44.39	190.0	1,417.9	920.9	43.3	9.0	5.0	7.2	0.8	0.0	0.1	0.3	1.8
74-020	0.45	4.41	17.7	132.4	86.0	4.0	0.8	0.5	0.7	0.1	0.0	0.0	0.0	0.2
75-005	0.45	12.39	49.8	371.6	241.4	11.3	2.4	1.3	1.9	0.2	0.0	0.0	0.1	0.5
75-010	0.60	3.65	19.6	146.1	94.9	4.5	0.9	0.5	0.7	0.1	0.0	0.0	0.0	0.2
75-020	0.45	1.53	6.2	45.9	29.8	1.4	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.1
75-030	0.45	8.38	33.7	251.7	163.4	7.7	1.6	0.9	1.3	0.1	0.0	0.0	0.1	0.3
75-040	0.45	14.74	59.3	442.6	287.5	13.5	2.8	1.6	2.2	0.3	0.0	0.0	0.1	0.6
76-010	0.46	907.31	3,763.9	28,084.5	18,240.5	857.0	178.1	98.4	142.4	16.5	0.1	1.7	5.8	36.2
76-020	0.46	88.62	361.2	2,694.8	1,750.2	82.2	17.1	9.4	13.7	1.6	0.0	0.2	0.6	3.5
76-030	0.45	7.55	30.4	226.7	147.3	6.9	1.4	0.8	1.1	0.1	0.0	0.0	0.0	0.3
76-040	0.19	4.67	7.8	58.0	37.7	1.8	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	27.9	208.0	135.1	6.3	1.3	0.7	1.1	0.1	0.0	0.0	0.0	0.3
82-010	0.49	23.53	102.4	764.0	496.2	23.3	4.8	2.7	3.9	0.4	0.0	0.0	0.2	1.0
82-020	0.45	73.45	298.8	2,229.3	1,447.9	68.0	14.1	7.8	11.3	1.3	0.0	0.1	0.5	2.9
82-030	0.45	90.04	366.2	2,732.1	1,774.5	83.4	17.3	9.6	13.9	1.6	0.0	0.2	0.6	3.5
82-040	0.46	98.49	408.6	3,049.0	1,980.3	93.0	19.3	10.7	15.5	1.8	0.0	0.2	0.6	3.9
83-010	0.45	6.59	26.5	197.9	128.5	6.0	1.3	0.7	1.0	0.1	0.0	0.0	0.0	0.3
83-015	0.45	0.99	4.0	29.7	19.3	0.9	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
83-020	0.43	85.96	334.3	2,494.0	1,619.8	76.1	15.8	8.7	12.7	1.5	0.0	0.1	0.5	3.2
83-025	0.45	51.23	206.2	1,538.4	999.2	46.9	9.8	5.4	7.8	0.9	0.0	0.1	0.3	2.0
83-030	0.60	0.82	4.4	32.8	21.3	1.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0
83-040	0.10	1.08	1.0	7.2	4.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-050	0.45	40.4	163.0	1,216.5	790.1	37.1	7.7	4.3	6.2	0.7	0.0	0.1	0.2	1.6
83-060	0.45	10.05	40.4	301.8	196.0	9.2	1.9	1.1	1.5	0.2	0.0	0.0	0.1	0.4
83-070	0.10	1.19	1.1	7.9	5.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-080	0.48	178.63	759.6	5,667.5	3,681.0	172.9	35.9	19.9	28.7	3.3	0.0	0.3	1.2	7.3
83-090	0.41	9.16	33.6	250.5	162.7	7.6	1.6	0.9	1.3	0.1	0.0	0.0	0.1	0.3
84-010	0.47	21.56	90.7	676.7	439.5	20.7	4.3	2.4	3.4	0.4	0.0	0.0	0.1	0.9

2001 SPRING POLLUTANT LOADINGS BY OUTFALL

2001 SPRING POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (04/16/01 - 05/31/01) note(1): no EMC data for Cadmium - median FWMC used

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd (1) mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Spring Median Event Mean Concentration			13.0	97	63	2.96	0.615	0.340	0.492	0.057	0.000500	0.006	0.020	0.125
Precipitation (meters)	0.200	7.88 inches												
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SPRING SEASONAL SUM (kg)			**120,809.29**	**901,423.13**	**585,460.38**	**27,507.34**	**5,715.21**	**3,159.63**	**4,572.17**	**529.70**	**4.65**	**52.97**	**184.93**	**1,161.63**

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/01 - 08/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.5	94	68	2.52	0.405	0.333	0.386	0.071	0.000250	0.013	0.022	0.187
Precipitation (meters)	**0.274**	**10.80 inches**												
10-010	0.43	113.55	438.6	4,340.2	3,139.7	116.4	18.7	15.4	17.8	3.3	0.0	0.6	1.0	8.6
10-020	0.45	7.81	31.5	311.4	225.2	8.3	1.3	1.1	1.3	0.2	0.0	0.0	0.1	0.6
10-030	0.10	4.05	3.6	35.9	26.0	1.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1
10-040	0.45	167.42	669.9	6,628.5	4,795.1	177.7	28.6	23.5	27.2	5.0	0.0	0.9	1.5	13.2
10-050	0.46	114.18	465.4	4,604.9	3,331.2	123.4	19.8	16.3	18.9	3.5	0.0	0.6	1.1	9.2
10-060	0.60	10.5	56.4	558.2	403.8	15.0	2.4	2.0	2.3	0.4	0.0	0.1	0.1	1.1
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	104.9	1,038.0	750.9	27.8	4.5	3.7	4.3	0.8	0.0	0.1	0.2	2.1
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	61.9	612.7	443.2	16.4	2.6	2.2	2.5	0.5	0.0	0.1	0.1	1.2
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	4,521.3	44,736.6	32,362.7	1,199.3	192.7	158.5	183.7	33.8	0.1	6.0	10.2	89.0
10-110	0.47	300.11	1,253.7	12,404.6	8,973.6	332.6	53.4	43.9	50.9	9.4	0.0	1.7	2.8	24.7
10-120A/B	0.44	372.78	1,452.8	14,375.4	10,399.2	385.4	61.9	50.9	59.0	10.9	0.0	1.9	3.3	28.6
10-130	0.45	336.46	1,360.3	13,459.5	9,736.7	360.8	58.0	47.7	55.3	10.2	0.0	1.8	3.1	26.8
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	1,136.9	11,249.1	8,137.6	301.6	48.5	39.9	46.2	8.5	0.0	1.5	2.6	22.4
10-150	0.47	157.15	659.8	6,528.1	4,722.5	175.0	28.1	23.1	26.8	4.9	0.0	0.9	1.5	13.0
10-160	0.00	17	0.4	3.8	2.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	793.1	7,847.3	5,676.8	210.4	33.8	27.8	32.2	5.9	0.0	1.1	1.8	15.6
10-180	0.45	284.26	1,133.4	11,215.1	8,113.1	300.7	48.3	39.7	46.1	8.5	0.0	1.5	2.6	22.3
10-190	0.59	14.58	77.3	764.4	553.0	20.5	3.3	2.7	3.1	0.6	0.0	0.1	0.2	1.5
10-200	0.40	42.44	150.9	1,492.9	1,080.0	40.0	6.4	5.3	6.1	1.1	0.0	0.2	0.3	3.0
10-210	0.49	98.32	432.8	4,282.1	3,097.7	114.8	18.4	15.2	17.6	3.2	0.0	0.6	1.0	8.5
10-220	0.56	18.83	94.3	932.7	674.7	25.0	4.0	3.3	3.8	0.7	0.0	0.1	0.2	1.9
10-230	0.47	235.02	994.7	9,842.7	7,120.2	263.9	42.4	34.9	40.4	7.4	0.0	1.3	2.3	19.6
10-240	0.51	103.83	477.6	4,725.6	3,418.6	126.7	20.4	16.7	19.4	3.6	0.0	0.6	1.1	9.4
10-250	0.49	242.96	1,063.5	10,522.8	7,612.3	282.1	45.3	37.3	43.2	7.9	0.0	1.4	2.4	20.9
10-260	0.56	23.77	118.6	1,173.3	848.8	31.5	5.1	4.2	4.8	0.9	0.0	0.2	0.3	2.3
10-270	0.47	72.45	307.4	3,041.6	2,200.3	81.5	13.1	10.8	12.5	2.3	0.0	0.4	0.7	6.1
10-280	0.44	55.08	218.9	2,165.8	1,566.8	58.1	9.3	7.7	8.9	1.6	0.0	0.3	0.5	4.3
10-290	0.10	6.83	6.1	60.5	43.8	1.6	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.1
10-300	0.36	17.74	57.3	566.7	410.0	15.2	2.4	2.0	2.3	0.4	0.0	0.1	0.1	1.1
10-310	0.47	60.29	254.9	2,522.4	1,824.7	67.6	10.9	8.9	10.4	1.9	0.0	0.3	0.6	5.0
10-320	0.45	341.99	1,383.4	13,688.3	9,902.2	367.0	59.0	48.5	56.2	10.3	0.0	1.8	3.1	27.2
10-330	0.35	21.61	68.0	673.1	486.9	18.0	2.9	2.4	2.8	0.5	0.0	0.1	0.2	1.3
10-340	0.45	20.74	83.8	829.1	599.8	22.2	3.6	2.9	3.4	0.6	0.0	0.1	0.2	1.6
10-350	0.60	28.16	151.0	1,494.2	1,080.9	40.1	6.4	5.3	6.1	1.1	0.0	0.2	0.3	3.0
10-360	0.59	29.02	154.0	1,523.8	1,102.3	40.9	6.6	5.4	6.3	1.2	0.0	0.2	0.3	3.0
10-370	0.59	14.46	76.3	755.3	546.4	20.2	3.3	2.7	3.1	0.6	0.0	0.1	0.2	1.5
10-380	0.45	14.38	57.3	567.2	410.3	15.2	2.4	2.0	2.3	0.4	0.0	0.1	0.1	1.1
10-390	0.49	41.97	185.3	1,833.4	1,326.3	49.2	7.9	6.5	7.5	1.4	0.0	0.2	0.4	3.6
10-400A	0.10	1.07	1.0	9.5	6.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-400B	0.47	17.66	74.6	737.9	533.8	19.8	3.2	2.6	3.0	0.6	0.0	0.1	0.2	1.5
10-400C	0.57	50.25	254.6	2,518.9	1,822.2	67.5	10.9	8.9	10.3	1.9	0.0	0.3	0.6	5.0
10-410A	0.50	46.22	206.0	2,038.6	1,474.7	54.7	8.8	7.2	8.4	1.5	0.0	0.3	0.5	4.1
10-410B	0.32	21.29	60.3	596.8	431.7	16.0	2.6	2.1	2.5	0.5	0.0	0.1	0.1	1.2
10-410C	0.53	22.8	107.8	1,066.2	771.3	28.6	4.6	3.8	4.4	0.8	0.0	0.1	0.2	2.1
10-410D	0.60	27.34	146.9	1,453.9	1,051.8	39.0	6.3	5.2	6.0	1.1	0.0	0.2	0.3	2.9
10-410E	0.58	256.04	1,319.2	13,053.3	9,442.8	349.9	56.2	46.2	53.6	9.9	0.0	1.7	3.0	26.0
10-410F	0.59	37.92	199.7	1,976.2	1,429.6	53.0	8.5	7.0	8.1	1.5	0.0	0.3	0.5	3.9
10-420A	0.27	23.05	56.2	556.5	402.6	14.9	2.4	2.0	2.3	0.4	0.0	0.1	0.1	1.1
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	672.0	6,649.2	4,810.1	178.3	28.6	23.6	27.3	5.0	0.0	0.9	1.5	13.2
10-430A	0.00	8.14	0.2	1.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	261.8	2,590.5	1,874.0	69.4	11.2	9.2	10.6	2.0	0.0	0.3	0.6	5.2
10-430C	0.48	44.83	192.8	1,908.0	1,380.3	51.2	8.2	6.8	7.8	1.4	0.0	0.3	0.4	3.8
10-430D	0.49	85.79	377.6	3,736.6	2,703.0	100.2	16.1	13.2	15.3	2.8	0.0	0.5	0.9	7.4
10-430E	0.56	86.66	432.7	4,281.2	3,097.0	114.8	18.4	15.2	17.6	3.2	0.0	0.6	1.0	8.5
10-430F	0.10	377.97	338.4	3,348.7	2,422.5	89.8	14.4	11.9	13.8	2.5	0.0	0.4	0.8	6.7
10-430G	0.50	125.89	558.6	5,527.5	3,998.6	148.2	23.8	19.6	22.7	4.2	0.0	0.7	1.3	11.0
10-430H	0.49	33.18	146.0	1,444.5	1,044.9	38.7	6.2	5.1	5.9	1.1	0.0	0.2	0.3	2.9
10-430I	0.59	32.61	171.9	1,700.6	1,230.2	45.6	7.3	6.0	7.0	1.3	0.0	0.2	0.4	3.4
10-430J	0.43	532.36	2,068.5	20,467.5	14,806.3	548.7	88.2	72.5	84.0	15.5	0.1	2.7	4.7	40.7
10-430K	0.48	337.06	1,441.6	14,263.9	10,318.6	382.4	61.5	50.5	58.6	10.8	0.0	1.9	3.3	28.4
10-430L	0.45	84.4	340.6	3,370.6	2,438.3	90.4	14.5	11.9	13.8	2.5	0.0	0.5	0.8	6.7
10-430M	0.54	75.94	368.8	3,649.2	2,639.8	97.8	15.7	12.9	15.0	2.8	0.0	0.5	0.8	7.3
10-430N	0.44	26.43	105.1	1,039.5	752.0	27.9	4.5	3.7	4.3	0.8	0.0	0.1	0.2	2.1
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	7.2	71.1	51.5	1.9	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.1
10-430R	0.47	150.32	629.2	6,225.7	4,503.7	166.9	26.8	22.1	25.6	4.7	0.0	0.8	1.4	12.4
10-430S	0.10	5.15	4.6	45.6	33.0	1.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
10-430T	0.46	262.47	1,074.3	10,629.9	7,689.7	285.0	45.8	37.7	43.7	8.0	0.0	1.4	2.4	21.1
10-430U	0.47	431.37	1,814.8	17,957.0	12,990.2	481.4	77.4	63.6	73.7	13.6	0.0	2.4	4.1	35.7
10-430V	0.46	329.11	1,369.8	13,553.8	9,804.9	363.4	58.4	48.0	55.7	10.2	0.0	1.8	3.1	27.0
10-440A	0.46	23.18	95.1	940.9	680.6	25.2	4.1	3.3	3.9	0.7	0.0	0.1	0.2	1.9
10-440B	0.49	34.23	151.0	1,494.5	1,081.1	40.1	6.4	5.3	6.1	1.1	0.0	0.2	0.3	3.0
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	3,827.4	37,871.6	27,396.5	1,015.3	163.2	134.2	155.5	28.6	0.1	5.1	8.7	75.3
10-440F	0.46	538.85	2,220.5	21,971.3	15,894.1	589.0	94.7	77.8	90.2	16.6	0.1	2.9	5.0	43.7
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	15.8	156.1	112.9	4.2	0.7	0.6	0.6	0.1	0.0	0.0	0.0	0.3

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/01 - 08/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.5	94	68	2.52	0.405	0.333	0.386	0.071	0.000250	0.013	0.022	0.187
Precipitation (meters)	**0.274**	**10.80 inches**												
10-450C	0.59	55.64	295.9	2,927.4	2,117.7	78.5	12.6	10.4	12.0	2.2	0.0	0.4	0.7	5.8
10-450D	0.45	4.62	18.6	184.2	133.2	4.9	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
10-450E	0.44	3.2	12.7	125.3	90.6	3.4	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
10-450F	0.46	158.55	652.2	6,453.6	4,668.6	173.0	27.8	22.9	26.5	4.9	0.0	0.9	1.5	12.8
10-450G/H	0.48	75.02	322.8	3,193.6	2,310.3	85.6	13.8	11.3	13.1	2.4	0.0	0.4	0.7	6.4
10-450I	0.49	243.64	1,071.6	10,603.5	7,670.6	284.3	45.7	37.6	43.5	8.0	0.0	1.4	2.4	21.1
10-450J	0.49	17.16	74.6	738.1	533.9	19.8	3.2	2.6	3.0	0.6	0.0	0.1	0.2	1.5
10-450K	0.58	37.01	192.0	1,899.4	1,374.0	50.9	8.2	6.7	7.8	1.4	0.0	0.3	0.4	3.8
10-450L	0.51	213.41	965.1	9,549.5	6,908.1	256.0	41.1	33.8	39.2	7.2	0.0	1.3	2.2	19.0
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	33.7	333.8	241.5	8.9	1.4	1.2	1.4	0.3	0.0	0.0	0.1	0.7
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	1,023.3	10,124.9	7,324.4	271.4	43.6	35.9	41.6	7.6	0.0	1.4	2.3	20.1
10-460F	0.49	14.75	65.3	646.5	467.7	17.3	2.8	2.3	2.7	0.5	0.0	0.1	0.1	1.3
10-460G	0.51	79.66	364.3	3,605.1	2,607.9	96.6	15.5	12.8	14.8	2.7	0.0	0.5	0.8	7.2
10-460H	0.48	12.35	53.0	524.5	379.5	14.1	2.3	1.9	2.2	0.4	0.0	0.1	0.1	1.0
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	22.3	220.2	159.3	5.9	0.9	0.8	0.9	0.2	0.0	0.0	0.1	0.4
10-460K	0.36	5.48	17.6	174.6	126.3	4.7	0.8	0.6	0.7	0.1	0.0	0.0	0.0	0.3
10-460L	0.46	3.5	14.5	143.7	104.0	3.9	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
10-460M	0.48	9.55	40.9	404.9	292.9	10.9	1.7	1.4	1.7	0.3	0.0	0.1	0.1	0.8
10-460N	0.45	3.85	15.5	153.5	111.0	4.1	0.7	0.5	0.6	0.1	0.0	0.0	0.0	0.3
10-460O	0.45	4.15	16.9	166.8	120.7	4.5	0.7	0.6	0.7	0.1	0.0	0.0	0.0	0.3
10-460P	0.45	4.34	17.5	173.0	125.2	4.6	0.7	0.6	0.7	0.1	0.0	0.0	0.0	0.3
10-460Q	0.56	19.73	99.7	986.2	713.4	26.4	4.2	3.5	4.0	0.7	0.0	0.1	0.2	2.0
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	1,180.0	11,675.9	8,446.4	313.0	50.3	41.4	47.9	8.8	0.0	1.6	2.7	23.2
10-465	0.10	8.56	7.7	75.8	54.9	2.0	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.2
10-470	0.38	25.6	87.5	865.6	626.2	23.2	3.7	3.1	3.6	0.7	0.0	0.1	0.2	1.7
10-480	0.58	39.66	206.0	2,038.6	1,474.7	54.7	8.8	7.2	8.4	1.5	0.0	0.3	0.5	4.1
10-485	0.00	7.27	0.2	1.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	586.0	5,798.2	4,194.4	155.4	25.0	20.5	23.8	4.4	0.0	0.8	1.3	11.5
10-500A	0.26	26.21	61.6	609.4	440.9	16.3	2.6	2.2	2.5	0.5	0.0	0.1	0.1	1.2
10-500B	0.46	8.48	34.9	345.8	250.2	9.3	1.5	1.2	1.4	0.3	0.0	0.0	0.1	0.7
10-500C	0.44	111.36	434.1	4,295.3	3,107.2	115.2	18.5	15.2	17.6	3.2	0.0	0.6	1.0	8.5
10-500D	0.24	3.83	8.2	80.8	58.4	2.2	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.2
10-500E	0.53	23.34	111.3	1,101.0	796.5	29.5	4.7	3.9	4.5	0.8	0.0	0.1	0.3	2.2
10-500F	0.49	12.04	53.2	526.7	381.0	14.1	2.3	1.9	2.2	0.4	0.0	0.1	0.1	1.0
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	7.0	69.5	50.3	1.9	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.1
10-510	0.51	62.36	284.0	2,810.2	2,032.9	75.3	12.1	10.0	11.5	2.1	0.0	0.4	0.6	5.6
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	468.8	4,638.7	3,355.7	124.4	20.0	16.4	19.0	3.5	0.0	0.6	1.1	9.2
10-540	0.12	53.9	57.2	565.5	409.1	15.2	2.4	2.0	2.3	0.4	0.0	0.1	0.1	1.1
10-550	0.46	25.83	106.4	1,052.5	761.4	28.2	4.5	3.7	4.3	0.8	0.0	0.1	0.2	2.1
10-560A/B	0.44	600.63	2,352.8	23,280.7	16,841.4	624.1	100.3	82.5	95.6	17.6	0.1	3.1	5.3	46.3
10-570A	0.54	14.64	71.3	705.3	510.2	18.9	3.0	2.5	2.9	0.5	0.0	0.1	0.2	1.4
10-570B	0.44	228.18	891.9	8,824.6	6,383.8	236.6	38.0	31.3	36.2	6.7	0.0	1.2	2.0	17.6
10-580	0.45	73.39	294.9	2,918.4	2,111.2	78.2	12.6	10.3	12.0	2.2	0.0	0.4	0.7	5.8
10-600	0.48	89.24	386.4	3,823.6	2,766.0	102.5	16.5	13.5	15.7	2.9	0.0	0.5	0.9	7.6
10-610	0.46	25.6	105.1	1,039.6	752.0	27.9	4.5	3.7	4.3	0.8	0.0	0.1	0.2	2.1
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	5.6	55.3	40.0	1.5	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
10-630B	0.45	4.68	18.9	186.6	135.0	5.0	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
10-630C	0.48	96.03	415.4	4,110.5	2,973.6	110.2	17.7	14.6	16.9	3.1	0.0	0.6	0.9	8.2
10-630D	0.45	6.37	25.7	254.0	183.7	6.8	1.1	0.9	1.0	0.2	0.0	0.0	0.1	0.5
10-630E	0.45	8.52	34.3	339.7	245.7	9.1	1.5	1.2	1.4	0.3	0.0	0.0	0.1	0.7
10-630F	0.54	17.56	84.9	840.5	608.0	22.5	3.6	3.0	3.5	0.6	0.0	0.1	0.2	1.7
10-630G	0.45	5.9	23.8	235.2	170.2	6.3	1.0	0.8	1.0	0.2	0.0	0.0	0.1	0.5
10-630H	0.30	25.63	69.5	687.7	497.5	18.4	3.0	2.4	2.8	0.5	0.0	0.1	0.2	1.4
10-630I	0.47	12.48	52.0	514.2	372.0	13.8	2.2	1.8	2.1	0.4	0.0	0.1	0.1	1.0
10-630J	0.55	14.69	72.8	720.6	521.3	19.3	3.1	2.6	3.0	0.5	0.0	0.1	0.2	1.4
10-630K	0.47	95.29	403.8	3,995.7	2,890.5	107.1	17.2	14.2	16.4	3.0	0.0	0.5	0.9	7.9
10-630L	0.52	100.42	468.5	4,635.3	3,353.2	124.3	20.0	16.4	19.0	3.5	0.0	0.6	1.1	9.2
10-630M	0.50	11.71	52.1	515.1	372.6	13.8	2.2	1.8	2.1	0.4	0.0	0.1	0.1	1.0
10-630N	0.45	8.45	34.0	336.9	243.7	9.0	1.5	1.2	1.4	0.3	0.0	0.0	0.1	0.7
10-630O	0.36	5.77	18.8	186.1	134.6	5.0	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	250.9	2,482.3	1,795.7	66.5	10.7	8.8	10.2	1.9	0.0	0.3	0.6	4.9
10-630S	0.22	37.02	72.1	713.0	515.8	19.1	3.1	2.5	2.9	0.5	0.0	0.1	0.2	1.4
10-630T	0.56	7.72	38.9	384.7	278.3	10.3	1.7	1.4	1.6	0.3	0.0	0.1	0.1	0.8
10-630U	0.52	115.42	540.6	5,349.1	3,869.5	143.4	23.0	18.9	22.0	4.0	0.0	0.7	1.2	10.6
10-630V	0.11	33.85	32.0	316.7	229.1	8.5	1.4	1.1	1.3	0.2	0.0	0.0	0.1	0.6
10-630W	0.47	23.68	100.4	993.8	718.9	26.6	4.3	3.5	4.1	0.8	0.0	0.1	0.2	2.0
10-630X	0.44	14.78	58.5	579.3	419.1	15.5	2.5	2.1	2.4	0.4	0.0	0.1	0.1	1.2
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	192.5	1,904.5	1,377.7	51.1	8.2	6.7	7.8	1.4	0.0	0.3	0.4	3.8
10-640	0.46	258.18	1,057.3	10,461.5	7,567.9	280.5	45.1	37.1	43.0	7.9	0.0	1.4	2.4	20.8
10-650	0.56	19.53	97.4	963.8	697.2	25.8	4.2	3.4	4.0	0.7	0.0	0.1	0.2	1.9
10-660	0.46	306.37	1,270.8	12,574.4	9,096.4	337.1	54.2	44.5	51.6	9.5	0.0	1.7	2.9	25.0
10-670	0.45	137.88	554.7	5,489.0	3,970.8	147.2	23.6	19.4	22.5	4.1	0.0	0.7	1.3	10.9
10-680	0.46	707.95	2,906.5	28,759.1	20,804.5	771.0	123.9	101.9	118.1	21.7	0.1	3.9	6.6	57.2
10-690	0.50	70.63	316.4	3,130.6	2,264.7	83.9	13.5	11.1	12.9	2.4	0.0	0.4	0.7	6.2
10-700	0.46	222.07	923.3	9,136.1	6,609.1	244.9	39.4	32.4	37.5	6.9	0.0	1.2	2.1	18.2
10-710	0.33	29.95	89.3	883.9	639.4	23.7	3.8	3.1	3.6	0.7	0.0	0.1	0.2	1.8

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/01 - 08/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.5	94	68	2.52	0.405	0.333	0.386	0.071	0.000250	0.013	0.022	0.187
Precipitation (meters)	**0.274**	**10.80 inches**												
10-720A	0.44	15.77	62.6	619.5	448.2	16.6	2.7	2.2	2.5	0.5	0.0	0.1	0.1	1.2
10-720B	0.48	422.18	1,821.2	18,020.5	13,036.1	483.1	77.6	63.8	74.0	13.6	0.0	2.4	4.1	35.8
10-720C	0.43	26.35	101.3	1,002.4	725.2	26.9	4.3	3.6	4.1	0.8	0.0	0.1	0.2	2.0
10-720D	0.46	22.95	93.6	925.7	669.6	24.8	4.0	3.3	3.8	0.7	0.0	0.1	0.2	1.8
10-720E	0.46	18.39	75.0	742.5	537.1	19.9	3.2	2.6	3.0	0.6	0.0	0.1	0.2	1.5
10-720F	0.48	317.75	1,365.1	13,507.5	9,771.4	362.1	58.2	47.9	55.5	10.2	0.0	1.8	3.1	26.9
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	18.3	181.4	131.2	4.9	0.8	0.6	0.7	0.1	0.0	0.0	0.0	0.4
10-720I	0.45	87.27	348.5	3,448.1	2,494.3	92.4	14.9	12.2	14.2	2.6	0.0	0.5	0.8	6.9
10-720J	0.36	3.71	11.9	117.4	84.9	3.1	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
10-720K	0.55	32.76	161.1	1,593.7	1,152.9	42.7	6.9	5.6	6.5	1.2	0.0	0.2	0.4	3.2
10-720L	0.45	4.57	18.4	182.2	131.8	4.9	0.8	0.6	0.7	0.1	0.0	0.0	0.0	0.4
20-010	0.42	93.99	353.3	3,495.8	2,528.9	93.7	15.1	12.4	14.4	2.6	0.0	0.5	0.8	7.0
20-020	0.44	15.09	59.3	586.5	424.2	15.7	2.5	2.1	2.4	0.4	0.0	0.1	0.1	1.2
20-030	0.45	7.95	32.0	317.0	229.3	8.5	1.4	1.1	1.3	0.2	0.0	0.0	0.1	0.6
20-040	0.37	6.79	22.7	224.3	162.2	6.0	1.0	0.8	0.9	0.2	0.0	0.0	0.1	0.4
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	23.8	235.6	170.5	6.3	1.0	0.8	1.0	0.2	0.0	0.0	0.1	0.5
20-070	0.44	39.07	155.1	1,534.8	1,110.3	41.1	6.6	5.4	6.3	1.2	0.0	0.2	0.4	3.1
20-080	0.45	33.72	136.9	1,354.5	979.9	36.3	5.8	4.8	5.6	1.0	0.0	0.2	0.3	2.7
20-090	0.55	9.95	49.2	487.3	352.5	13.1	2.1	1.7	2.0	0.4	0.0	0.1	0.1	1.0
20-100	0.10	0.99	0.9	8.8	6.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-110	0.24	216.04	464.1	4,592.2	3,322.0	123.1	19.8	16.3	18.9	3.5	0.0	0.6	1.1	9.1
20-120	0.47	10.22	42.8	423.3	306.2	11.3	1.8	1.5	1.7	0.3	0.0	0.1	0.1	0.8
20-130	0.45	16.12	65.0	642.7	464.9	17.2	2.8	2.3	2.6	0.5	0.0	0.1	0.1	1.3
20-140	0.44	2.97	11.7	116.1	84.0	3.1	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
20-150	0.45	14.48	58.3	577.3	417.6	15.5	2.5	2.0	2.4	0.4	0.0	0.1	0.1	1.1
20-160	0.54	3.21	15.5	153.7	111.2	4.1	0.7	0.5	0.6	0.1	0.0	0.0	0.0	0.3
20-170	0.37	4.94	16.5	163.1	118.0	4.4	0.7	0.6	0.7	0.1	0.0	0.0	0.0	0.3
20-180	0.51	5.3	24.0	237.7	171.9	6.4	1.0	0.8	1.0	0.2	0.0	0.0	0.1	0.5
20-190	0.45	1.35	5.4	53.8	38.9	1.4	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
20-200	0.45	13.84	55.8	551.8	399.2	14.8	2.4	2.0	2.3	0.4	0.0	0.1	0.1	1.1
20-210A	0.44	92.9	365.4	3,615.5	2,615.5	96.9	15.6	12.8	14.8	2.7	0.0	0.5	0.8	7.2
20-210B	0.50	620.78	2,804.6	27,750.3	20,074.7	743.9	119.6	98.3	114.0	21.0	0.1	3.7	6.3	55.2
20-220	0.46	26.38	108.9	1,077.5	779.5	28.9	4.6	3.8	4.4	0.8	0.0	0.1	0.2	2.1
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	129.7	1,283.1	928.2	34.4	5.5	4.5	5.3	1.0	0.0	0.2	0.3	2.6
20-250	0.57	6.28	32.1	318.1	230.1	8.5	1.4	1.1	1.3	0.2	0.0	0.0	0.1	0.6
20-260	0.60	3.5	18.8	186.1	134.6	5.0	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
20-270	0.48	42.81	182.7	1,808.1	1,308.0	48.5	7.8	6.4	7.4	1.4	0.0	0.2	0.4	3.6
20-280	0.54	8.98	43.2	427.6	309.3	11.5	1.8	1.5	1.8	0.3	0.0	0.1	0.1	0.9
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	198.6	1,965.4	1,421.8	52.7	8.5	7.0	8.1	1.5	0.0	0.3	0.4	3.9
40-010	0.45	719.17	2,885.6	28,552.3	20,654.8	765.4	123.0	101.1	117.2	21.6	0.1	3.8	6.5	56.8
40-020	0.45	15.36	61.9	612.4	443.0	16.4	2.6	2.2	2.5	0.5	0.0	0.1	0.1	1.2
40-030	0.42	51.02	190.8	1,888.3	1,366.0	50.6	8.1	6.7	7.8	1.4	0.0	0.3	0.4	3.8
40-040	0.43	65.39	254.2	2,515.5	1,819.7	67.4	10.8	8.9	10.3	1.9	0.0	0.3	0.6	5.0
40-050	0.45	10.28	41.4	409.9	296.5	11.0	1.8	1.5	1.7	0.3	0.0	0.1	0.1	0.8
40-060	0.45	3.2	12.9	127.6	92.3	3.4	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.3
40-070	0.38	7.98	27.0	267.5	193.5	7.2	1.2	0.9	1.1	0.2	0.0	0.0	0.1	0.5
40-080	0.41	60.51	221.3	2,189.4	1,583.8	58.7	9.4	7.8	9.0	1.7	0.0	0.3	0.5	4.4
40-090	0.46	20.65	86.0	850.5	615.3	22.8	3.7	3.0	3.5	0.6	0.0	0.1	0.2	1.7
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-110	0.44	2.61	10.4	102.6	74.2	2.8	0.4	0.4	0.4	0.1	0.0	0.0	0.0	0.2
40-120	0.44	65.87	258.5	2,557.7	1,850.3	68.6	11.0	9.1	10.5	1.9	0.0	0.3	0.6	5.1
40-130	0.45	35.01	141.7	1,401.6	1,013.9	37.6	6.0	5.0	5.8	1.1	0.0	0.2	0.3	2.8
40-140	0.35	125.46	390.6	3,865.2	2,796.1	103.6	16.7	13.7	15.9	2.9	0.0	0.5	0.9	7.7
40-150	0.47	24.31	103.1	1,020.3	738.1	27.4	4.4	3.6	4.2	0.8	0.0	0.1	0.2	2.0
40-160	0.49	30.99	137.2	1,357.3	981.9	36.4	5.8	4.8	5.6	1.0	0.0	0.2	0.3	2.7
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	81.0	801.3	579.7	21.5	3.5	2.8	3.3	0.6	0.0	0.1	0.2	1.6
40-190	0.53	65.53	310.3	3,069.9	2,220.8	82.3	13.2	10.9	12.6	2.3	0.0	0.4	0.7	6.1
40-200	0.46	24.75	102.5	1,013.8	733.4	27.2	4.4	3.6	4.2	0.8	0.0	0.1	0.2	2.0
40-210	0.54	17.26	84.2	833.2	602.7	22.3	3.6	3.0	3.4	0.6	0.0	0.1	0.2	1.7
40-220	0.47	100.58	421.0	4,165.8	3,013.6	111.7	17.9	14.8	17.1	3.1	0.0	0.6	1.0	8.3
40-230	0.44	13.78	54.9	543.1	392.9	14.6	2.3	1.9	2.2	0.4	0.0	0.1	0.1	1.1
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	6.2	61.1	44.2	1.6	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
40-260	0.45	3.49	14.1	139.1	100.7	3.7	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
40-270	0.45	9.59	38.6	382.3	276.6	10.2	1.6	1.4	1.6	0.3	0.0	0.1	0.1	0.8
40-280	0.53	12.76	60.1	594.5	430.1	15.9	2.6	2.1	2.4	0.4	0.0	0.1	0.1	1.2
40-290	0.51	13.73	62.9	622.9	450.6	16.7	2.7	2.2	2.6	0.5	0.0	0.1	0.1	1.2
40-300	0.52	10.38	48.4	479.2	346.6	12.8	2.1	1.7	2.0	0.4	0.0	0.1	0.1	1.0
40-310	0.45	97.86	396.6	3,924.5	2,839.0	105.2	16.9	13.9	16.1	3.0	0.0	0.5	0.9	7.8
40-320	0.60	9.43	50.7	501.3	362.6	13.4	2.2	1.8	2.1	0.4	0.0	0.1	0.1	1.0
40-330	0.59	15.34	81.4	805.5	582.7	21.6	3.5	2.9	3.3	0.6	0.0	0.1	0.2	1.6
40-340	0.53	35.27	168.3	1,665.3	1,204.7	44.6	7.2	5.9	6.8	1.3	0.0	0.2	0.4	3.3
40-350	0.60	8.99	48.3	477.9	345.7	12.8	2.1	1.7	2.0	0.4	0.0	0.1	0.1	1.0
40-360	0.60	8.09	43.5	430.1	311.1	11.5	1.9	1.5	1.8	0.3	0.0	0.1	0.1	0.9
40-370	0.58	12.41	64.3	636.0	460.1	17.1	2.7	2.3	2.6	0.5	0.0	0.1	0.1	1.3
40-380	0.39	24.92	87.8	868.6	628.4	23.3	3.7	3.1	3.6	0.7	0.0	0.1	0.2	1.7
40-390	0.58	5.72	29.7	293.9	212.6	7.9	1.3	1.0	1.2	0.2	0.0	0.0	0.1	0.6
40-400	0.10	1.07	1.0	9.5	6.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-010	0.38	94.73	320.2	3,167.8	2,291.6	84.9	13.6	11.2	13.0	2.4	0.0	0.4	0.7	6.3
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	271.8	2,689.4	1,945.5	72.1	11.6	9.5	11.0	2.0	0.0	0.4	0.6	5.4

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/01 - 08/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.5	94	68	2.52	0.405	0.333	0.386	0.071	0.000250	0.013	0.022	0.187
Precipitation (meters)	0.274	10.80 inches												
41-040	0.57	35.59	182.6	1,806.8	1,307.0	48.4	7.8	6.4	7.4	1.4	0.0	0.2	0.4	3.6
41-050	0.60	10.48	56.3	557.1	403.0	14.9	2.4	2.0	2.3	0.4	0.0	0.1	0.1	1.1
41-060	0.60	2.95	15.8	156.8	113.4	4.2	0.7	0.6	0.6	0.1	0.0	0.0	0.0	0.3
51-010	0.45	29.63	119.7	1,184.8	857.1	31.8	5.1	4.2	4.9	0.9	0.0	0.2	0.3	2.4
51-020	0.45	4.55	18.3	181.4	131.2	4.9	0.8	0.6	0.7	0.1	0.0	0.0	0.0	0.4
52-010	0.28	45.29	112.1	1,108.9	802.2	29.7	4.8	3.9	4.6	0.8	0.0	0.1	0.3	2.2
52-020	0.45	6.09	24.5	242.8	175.6	6.5	1.0	0.9	1.0	0.2	0.0	0.0	0.1	0.5
52-030	0.45	7.18	28.9	286.3	207.1	7.7	1.2	1.0	1.2	0.2	0.0	0.0	0.1	0.6
52-040	0.41	4.54	16.8	166.3	120.3	4.5	0.7	0.6	0.7	0.1	0.0	0.0	0.0	0.3
52-050	0.44	15.3	59.6	589.7	426.6	15.8	2.5	2.1	2.4	0.4	0.0	0.1	0.1	1.2
52-060	0.10	3.22	2.9	28.5	20.6	0.8	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
52-070	0.42	86.94	329.4	3,259.6	2,358.0	87.4	14.0	11.5	13.4	2.5	0.0	0.4	0.7	6.5
52-080	0.24	8.08	17.5	173.3	125.3	4.6	0.7	0.6	0.7	0.1	0.0	0.0	0.0	0.3
52-090	0.45	4.89	19.7	195.0	141.0	5.2	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
52-100A/B	0.27	11.89	28.4	280.9	203.2	7.5	1.2	1.0	1.2	0.2	0.0	0.0	0.1	0.6
52-110	0.45	8.84	35.3	349.6	252.9	9.4	1.5	1.2	1.4	0.3	0.0	0.0	0.1	0.7
52-120	0.45	14.74	59.4	587.7	425.1	15.8	2.5	2.1	2.4	0.4	0.0	0.1	0.1	1.2
52-130	0.31	7.18	20.2	200.2	144.8	5.4	0.9	0.7	0.8	0.2	0.0	0.0	0.0	0.4
53-010	0.45	7.03	28.3	280.3	202.8	7.5	1.2	1.0	1.2	0.2	0.0	0.0	0.1	0.6
53-020	0.28	12.38	30.6	303.1	219.3	8.1	1.3	1.1	1.2	0.2	0.0	0.0	0.1	0.6
53-030	0.44	11.37	44.5	440.1	318.4	11.8	1.9	1.6	1.8	0.3	0.0	0.1	0.1	0.9
53-040	0.45	2.78	11.2	110.8	80.2	3.0	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
53-050	0.45	13.66	55.0	544.6	394.0	14.6	2.3	1.9	2.2	0.4	0.0	0.1	0.1	1.1
53-060	0.45	20.37	82.1	812.1	587.5	21.8	3.5	2.9	3.3	0.6	0.0	0.1	0.2	1.6
53-070	0.45	4.89	19.7	195.0	141.0	5.2	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
53-080	0.39	5.81	20.5	202.9	146.8	5.4	0.9	0.7	0.8	0.2	0.0	0.0	0.0	0.4
53-090	0.46	59.59	245.0	2,424.2	1,753.7	65.0	10.4	8.6	10.0	1.8	0.0	0.3	0.6	4.8
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	15.8	156.5	113.2	4.2	0.7	0.6	0.6	0.1	0.0	0.0	0.0	0.3
53-120A/B	0.46	129.79	529.5	5,239.1	3,790.0	140.5	22.6	18.6	21.5	4.0	0.0	0.7	1.2	10.4
53-130	0.45	5.02	20.2	200.1	144.8	5.4	0.9	0.7	0.8	0.2	0.0	0.0	0.0	0.4
53-140	0.45	6.36	25.6	253.6	183.4	6.8	1.1	0.9	1.0	0.2	0.0	0.0	0.1	0.5
53-150	0.48	90.4	391.6	3,875.0	2,803.2	103.9	16.7	13.7	15.9	2.9	0.0	0.5	0.9	7.7
53-160	0.47	252.19	1,067.6	10,563.3	7,641.5	283.2	45.5	37.4	43.4	8.0	0.0	1.4	2.4	21.0
53-170	0.36	6.39	20.6	204.3	147.8	5.5	0.9	0.7	0.8	0.2	0.0	0.0	0.0	0.4
53-180	0.10	8.09	7.2	71.7	51.9	1.9	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.1
53-190	0.30	11.41	30.7	303.8	219.8	8.1	1.3	1.1	1.2	0.2	0.0	0.0	0.1	0.6
54-010A/B	0.44	84.93	330.9	3,273.8	2,368.3	87.8	14.1	11.6	13.4	2.5	0.0	0.4	0.7	6.5
54-040A/B	0.49	255.14	1,130.7	11,188.0	8,093.4	299.9	48.2	39.6	45.9	8.5	0.0	1.5	2.6	22.3
54-050	0.17	9.27	14.4	142.8	103.3	3.8	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
54-060	0.44	32.13	126.4	1,250.4	904.6	33.5	5.4	4.4	5.1	0.9	0.0	0.2	0.3	2.5
54-070	0.36	60.8	195.2	1,931.6	1,397.3	51.8	8.3	6.8	7.9	1.5	0.0	0.3	0.4	3.8
54-080A/B/C	0.46	414.26	1,695.5	16,776.2	12,136.0	449.7	72.3	59.4	68.9	12.7	0.0	2.2	3.8	33.4
54-090	0.10	3.55	3.2	31.5	22.8	0.8	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
54-100A/B	0.60	114.24	609.3	6,029.3	4,361.6	161.6	26.0	21.4	24.8	4.6	0.0	0.8	1.4	12.0
54-110	0.45	24.55	98.9	978.8	708.1	26.2	4.2	3.5	4.0	0.7	0.0	0.1	0.2	1.9
54-120	0.46	62.08	254.0	2,513.2	1,818.1	67.4	10.8	8.9	10.3	1.9	0.0	0.3	0.6	5.0
54-130	0.10	1.07	1.0	9.5	6.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54-140A/B	0.41	113.01	412.8	4,084.4	2,954.6	109.5	17.6	14.5	16.8	3.1	0.0	0.5	0.9	8.1
54-150	0.45	55.34	220.7	2,183.4	1,579.5	58.5	9.4	7.7	9.0	1.6	0.0	0.3	0.5	4.3
54-160	0.60	2.62	14.1	139.3	100.8	3.7	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
54-170	0.59	8.08	43.0	425.7	307.9	11.4	1.8	1.5	1.7	0.3	0.0	0.1	0.1	0.8
54-180	0.60	2.82	15.2	149.9	108.4	4.0	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
54-190	0.10	2.2	2.0	19.5	14.1	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
54-200	0.10	2.13	1.9	18.9	13.7	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
54-210	0.10	1.14	1.0	10.1	7.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55-010	0.60	14.98	80.5	796.3	576.1	21.3	3.4	2.8	3.3	0.6	0.0	0.1	0.2	1.6
55-020	0.60	189.58	1,011.9	10,012.2	7,242.9	268.4	43.1	35.5	41.1	7.6	0.0	1.3	2.3	19.9
56-010	0.60	67.62	363.3	3,594.6	2,600.3	96.4	15.5	12.7	14.8	2.7	0.0	0.5	0.8	7.2
57-010	0.53	26.1	124.7	1,233.6	892.4	33.1	5.3	4.4	5.1	0.9	0.0	0.2	0.3	2.5
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	73.4	726.4	525.5	19.5	3.1	2.6	3.0	0.5	0.0	0.1	0.2	1.4
57-040	0.35	39.88	124.6	1,232.9	891.9	33.1	5.3	4.4	5.1	0.9	0.0	0.2	0.3	2.5
57-050	0.45	7.9	31.8	315.0	227.8	8.4	1.4	1.1	1.3	0.2	0.0	0.0	0.1	0.6
57-060	0.46	26.11	108.1	1,069.8	773.9	28.7	4.6	3.8	4.4	0.8	0.0	0.1	0.2	2.1
57-070	0.45	81.33	328.5	3,250.3	2,351.3	87.1	14.0	11.5	13.3	2.5	0.0	0.4	0.7	6.5
57-080	0.42	5.54	21.0	207.5	150.1	5.6	0.9	0.7	0.9	0.2	0.0	0.0	0.0	0.4
57-090	0.47	77.77	326.8	3,233.6	2,339.2	86.7	13.9	11.5	13.3	2.4	0.0	0.4	0.7	6.4
57-100A/B	0.47	313.43	1,325.8	13,118.4	9,489.9	351.7	56.5	46.5	53.9	9.9	0.0	1.8	3.0	26.1
57-110	0.54	21.6	104.6	1,034.9	748.7	27.7	4.5	3.7	4.2	0.8	0.0	0.1	0.2	2.1
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	1.0	10.3	7.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-140	0.10	1.55	1.4	13.7	9.9	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
57-150	0.43	35.68	137.9	1,364.4	987.0	36.6	5.9	4.8	5.6	1.0	0.0	0.2	0.3	2.7
57-160	0.10	1.89	1.7	16.7	12.1	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
61-010	0.55	2.86	14.1	139.8	101.1	3.7	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
62-010	0.45	27.84	112.7	1,115.1	806.7	29.9	4.8	4.0	4.6	0.8	0.0	0.1	0.3	2.2
63-010	0.45	388.79	1,574.0	15,573.9	11,266.2	417.5	67.1	55.2	64.0	11.8	0.0	2.1	3.6	31.0
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	100.3	992.6	718.1	26.6	4.3	3.5	4.1	0.7	0.0	0.1	0.2	2.0
64-110	0.45	6.01	24.2	239.6	173.3	6.4	1.0	0.8	1.0	0.2	0.0	0.0	0.1	0.5
64-120	0.45	16.04	64.6	639.5	462.6	17.1	2.8	2.3	2.6	0.5	0.0	0.1	0.1	1.3
64-130	0.45	2.44	9.8	97.3	70.4	2.6	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.2
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	182.2	1,803.1	1,304.4	48.3	7.8	6.4	7.4	1.4	0.0	0.2	0.4	3.6
70-010	0.46	6.23	25.6	253.1	183.1	6.8	1.1	0.9	1.0	0.2	0.0	0.0	0.1	0.5

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/01 - 08/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.5	94	68	2.52	0.405	0.333	0.386	0.071	0.000250	0.013	0.022	0.187
Precipitation (meters)	**0.274**	**10.80 inches**												
70-015	0.45	11.69	47.1	466.1	337.2	12.5	2.0	1.7	1.9	0.4	0.0	0.1	0.1	0.9
70-020	0.45	37.55	151.3	1,497.1	1,083.0	40.1	6.5	5.3	6.1	1.1	0.0	0.2	0.3	3.0
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	54.3	537.0	388.5	14.4	2.3	1.9	2.2	0.4	0.0	0.1	0.1	1.1
70-035	0.45	4.53	18.3	180.6	130.7	4.8	0.8	0.6	0.7	0.1	0.0	0.0	0.0	0.4
70-040	0.45	2.42	9.8	96.5	69.8	2.6	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.2
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	70.1	694.1	502.1	18.6	3.0	2.5	2.9	0.5	0.0	0.1	0.2	1.4
70-055	0.46	333.43	1,385.6	13,710.4	9,918.2	367.6	59.1	48.6	56.3	10.4	0.0	1.8	3.1	27.3
70-060	0.45	3.53	14.2	140.7	101.8	3.8	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
70-065	0.45	1.89	7.6	75.4	54.5	2.0	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.1
70-070	0.45	5.8	23.4	231.2	167.3	6.2	1.0	0.8	0.9	0.2	0.0	0.0	0.1	0.5
70-075	0.43	5	19.3	191.1	138.2	5.1	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
70-080	0.46	11.96	49.5	489.5	354.1	13.1	2.1	1.7	2.0	0.4	0.0	0.1	0.1	1.0
70-085	0.45	229.48	919.0	9,092.9	6,577.8	243.8	39.2	32.2	37.3	6.9	0.0	1.2	2.1	18.1
70-090	0.45	18.57	74.8	740.4	535.6	19.8	3.2	2.6	3.0	0.6	0.0	0.1	0.2	1.5
70-095	0.45	9.99	40.3	398.3	288.1	10.7	1.7	1.4	1.6	0.3	0.0	0.1	0.1	0.8
70-100	0.45	9.64	38.8	384.3	278.0	10.3	1.7	1.4	1.6	0.3	0.0	0.1	0.1	0.8
70-105	0.45	1.63	6.6	65.0	47.0	1.7	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-110	0.45	18.13	73.1	722.8	522.9	19.4	3.1	2.6	3.0	0.5	0.0	0.1	0.2	1.4
70-115	0.45	3.71	14.9	147.9	107.0	4.0	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
70-120	0.45	4.22	17.0	168.2	121.7	4.5	0.7	0.6	0.7	0.1	0.0	0.0	0.0	0.3
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	151.6	1,499.8	1,085.0	40.2	6.5	5.3	6.2	1.1	0.0	0.2	0.3	3.0
70-135	0.45	7.46	30.1	297.4	215.2	8.0	1.3	1.1	1.2	0.2	0.0	0.0	0.1	0.6
70-140	0.60	0.78	4.2	41.5	30.0	1.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
70-145	0.60	9.19	49.4	488.5	353.4	13.1	2.1	1.7	2.0	0.4	0.0	0.1	0.1	1.0
70-150	0.45	4.51	18.2	179.8	130.1	4.8	0.8	0.6	0.7	0.1	0.0	0.0	0.0	0.4
70-155	0.45	2.05	8.3	81.7	59.1	2.2	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.2
70-160	0.45	2.95	11.9	117.6	85.1	3.2	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
70-165	0.45	27.77	111.9	1,107.2	800.9	29.7	4.8	3.9	4.5	0.8	0.0	0.1	0.3	2.2
70-170	0.45	23.74	95.7	946.5	684.7	25.4	4.1	3.4	3.9	0.7	0.0	0.1	0.2	1.9
70-175	0.46	30.89	126.5	1,251.3	905.2	33.5	5.4	4.4	5.1	0.9	0.0	0.2	0.3	2.5
70-180	0.45	1.14	4.6	45.5	32.9	1.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
70-185	0.45	1.53	6.2	61.0	44.1	1.6	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
70-190	0.17	15.04	23.2	229.3	165.9	6.1	1.0	0.8	0.9	0.2	0.0	0.0	0.1	0.5
70-195	0.45	46.02	186.4	1,844.8	1,334.5	49.5	7.9	6.5	7.6	1.4	0.0	0.2	0.4	3.7
70-200	0.45	31.52	127.0	1,256.7	909.1	33.7	5.4	4.5	5.2	0.9	0.0	0.2	0.3	2.5
70-205	0.45	1.39	5.6	55.4	40.1	1.5	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
70-210	0.45	3.58	14.4	142.7	103.3	3.8	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
70-215	0.45	5.93	23.9	236.4	171.0	6.3	1.0	0.8	1.0	0.2	0.0	0.0	0.1	0.5
70-220	0.45	4.54	18.3	181.0	130.9	4.9	0.8	0.6	0.7	0.1	0.0	0.0	0.0	0.4
70-225	0.45	4.99	20.1	198.9	143.9	5.3	0.9	0.7	0.8	0.2	0.0	0.0	0.0	0.4
70-230	0.45	4.72	19.0	188.2	136.1	5.0	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
70-235	0.45	5.04	20.3	200.9	145.4	5.4	0.9	0.7	0.8	0.2	0.0	0.0	0.0	0.4
70-240	0.45	4.52	18.2	180.2	130.4	4.8	0.8	0.6	0.7	0.1	0.0	0.0	0.0	0.4
70-245	0.44	9.98	39.2	388.1	280.8	10.4	1.7	1.4	1.6	0.3	0.0	0.1	0.1	0.8
70-250	0.48	41.27	178.2	1,763.7	1,275.9	47.3	7.6	6.2	7.2	1.3	0.0	0.2	0.4	3.5
70-255	0.45	45.37	182.9	1,809.4	1,308.9	48.5	7.8	6.4	7.4	1.4	0.0	0.2	0.4	3.6
70-260	0.46	24.9	102.1	1,009.8	730.5	27.1	4.4	3.6	4.1	0.8	0.0	0.1	0.2	2.0
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	18.8	185.8	134.4	5.0	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
70-275	0.45	4.28	17.2	170.6	123.4	4.6	0.7	0.6	0.7	0.1	0.0	0.0	0.0	0.3
70-280	0.45	9.39	37.9	375.0	271.3	10.1	1.6	1.3	1.5	0.3	0.0	0.1	0.1	0.7
70-285	0.45	19.03	76.6	757.9	548.3	20.3	3.3	2.7	3.1	0.6	0.0	0.1	0.2	1.5
70-290	0.45	2.37	9.5	93.7	67.8	2.5	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.2
70-295	0.45	7.18	28.9	286.3	207.1	7.7	1.2	1.0	1.2	0.2	0.0	0.0	0.1	0.6
70-300	0.10	0.4	0.4	3.5	2.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	50.6	501.0	362.4	13.4	2.2	1.8	2.1	0.4	0.0	0.1	0.1	1.0
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	15.6	153.9	111.3	4.1	0.7	0.5	0.6	0.1	0.0	0.0	0.0	0.3
70-320	0.44	2.32	9.1	90.3	65.3	2.4	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.2
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	1,178.5	11,660.7	8,435.4	312.6	50.2	41.3	47.9	8.8	0.0	1.6	2.7	23.2
70-335	0.45	1.99	8.0	79.3	57.4	2.1	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.2
70-340	0.39	22.25	78.4	775.6	561.0	20.8	3.3	2.7	3.2	0.6	0.0	0.1	0.2	1.5
70-345	0.45	3.81	15.4	151.9	109.9	4.1	0.7	0.5	0.6	0.1	0.0	0.0	0.0	0.3
70-350	0.49	314.4	1,391.0	13,763.7	9,956.7	369.0	59.3	48.8	56.5	10.4	0.0	1.8	3.1	27.4
70-355	0.45	1.29	5.2	51.4	37.2	1.4	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
70-360	0.45	131.96	537.0	5,313.8	3,844.0	142.5	22.9	18.8	21.8	4.0	0.0	0.7	1.2	10.6
70-365	0.45	6.7	27.0	267.1	193.2	7.2	1.2	0.9	1.1	0.2	0.0	0.0	0.1	0.5
70-370	0.44	3.75	14.9	147.2	106.5	3.9	0.6	0.5	0.6	0.1	0.0	0.0	0.0	0.3
70-375	0.47	7.1	30.0	297.3	215.1	8.0	1.3	1.1	1.2	0.2	0.0	0.0	0.1	0.6
70-380	0.45	14.4	58.0	574.1	415.3	15.4	2.5	2.0	2.4	0.4	0.0	0.1	0.1	1.1
70-385	0.45	14.97	60.3	596.8	431.8	16.0	2.6	2.1	2.5	0.5	0.0	0.1	0.1	1.2
70-390	0.46	58.11	241.0	2,384.9	1,725.3	63.9	10.3	8.4	9.8	1.8	0.0	0.3	0.5	4.7
70-395	0.43	57.19	220.0	2,176.3	1,574.4	58.3	9.4	7.7	8.9	1.6	0.0	0.3	0.5	4.3
70-400	0.44	9.67	38.0	376.0	272.0	10.1	1.6	1.3	1.5	0.3	0.0	0.1	0.1	0.7
70-405	0.25	7.16	16.0	158.6	114.8	4.3	0.7	0.6	0.7	0.1	0.0	0.0	0.0	0.3
70-410	0.43	5.8	22.3	220.4	159.4	5.9	0.9	0.8	0.9	0.2	0.0	0.0	0.1	0.4
70-415	0.45	120.75	490.8	4,856.5	3,513.2	130.2	20.9	17.2	19.9	3.7	0.0	0.7	1.1	9.7
70-420	0.45	16.99	68.5	677.4	490.0	18.2	2.9	2.4	2.8	0.5	0.0	0.1	0.2	1.3
70-425	0.51	20.63	94.4	934.0	675.6	25.0	4.0	3.3	3.8	0.7	0.0	0.1	0.2	1.9
70-430	0.10	6.19	5.5	54.8	39.7	1.5	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
70-435	0.10	9.16	8.2	81.2	58.7	2.2	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.2
70-440	0.50	34.48	153.4	1,517.4	1,097.7	40.7	6.5	5.4	6.2	1.1	0.0	0.2	0.3	3.0

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/01 - 08/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.5	94	68	2.52	0.405	0.333	0.386	0.071	0.000250	0.013	0.022	0.187
Precipitation (meters)	**0.274**	**10.80 inches**												
70-445	0.45	5.6	22.6	223.3	161.5	6.0	1.0	0.8	0.9	0.2	0.0	0.0	0.1	0.4
70-450	0.45	2.65	10.7	105.7	76.4	2.8	0.5	0.4	0.4	0.1	0.0	0.0	0.0	0.2
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	10.8	106.4	77.0	2.9	0.5	0.4	0.4	0.1	0.0	0.0	0.0	0.2
70-465	0.45	2.58	10.4	102.9	74.4	2.8	0.4	0.4	0.4	0.1	0.0	0.0	0.0	0.2
70-470	0.38	8.55	29.4	290.9	210.5	7.8	1.3	1.0	1.2	0.2	0.0	0.0	0.1	0.6
70-475	0.46	229.14	944.5	9,345.2	6,760.4	250.5	40.3	33.1	38.4	7.1	0.0	1.3	2.1	18.6
70-480	0.60	0.31	1.7	16.5	11.9	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-485	0.45	13.36	53.8	532.6	385.3	14.3	2.3	1.9	2.2	0.4	0.0	0.1	0.1	1.1
70-490	0.47	48.75	204.9	2,027.2	1,466.5	54.3	8.7	7.2	8.3	1.5	0.0	0.3	0.5	4.0
70-495	0.45	7.74	31.2	308.6	223.2	8.3	1.3	1.1	1.3	0.2	0.0	0.0	0.1	0.6
70-500	0.45	0.56	2.3	22.3	16.2	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
70-505	0.41	8.12	29.9	296.1	214.2	7.9	1.3	1.0	1.2	0.2	0.0	0.0	0.1	0.6
70-510	0.45	41.82	169.1	1,672.8	1,210.1	44.8	7.2	5.9	6.9	1.3	0.0	0.2	0.4	3.3
70-515	0.47	62.73	263.9	2,611.7	1,889.3	70.0	11.3	9.3	10.7	2.0	0.0	0.4	0.6	5.2
70-520	0.45	6.05	24.4	241.2	174.5	6.5	1.0	0.9	1.0	0.2	0.0	0.0	0.1	0.5
70-525	0.45	6.23	25.1	248.4	179.7	6.7	1.1	0.9	1.0	0.2	0.0	0.0	0.1	0.5
70-530	0.45	1.67	6.7	66.6	48.2	1.8	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.1
70-535	0.45	30.24	122.1	1,208.4	874.2	32.4	5.2	4.3	5.0	0.9	0.0	0.2	0.3	2.4
70-540	0.21	5.1	9.7	96.5	69.8	2.6	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.2
70-545	0.45	1.89	7.6	75.4	54.5	2.0	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.1
70-550	0.26	1.3	3.0	29.8	21.6	0.8	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
70-555	0.45	1.73	7.0	69.0	49.9	1.8	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.1
70-560	0.45	3.33	13.4	132.8	96.0	3.6	0.6	0.5	0.5	0.1	0.0	0.0	0.0	0.3
70-565	0.24	16.63	35.8	354.4	256.4	9.5	1.5	1.3	1.5	0.3	0.0	0.0	0.1	0.7
70-570	0.45	1.23	5.0	49.0	35.5	1.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
70-575	0.45	15.39	61.9	613.0	443.4	16.4	2.6	2.2	2.5	0.5	0.0	0.1	0.1	1.2
70-580	0.43	119.93	465.8	4,609.3	3,334.4	123.6	19.9	16.3	18.9	3.5	0.0	0.6	1.1	9.2
71-010	0.10	1.12	1.0	9.9	7.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-020	0.45	14.05	56.6	560.2	405.2	15.0	2.4	2.0	2.3	0.4	0.0	0.1	0.1	1.1
71-030	0.45	28.58	115.8	1,145.7	828.8	30.7	4.9	4.1	4.7	0.9	0.0	0.2	0.3	2.3
71-040	0.22	20.93	41.1	407.0	294.4	10.9	1.8	1.4	1.7	0.3	0.0	0.1	0.1	0.8
71-050	0.46	120.42	493.8	4,886.3	3,534.8	131.0	21.1	17.3	20.1	3.7	0.0	0.7	1.1	9.7
71-060	0.45	3.11	12.5	124.0	89.7	3.3	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.2
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	415.9	4,114.9	2,976.7	110.3	17.7	14.6	16.9	3.1	0.0	0.6	0.9	8.2
71-090	0.45	6.5	25.9	256.6	185.6	6.9	1.1	0.9	1.1	0.2	0.0	0.0	0.1	0.5
71-100	0.10	1.99	1.8	17.6	12.8	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
72-010	0.18	17.32	27.2	268.7	194.4	7.2	1.2	1.0	1.1	0.2	0.0	0.0	0.1	0.5
72-020	0.40	24.7	87.4	864.7	625.5	23.2	3.7	3.1	3.6	0.7	0.0	0.1	0.2	1.7
72-030	0.10	5.25	4.7	46.5	33.6	1.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
72-040	0.42	166.54	621.1	6,146.0	4,446.0	164.8	26.5	21.8	25.2	4.6	0.0	0.8	1.4	12.2
72-050	0.10	5.16	4.6	45.7	33.1	1.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
72-060	0.36	113.04	366.1	3,622.6	2,620.6	97.1	15.6	12.8	14.9	2.7	0.0	0.5	0.8	7.2
72-070	0.10	2.21	2.0	19.6	14.2	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
72-080	0.60	4.74	25.5	252.0	182.3	6.8	1.1	0.9	1.0	0.2	0.0	0.0	0.1	0.5
72-090	0.45	68.71	275.1	2,722.2	1,969.2	73.0	11.7	9.6	11.2	2.1	0.0	0.4	0.6	5.4
72-100	0.46	68.32	283.2	2,802.5	2,027.4	75.1	12.1	9.9	11.5	2.1	0.0	0.4	0.6	5.6
72-110	0.10	3.22	2.9	28.5	20.6	0.8	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
72-120	0.45	62.98	253.8	2,510.9	1,816.4	67.3	10.8	8.9	10.3	1.9	0.0	0.3	0.6	5.0
72-130	0.46	58.06	237.2	2,347.3	1,698.1	62.9	10.1	8.3	9.6	1.8	0.0	0.3	0.5	4.7
72-140	0.10	10.19	9.1	90.3	65.3	2.4	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.2
72-150	0.10	4.76	4.3	42.2	30.5	1.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
72-160	0.10	4.55	4.1	40.3	29.2	1.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
73-010	0.44	20.76	81.6	807.2	584.0	21.6	3.5	2.9	3.3	0.6	0.0	0.1	0.2	1.6
73-020	0.44	57.47	227.7	2,253.5	1,630.2	60.4	9.7	8.0	9.3	1.7	0.0	0.3	0.5	4.5
73-030	0.10	21.56	19.3	191.0	138.2	5.1	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
74-010	0.48	44.39	190.3	1,882.5	1,361.8	50.5	8.1	6.7	7.7	1.4	0.0	0.3	0.4	3.7
74-020	0.45	4.41	17.8	175.8	127.2	4.7	0.8	0.6	0.7	0.1	0.0	0.0	0.0	0.3
75-005	0.45	12.39	49.9	493.4	356.9	13.2	2.1	1.7	2.0	0.4	0.0	0.1	0.1	1.0
75-010	0.60	3.65	19.6	194.0	140.4	5.2	0.8	0.7	0.8	0.1	0.0	0.0	0.0	0.4
75-020	0.45	1.53	6.2	61.0	44.1	1.6	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
75-030	0.45	8.38	33.8	334.1	241.7	9.0	1.4	1.2	1.4	0.3	0.0	0.0	0.1	0.7
75-040	0.45	14.74	59.4	587.7	425.1	15.8	2.5	2.1	2.4	0.4	0.0	0.1	0.1	1.2
76-010	0.46	907.31	3,768.2	37,285.8	26,972.7	999.6	160.6	132.1	153.1	28.2	0.1	5.0	8.5	74.2
76-020	0.46	88.62	361.6	3,577.7	2,588.1	95.9	15.4	12.7	14.7	2.7	0.0	0.5	0.8	7.1
76-030	0.45	7.55	30.4	301.0	217.8	8.1	1.3	1.1	1.2	0.2	0.0	0.0	0.1	0.6
76-040	0.19	4.67	7.8	77.0	55.7	2.1	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.2
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	27.9	276.2	199.8	7.4	1.2	1.0	1.1	0.2	0.0	0.0	0.1	0.5
82-010	0.49	23.53	102.5	1,014.4	733.8	27.2	4.4	3.6	4.2	0.8	0.0	0.1	0.2	2.0
82-020	0.45	73.45	299.1	2,959.7	2,141.1	79.3	12.8	10.5	12.2	2.2	0.0	0.4	0.7	5.9
82-030	0.45	90.04	366.6	3,627.3	2,624.0	97.2	15.6	12.8	14.9	2.7	0.0	0.5	0.8	7.2
82-040	0.46	98.49	409.1	4,048.0	2,928.3	108.5	17.4	14.3	16.6	3.1	0.0	0.5	0.9	8.1
83-010	0.45	6.59	26.6	262.7	190.1	7.0	1.1	0.9	1.1	0.2	0.0	0.0	0.1	0.5
83-015	0.45	0.99	4.0	39.5	28.6	1.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
83-020	0.43	85.96	334.6	3,311.2	2,395.3	88.8	14.3	11.7	13.6	2.5	0.0	0.4	0.8	6.6
83-025	0.45	51.23	206.4	2,042.5	1,477.5	54.8	8.8	7.2	8.4	1.5	0.0	0.3	0.5	4.1
83-030	0.60	0.82	4.4	43.6	31.5	1.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.1
83-040	0.10	1.08	1.0	9.6	6.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-050	0.45	40.4	163.2	1,615.1	1,168.4	43.3	7.0	5.7	6.6	1.2	0.0	0.2	0.4	3.2
83-060	0.45	10.05	40.5	400.7	289.9	10.7	1.7	1.4	1.6	0.3	0.0	0.1	0.1	0.8
83-070	0.10	1.19	1.1	10.5	7.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-080	0.48	178.63	760.4	7,524.4	5,443.2	201.7	32.4	26.7	30.9	5.7	0.0	1.0	1.7	15.0
83-090	0.41	9.16	33.6	332.6	240.6	8.9	1.4	1.2	1.4	0.3	0.0	0.0	0.1	0.7
84-010	0.47	21.56	90.8	898.4	649.9	24.1	3.9	3.2	3.7	0.7	0.0	0.1	0.2	1.8

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL

2001 SUMMER POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (06/01/01 - 08/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Summer Median Event Mean Concentration			9.5	94	68	2.52	0.405	0.333	0.386	0.071	0.000250	0.013	0.022	0.187
Precipitation (meters)	0.274	10.80 inches												
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUMMER SEASONAL SUM (kg)			**120,948.68**	**1,196,755.37**	**865,737.92**	**32,083.23**	**5,156.23**	**4,239.57**	**4,914.34**	**903.93**	**3.18**	**160.42**	**273.73**	**2,380.78**

2001 FALL POLLUTANT LOADINGS BY OUTFALL

2001 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/01 - 12/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			22.6	32	94	1.59	0.097	0.031	0.563	0.074	0.000250	0.016	0.010	0.066
Precipitation (meters)	**0.211**	**8.29 inches**												
10-010	0.43	113.55	803.6	1,137.8	3,342.3	56.5	3.4	1.1	20.0	2.6	0.0	0.6	0.4	2.4
10-020	0.45	7.81	57.6	81.6	239.8	4.1	0.2	0.1	1.4	0.2	0.0	0.0	0.0	0.2
10-030	0.10	4.05	6.6	9.4	27.6	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
10-040	0.45	167.42	1,227.2	1,737.7	5,104.4	86.3	5.3	1.7	30.6	4.0	0.0	0.8	0.6	3.6
10-050	0.46	114.18	852.6	1,207.2	3,546.1	60.0	3.7	1.2	21.2	2.8	0.0	0.6	0.4	2.5
10-060	0.60	10.5	103.3	146.3	429.8	7.3	0.4	0.1	2.6	0.3	0.0	0.1	0.0	0.3
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	192.2	272.1	799.4	13.5	0.8	0.3	4.8	0.6	0.0	0.1	0.1	0.6
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	113.4	160.6	471.8	8.0	0.5	0.2	2.8	0.4	0.0	0.1	0.1	0.3
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	8,282.8	11,727.8	34,450.5	582.7	35.5	11.4	206.3	27.1	0.1	5.7	3.8	24.3
10-110	0.47	300.11	2,296.7	3,251.9	9,552.5	161.6	9.9	3.2	57.2	7.5	0.0	1.6	1.0	6.7
10-120A/B	0.44	372.78	2,661.5	3,768.5	11,070.1	187.2	11.4	3.7	66.3	8.7	0.0	1.8	1.2	7.8
10-130	0.45	336.46	2,492.0	3,528.5	10,364.8	175.3	10.7	3.4	62.1	8.2	0.0	1.7	1.1	7.3
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	2,082.7	2,949.0	8,662.6	146.5	8.9	2.9	51.9	6.8	0.0	1.4	0.9	6.1
10-150	0.47	157.15	1,208.7	1,711.4	5,027.2	85.0	5.2	1.7	30.1	4.0	0.0	0.8	0.6	3.5
10-160	0.00	17	0.7	1.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	1,452.9	2,057.2	6,043.0	102.2	6.2	2.0	36.2	4.8	0.0	1.0	0.7	4.3
10-180	0.45	284.26	2,076.4	2,940.1	8,636.5	146.1	8.9	2.8	51.7	6.8	0.0	1.4	0.9	6.1
10-190	0.59	14.58	141.5	200.4	588.6	10.0	0.6	0.2	3.5	0.5	0.0	0.1	0.1	0.4
10-200	0.40	42.44	276.4	391.4	1,149.6	19.4	1.2	0.4	6.9	0.9	0.0	0.2	0.1	0.8
10-210	0.49	98.32	792.8	1,122.6	3,297.5	55.8	3.4	1.1	19.7	2.6	0.0	0.5	0.4	2.3
10-220	0.56	18.83	172.7	244.5	718.2	12.1	0.7	0.2	4.3	0.6	0.0	0.1	0.1	0.5
10-230	0.47	235.02	1,822.3	2,580.3	7,579.6	128.2	7.8	2.5	45.4	6.0	0.0	1.3	0.8	5.3
10-240	0.51	103.83	874.9	1,238.8	3,639.1	61.6	3.8	1.2	21.8	2.9	0.0	0.6	0.4	2.6
10-250	0.49	242.96	1,948.3	2,758.6	8,103.3	137.1	8.4	2.7	48.5	6.4	0.0	1.3	0.9	5.7
10-260	0.56	23.77	217.2	307.6	903.5	15.3	0.9	0.3	5.4	0.7	0.0	0.1	0.1	0.6
10-270	0.47	72.45	563.1	797.4	2,342.3	39.6	2.4	0.8	14.0	1.8	0.0	0.4	0.3	1.7
10-280	0.44	55.08	401.0	567.8	1,667.8	28.2	1.7	0.6	10.0	1.3	0.0	0.3	0.2	1.2
10-290	0.10	6.83	11.2	15.9	46.6	0.8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
10-300	0.36	17.74	104.9	148.6	436.4	7.4	0.5	0.1	2.6	0.3	0.0	0.1	0.0	0.3
10-310	0.47	60.29	467.0	661.3	1,942.5	32.9	2.0	0.6	11.6	1.5	0.0	0.3	0.2	1.4
10-320	0.45	341.99	2,534.3	3,588.4	10,541.0	178.3	10.9	3.5	63.1	8.3	0.0	1.7	1.2	7.4
10-330	0.35	21.61	124.6	176.5	518.4	8.8	0.5	0.2	3.1	0.4	0.0	0.1	0.1	0.4
10-340	0.45	20.74	153.5	217.4	638.5	10.8	0.7	0.2	3.8	0.5	0.0	0.1	0.1	0.5
10-350	0.60	28.16	276.6	391.7	1,150.6	19.5	1.2	0.4	6.9	0.9	0.0	0.2	0.1	0.8
10-360	0.59	29.02	282.1	399.5	1,173.4	19.8	1.2	0.4	7.0	0.9	0.0	0.2	0.1	0.8
10-370	0.59	14.46	139.8	198.0	581.6	9.8	0.6	0.2	3.5	0.5	0.0	0.1	0.1	0.4
10-380	0.45	14.38	105.0	148.7	436.8	7.4	0.5	0.1	2.6	0.3	0.0	0.1	0.0	0.3
10-390	0.49	41.97	339.5	480.6	1,411.9	23.9	1.5	0.5	8.5	1.1	0.0	0.2	0.2	1.0
10-400A	0.10	1.07	1.8	2.5	7.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-400B	0.47	17.66	136.6	193.4	568.2	9.6	0.6	0.2	3.4	0.4	0.0	0.1	0.1	0.4
10-400C	0.57	50.25	466.4	660.3	1,939.7	32.8	2.0	0.6	11.6	1.5	0.0	0.3	0.2	1.4
10-410A	0.50	46.22	377.4	534.4	1,569.9	26.6	1.6	0.5	9.4	1.2	0.0	0.3	0.2	1.1
10-410B	0.32	21.29	110.5	156.5	459.6	7.8	0.5	0.2	2.8	0.4	0.0	0.1	0.1	0.3
10-410C	0.53	22.8	197.4	279.5	821.0	13.9	0.8	0.3	4.9	0.6	0.0	0.1	0.1	0.6
10-410D	0.60	27.34	269.2	381.2	1,119.6	18.9	1.2	0.4	6.7	0.9	0.0	0.2	0.1	0.8
10-410E	0.58	256.04	2,416.8	3,422.0	10,052.0	170.0	10.4	3.3	60.2	7.9	0.0	1.7	1.1	7.1
10-410F	0.59	37.92	365.9	518.1	1,521.8	25.7	1.6	0.5	9.1	1.2	0.0	0.3	0.2	1.1
10-420A	0.27	23.05	103.0	145.9	428.5	7.2	0.4	0.1	2.6	0.3	0.0	0.1	0.0	0.3
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	1,231.1	1,743.1	5,120.4	86.6	5.3	1.7	30.7	4.0	0.0	0.8	0.6	3.6
10-430A	0.00	8.14	0.3	0.5	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	479.6	679.1	1,994.9	33.7	2.1	0.7	11.9	1.6	0.0	0.3	0.2	1.4
10-430C	0.48	44.83	353.3	500.2	1,469.3	24.9	1.5	0.5	8.8	1.2	0.0	0.2	0.2	1.0
10-430D	0.49	85.79	691.8	979.6	2,877.4	48.7	3.0	0.9	17.2	2.3	0.0	0.5	0.3	2.0
10-430E	0.56	86.66	792.6	1,122.3	3,296.8	55.8	3.4	1.1	19.7	2.6	0.0	0.5	0.4	2.3
10-430F	0.10	377.97	620.0	877.9	2,578.7	43.6	2.7	0.9	15.4	2.0	0.0	0.4	0.3	1.8
10-430G	0.50	125.89	1,023.4	1,449.0	4,256.6	72.0	4.4	1.4	25.5	3.4	0.0	0.7	0.5	3.0
10-430H	0.49	33.18	267.4	378.7	1,112.4	18.8	1.1	0.4	6.7	0.9	0.0	0.2	0.1	0.8
10-430I	0.59	32.61	314.9	445.8	1,309.6	22.2	1.4	0.4	7.8	1.0	0.0	0.2	0.1	0.9
10-430J	0.43	532.36	3,789.5	5,365.6	15,761.5	266.6	16.3	5.2	94.4	12.4	0.0	2.6	1.7	11.1
10-430K	0.48	337.06	2,640.9	3,739.3	10,984.3	185.8	11.3	3.6	65.8	8.6	0.0	1.8	1.2	7.7
10-430L	0.45	84.4	624.0	883.6	2,595.6	43.9	2.7	0.9	15.5	2.0	0.0	0.4	0.3	1.8
10-430M	0.54	75.94	675.6	956.6	2,810.1	47.5	2.9	0.9	16.8	2.2	0.0	0.5	0.3	2.0
10-430N	0.44	26.43	192.5	272.5	800.5	13.5	0.8	0.3	4.8	0.6	0.0	0.1	0.1	0.6
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	13.2	18.7	54.8	0.9	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
10-430R	0.47	150.32	1,152.7	1,632.1	4,794.3	81.1	4.9	1.6	28.7	3.8	0.0	0.8	0.5	3.4
10-430S	0.10	5.15	8.4	12.0	35.1	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
10-430T	0.46	262.47	1,968.1	2,786.7	8,185.8	138.5	8.4	2.7	49.0	6.4	0.0	1.4	0.9	5.8
10-430U	0.47	431.37	3,324.7	4,707.5	13,828.2	233.9	14.3	4.6	82.8	10.9	0.0	2.3	1.5	9.8
10-430V	0.46	329.11	2,509.4	3,553.2	10,437.4	176.5	10.8	3.4	62.5	8.2	0.0	1.7	1.1	7.4
10-440A	0.46	23.18	174.2	246.6	724.5	12.3	0.7	0.2	4.3	0.6	0.0	0.1	0.1	0.5
10-440B	0.49	34.23	276.7	391.8	1,150.9	19.5	1.2	0.4	6.9	0.9	0.0	0.2	0.1	0.8
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	7,011.7	9,928.1	29,163.9	493.3	30.1	9.6	174.7	23.0	0.1	4.8	3.2	20.6
10-440F	0.46	538.85	4,067.9	5,759.8	16,919.5	286.2	17.5	5.6	101.3	13.3	0.0	2.8	1.9	11.9
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	28.9	40.9	120.2	2.0	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1

2001 FALL POLLUTANT LOADINGS BY OUTFALL

2001 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/01 - 12/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			22.6	32	94	1.59	0.097	0.031	0.563	0.074	0.000250	0.016	0.010	0.066
Precipitation (meters)	0.211	8.29 inches												
10-450C	0.59	55.64	542.0	767.4	2,254.3	38.1	2.3	0.7	13.5	1.8	0.0	0.4	0.2	1.6
10-450D	0.45	4.62	34.1	48.3	141.8	2.4	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
10-450E	0.44	3.2	23.2	32.8	96.5	1.6	0.1	0.0	0.6	0.1	0.0	0.0	0.0	0.1
10-450F	0.46	158.55	1,194.9	1,691.8	4,969.8	84.1	5.1	1.6	29.8	3.9	0.0	0.8	0.5	3.5
10-450G/H	0.48	75.02	591.3	837.2	2,459.3	41.6	2.5	0.8	14.7	1.9	0.0	0.4	0.3	1.7
10-450I	0.49	243.64	1,963.2	2,779.7	8,165.4	138.1	8.4	2.7	48.9	6.4	0.0	1.4	0.9	5.8
10-450J	0.49	17.16	136.7	193.5	568.4	9.6	0.6	0.2	3.4	0.4	0.0	0.1	0.1	0.4
10-450K	0.58	37.01	351.7	497.9	1,462.7	24.7	1.5	0.5	8.8	1.2	0.0	0.2	0.2	1.0
10-450L	0.51	213.41	1,768.0	2,503.4	7,353.8	124.4	7.6	2.4	44.0	5.8	0.0	1.2	0.8	5.2
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	61.8	87.5	257.0	4.3	0.3	0.1	1.5	0.2	0.0	0.0	0.0	0.2
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	1,874.6	2,654.3	7,796.9	131.9	8.0	2.6	46.7	6.1	0.0	1.3	0.9	5.5
10-460F	0.49	14.75	119.7	169.5	497.9	8.4	0.5	0.2	3.0	0.4	0.0	0.1	0.1	0.4
10-460G	0.51	79.66	667.5	945.1	2,776.2	47.0	2.9	0.9	16.6	2.2	0.0	0.5	0.3	2.0
10-460H	0.48	12.35	97.1	137.5	403.9	6.8	0.4	0.1	2.4	0.3	0.0	0.1	0.0	0.3
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	40.8	57.7	169.6	2.9	0.2	0.1	1.0	0.1	0.0	0.0	0.0	0.1
10-460K	0.36	5.48	32.3	45.8	134.5	2.3	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
10-460L	0.46	3.5	26.6	37.7	110.7	1.9	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
10-460M	0.48	9.55	75.0	106.2	311.8	5.3	0.3	0.1	1.9	0.2	0.0	0.1	0.0	0.2
10-460N	0.45	3.85	28.4	40.2	118.2	2.0	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
10-460O	0.45	4.15	30.9	43.7	128.5	2.2	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
10-460P	0.45	4.34	32.0	45.4	133.2	2.3	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
10-460Q	0.56	19.73	182.6	258.5	759.4	12.8	0.8	0.3	4.5	0.6	0.0	0.1	0.1	0.5
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	2,161.7	3,060.9	8,991.3	152.1	9.3	3.0	53.9	7.1	0.0	1.5	1.0	6.3
10-465	0.10	8.56	14.0	19.9	58.4	1.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
10-470	0.38	25.6	160.3	226.9	666.6	11.3	0.7	0.2	4.0	0.5	0.0	0.1	0.1	0.5
10-480	0.58	39.66	377.4	534.4	1,569.9	26.6	1.6	0.5	9.4	1.2	0.0	0.3	0.2	1.1
10-485	0.00	7.27	0.3	0.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	1,073.5	1,520.0	4,465.0	75.5	4.6	1.5	26.7	3.5	0.0	0.7	0.5	3.1
10-500A	0.26	26.21	112.8	159.8	469.3	7.9	0.5	0.2	2.8	0.4	0.0	0.1	0.1	0.3
10-500B	0.46	8.48	64.0	90.7	266.3	4.5	0.3	0.1	1.6	0.2	0.0	0.0	0.0	0.2
10-500C	0.44	111.36	795.3	1,126.0	3,307.7	55.9	3.4	1.1	19.8	2.6	0.0	0.5	0.4	2.3
10-500D	0.24	3.83	15.0	21.2	62.2	1.1	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0
10-500E	0.53	23.34	203.8	288.6	847.9	14.3	0.9	0.3	5.1	0.7	0.0	0.1	0.1	0.6
10-500F	0.49	12.04	97.5	138.1	405.6	6.9	0.4	0.1	2.4	0.3	0.0	0.1	0.0	0.3
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	12.9	18.2	53.6	0.9	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
10-510	0.51	62.36	520.3	736.7	2,164.1	36.6	2.2	0.7	13.0	1.7	0.0	0.4	0.2	1.5
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	858.8	1,216.1	3,572.2	60.4	3.7	1.2	21.4	2.8	0.0	0.6	0.4	2.5
10-540	0.12	53.9	104.7	148.3	435.5	7.4	0.4	0.1	2.6	0.3	0.0	0.1	0.0	0.3
10-550	0.46	25.83	194.9	275.9	810.5	13.7	0.8	0.3	4.9	0.6	0.0	0.1	0.1	0.6
10-560A/B	0.44	600.63	4,310.3	6,103.1	17,927.9	303.2	18.5	5.9	107.4	14.1	0.0	3.0	2.0	12.6
10-570A	0.54	14.64	130.6	184.9	543.1	9.2	0.6	0.2	3.3	0.4	0.0	0.1	0.1	0.4
10-570B	0.44	228.18	1,633.8	2,313.4	6,795.6	114.9	7.0	2.2	40.7	5.3	0.0	1.1	0.7	4.8
10-580	0.45	73.39	540.3	765.1	2,247.3	38.0	2.3	0.7	13.5	1.8	0.0	0.4	0.2	1.6
10-600	0.48	89.24	707.9	1,002.4	2,944.4	49.8	3.0	1.0	17.6	2.3	0.0	0.5	0.3	2.1
10-610	0.46	25.6	192.5	272.5	800.6	13.5	0.8	0.3	4.8	0.6	0.0	0.1	0.1	0.6
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	10.2	14.5	42.6	0.7	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
10-630B	0.45	4.68	34.5	48.9	143.7	2.4	0.1	0.0	0.9	0.1	0.0	0.0	0.0	0.1
10-630C	0.48	96.03	761.0	1,077.6	3,165.4	53.5	3.3	1.0	19.0	2.5	0.0	0.5	0.3	2.2
10-630D	0.45	6.37	47.0	66.6	195.6	3.3	0.2	0.1	1.2	0.2	0.0	0.0	0.0	0.1
10-630E	0.45	8.52	62.9	89.0	261.6	4.4	0.3	0.1	1.6	0.2	0.0	0.0	0.0	0.2
10-630F	0.54	17.56	155.6	220.3	647.2	10.9	0.7	0.2	3.9	0.5	0.0	0.1	0.1	0.5
10-630G	0.45	5.9	43.6	61.7	181.1	3.1	0.2	0.1	1.1	0.1	0.0	0.0	0.0	0.1
10-630H	0.30	25.63	127.3	180.3	529.6	9.0	0.5	0.2	3.2	0.4	0.0	0.1	0.1	0.4
10-630I	0.47	12.48	95.2	134.8	396.0	6.7	0.4	0.1	2.4	0.3	0.0	0.1	0.0	0.3
10-630J	0.55	14.69	133.4	188.9	554.9	9.4	0.6	0.2	3.3	0.4	0.0	0.1	0.1	0.4
10-630K	0.47	95.29	739.8	1,047.5	3,077.0	52.0	3.2	1.0	18.4	2.4	0.0	0.5	0.3	2.2
10-630L	0.52	100.42	858.2	1,215.2	3,569.5	60.4	3.7	1.2	21.4	2.8	0.0	0.6	0.4	2.5
10-630M	0.50	11.71	95.4	135.0	396.7	6.7	0.4	0.1	2.4	0.3	0.0	0.1	0.0	0.3
10-630N	0.45	8.45	62.4	88.3	259.4	4.4	0.3	0.1	1.6	0.2	0.0	0.0	0.0	0.2
10-630O	0.36	5.77	34.5	48.8	143.3	2.4	0.1	0.0	0.9	0.1	0.0	0.0	0.0	0.1
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	459.6	650.7	1,911.6	32.3	2.0	0.6	11.4	1.5	0.0	0.3	0.2	1.3
10-630S	0.22	37.02	132.0	186.9	549.0	9.3	0.6	0.2	3.3	0.4	0.0	0.1	0.1	0.4
10-630T	0.56	7.72	71.2	100.9	296.3	5.0	0.3	0.1	1.8	0.2	0.0	0.0	0.0	0.2
10-630U	0.52	115.42	990.4	1,402.3	4,119.2	69.7	4.3	1.4	24.7	3.2	0.0	0.7	0.5	2.9
10-630V	0.11	33.85	58.6	83.0	243.9	4.1	0.3	0.1	1.5	0.2	0.0	0.0	0.0	0.2
10-630W	0.47	23.68	184.0	260.5	765.3	12.9	0.8	0.3	4.6	0.6	0.0	0.1	0.1	0.5
10-630X	0.44	14.78	107.3	151.9	446.1	7.5	0.5	0.1	2.7	0.4	0.0	0.1	0.0	0.3
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	352.6	499.3	1,466.6	24.8	1.5	0.5	8.8	1.2	0.0	0.2	0.2	1.0
10-640	0.46	258.18	1,936.9	2,742.5	8,056.1	136.3	8.3	2.7	48.3	6.3	0.0	1.3	0.9	5.7
10-650	0.56	19.53	178.4	252.7	742.2	12.6	0.8	0.2	4.4	0.6	0.0	0.1	0.1	0.5
10-660	0.46	306.37	2,328.1	3,296.4	9,683.2	163.8	10.0	3.2	58.0	7.6	0.0	1.6	1.1	6.8
10-670	0.45	137.88	1,016.3	1,439.0	4,227.0	71.5	4.4	1.4	25.3	3.3	0.0	0.7	0.5	3.0
10-680	0.46	707.95	5,324.6	7,539.3	22,146.6	374.6	22.9	7.3	132.6	17.4	0.1	3.7	2.4	15.6
10-690	0.50	70.63	579.6	820.7	2,410.8	40.8	2.5	0.8	14.4	1.9	0.0	0.4	0.3	1.7
10-700	0.46	222.07	1,691.5	2,395.0	7,035.5	119.0	7.3	2.3	42.1	5.5	0.0	1.2	0.8	5.0
10-710	0.33	29.95	163.7	231.7	680.7	11.5	0.7	0.2	4.1	0.5	0.0	0.1	0.1	0.5

2001 FALL POLLUTANT LOADINGS BY OUTFALL

2001 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/01 - 12/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			22.6	32	94	1.59	0.097	0.031	0.563	0.074	0.000250	0.016	0.010	0.066
Precipitation (meters)	0.211	8.29 inches												
10-720A	0.44	15.77	114.7	162.4	477.1	8.1	0.5	0.2	2.9	0.4	0.0	0.1	0.1	0.3
10-720B	0.48	422.18	3,336.4	4,724.1	13,877.1	234.7	14.3	4.6	83.1	10.9	0.0	2.3	1.5	9.8
10-720C	0.43	26.35	185.6	262.8	772.0	13.1	0.8	0.3	4.6	0.6	0.0	0.1	0.1	0.5
10-720D	0.46	22.95	171.4	242.7	712.9	12.1	0.7	0.2	4.3	0.6	0.0	0.1	0.1	0.5
10-720E	0.46	18.39	137.5	194.7	571.8	9.7	0.6	0.2	3.4	0.5	0.0	0.1	0.1	0.4
10-720F	0.48	317.75	2,500.8	3,541.0	10,401.8	175.9	10.7	3.4	62.3	8.2	0.0	1.7	1.1	7.3
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	33.6	47.6	139.7	2.4	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
10-720I	0.45	87.27	638.4	903.9	2,655.3	44.9	2.7	0.9	15.9	2.1	0.0	0.4	0.3	1.9
10-720J	0.36	3.71	21.7	30.8	90.4	1.5	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.1
10-720K	0.55	32.76	295.1	417.8	1,227.3	20.8	1.3	0.4	7.4	1.0	0.0	0.2	0.1	0.9
10-720L	0.45	4.57	33.7	47.8	140.3	2.4	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
20-010	0.42	93.99	647.2	916.4	2,692.0	45.5	2.8	0.9	16.1	2.1	0.0	0.4	0.3	1.9
20-020	0.44	15.09	108.6	153.7	451.6	7.6	0.5	0.1	2.7	0.4	0.0	0.1	0.0	0.3
20-030	0.45	7.95	58.7	83.1	244.1	4.1	0.3	0.1	1.5	0.2	0.0	0.0	0.0	0.2
20-040	0.37	6.79	41.5	58.8	172.7	2.9	0.2	0.1	1.0	0.1	0.0	0.0	0.0	0.1
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	43.6	61.8	181.4	3.1	0.2	0.1	1.1	0.1	0.0	0.0	0.0	0.1
20-070	0.44	39.07	284.2	402.3	1,181.9	20.0	1.2	0.4	7.1	0.9	0.0	0.2	0.1	0.8
20-080	0.45	33.72	250.8	355.1	1,043.1	17.6	1.1	0.3	6.2	0.8	0.0	0.2	0.1	0.7
20-090	0.55	9.95	90.2	127.7	375.2	6.3	0.4	0.1	2.2	0.3	0.0	0.1	0.0	0.3
20-100	0.10	0.99	1.6	2.3	6.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-110	0.24	216.04	850.2	1,203.9	3,536.3	59.8	3.6	1.2	21.2	2.8	0.0	0.6	0.4	2.5
20-120	0.47	10.22	78.4	111.0	325.9	5.5	0.3	0.1	2.0	0.3	0.0	0.1	0.0	0.2
20-130	0.45	16.12	119.0	168.5	494.9	8.4	0.5	0.2	3.0	0.4	0.0	0.1	0.1	0.3
20-140	0.44	2.97	21.5	30.4	89.4	1.5	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.1
20-150	0.45	14.48	106.9	151.3	444.6	7.5	0.5	0.1	2.7	0.3	0.0	0.1	0.0	0.3
20-160	0.54	3.21	28.4	40.3	118.3	2.0	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
20-170	0.37	4.94	30.2	42.7	125.6	2.1	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
20-180	0.51	5.3	44.0	62.3	183.0	3.1	0.2	0.1	1.1	0.1	0.0	0.0	0.0	0.1
20-190	0.45	1.35	10.0	14.1	41.4	0.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
20-200	0.45	13.84	102.2	144.7	424.9	7.2	0.4	0.1	2.5	0.3	0.0	0.1	0.0	0.3
20-210A	0.44	92.9	669.4	947.8	2,784.2	47.1	2.9	0.9	16.7	2.2	0.0	0.5	0.3	2.0
20-210B	0.50	620.78	5,137.8	7,274.8	21,369.8	361.5	22.1	7.0	128.0	16.8	0.1	3.5	2.3	15.1
20-220	0.46	26.38	199.5	282.5	829.8	14.0	0.9	0.3	5.0	0.7	0.0	0.1	0.1	0.6
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	237.6	336.4	988.1	16.7	1.0	0.3	5.9	0.8	0.0	0.2	0.1	0.7
20-250	0.57	6.28	58.9	83.4	245.0	4.1	0.3	0.1	1.5	0.2	0.0	0.0	0.0	0.2
20-260	0.60	3.5	34.4	48.8	143.3	2.4	0.1	0.0	0.9	0.1	0.0	0.0	0.0	0.1
20-270	0.48	42.81	334.8	474.0	1,392.4	23.6	1.4	0.5	8.3	1.1	0.0	0.2	0.2	1.0
20-280	0.54	8.98	79.2	112.1	329.3	5.6	0.3	0.1	2.0	0.3	0.0	0.1	0.0	0.2
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	363.9	515.2	1,513.5	25.6	1.6	0.5	9.1	1.2	0.0	0.3	0.2	1.1
40-010	0.45	719.17	5,286.3	7,485.1	21,987.3	371.9	22.7	7.3	131.7	17.3	0.1	3.6	2.4	15.5
40-020	0.45	15.36	113.4	160.5	471.6	8.0	0.5	0.2	2.8	0.4	0.0	0.1	0.1	0.3
40-030	0.42	51.02	349.6	495.0	1,454.1	24.6	1.5	0.5	8.7	1.1	0.0	0.2	0.2	1.0
40-040	0.43	65.39	465.7	659.4	1,937.1	32.8	2.0	0.6	11.6	1.5	0.0	0.3	0.2	1.4
40-050	0.45	10.28	75.9	107.4	315.6	5.3	0.3	0.1	1.9	0.2	0.0	0.1	0.0	0.2
40-060	0.45	3.2	23.6	33.4	98.2	1.7	0.1	0.0	0.6	0.1	0.0	0.0	0.0	0.1
40-070	0.38	7.98	49.5	70.1	206.0	3.5	0.2	0.1	1.2	0.2	0.0	0.0	0.0	0.1
40-080	0.41	60.51	405.4	574.0	1,686.0	28.5	1.7	0.6	10.1	1.3	0.0	0.3	0.2	1.2
40-090	0.46	20.65	157.5	223.0	654.9	11.1	0.7	0.2	3.9	0.5	0.0	0.1	0.1	0.5
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-110	0.44	2.61	19.0	26.9	79.0	1.3	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.1
40-120	0.44	65.87	473.6	670.5	1,969.6	33.3	2.0	0.6	11.8	1.6	0.0	0.3	0.2	1.4
40-130	0.45	35.01	259.5	367.4	1,079.3	18.3	1.1	0.4	6.5	0.8	0.0	0.2	0.1	0.8
40-140	0.35	125.46	715.6	1,013.3	2,976.5	50.3	3.1	1.0	17.8	2.3	0.0	0.5	0.3	2.1
40-150	0.47	24.31	188.9	267.5	785.7	13.3	0.8	0.3	4.7	0.6	0.0	0.1	0.1	0.6
40-160	0.49	30.99	251.3	355.8	1,045.2	17.7	1.1	0.3	6.3	0.8	0.0	0.2	0.1	0.7
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	148.4	210.1	617.1	10.4	0.6	0.2	3.7	0.5	0.0	0.1	0.1	0.4
40-190	0.53	65.53	568.4	804.8	2,364.1	40.0	2.4	0.8	14.2	1.9	0.0	0.4	0.3	1.7
40-200	0.46	24.75	187.7	265.8	780.7	13.2	0.8	0.3	4.7	0.6	0.0	0.1	0.1	0.6
40-210	0.54	17.26	154.3	218.4	641.6	10.9	0.7	0.2	3.8	0.5	0.0	0.1	0.1	0.5
40-220	0.47	100.58	771.3	1,092.1	3,208.0	54.3	3.3	1.1	19.2	2.5	0.0	0.5	0.4	2.3
40-230	0.44	13.78	100.5	142.4	418.2	7.1	0.4	0.1	2.5	0.3	0.0	0.1	0.0	0.3
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	11.3	16.0	47.1	0.8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
40-260	0.45	3.49	25.8	36.5	107.1	1.8	0.1	0.0	0.6	0.1	0.0	0.0	0.0	0.1
40-270	0.45	9.59	70.8	100.2	294.4	5.0	0.3	0.1	1.8	0.2	0.0	0.0	0.0	0.2
40-280	0.53	12.76	110.1	155.9	457.8	7.7	0.5	0.2	2.7	0.4	0.0	0.1	0.1	0.3
40-290	0.51	13.73	115.3	163.3	479.6	8.1	0.5	0.2	2.9	0.4	0.0	0.1	0.1	0.3
40-300	0.52	10.38	88.7	125.6	369.0	6.2	0.4	0.1	2.2	0.3	0.0	0.1	0.0	0.3
40-310	0.45	97.86	726.6	1,028.8	3,022.1	51.1	3.1	1.0	18.1	2.4	0.0	0.5	0.3	2.1
40-320	0.60	9.43	92.8	131.4	386.0	6.5	0.4	0.1	2.3	0.3	0.0	0.1	0.0	0.3
40-330	0.59	15.34	149.1	211.2	620.3	10.5	0.6	0.2	3.7	0.5	0.0	0.1	0.1	0.4
40-340	0.53	35.27	308.3	436.6	1,282.4	21.7	1.3	0.4	7.7	1.0	0.0	0.2	0.1	0.9
40-350	0.60	8.99	88.5	125.3	368.0	6.2	0.4	0.1	2.2	0.3	0.0	0.1	0.0	0.3
40-360	0.60	8.09	79.6	112.7	331.2	5.6	0.3	0.1	2.0	0.3	0.0	0.1	0.0	0.2
40-370	0.58	12.41	117.8	166.7	489.8	8.3	0.5	0.2	2.9	0.4	0.0	0.1	0.1	0.3
40-380	0.39	24.92	160.8	227.7	668.9	11.3	0.7	0.2	4.0	0.5	0.0	0.1	0.1	0.5
40-390	0.58	5.72	54.4	77.0	226.3	3.8	0.2	0.1	1.4	0.2	0.0	0.0	0.0	0.2
40-400	0.10	1.07	1.8	2.5	7.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-010	0.38	94.73	586.5	830.5	2,439.5	41.3	2.5	0.8	14.6	1.9	0.0	0.4	0.3	1.7
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	497.9	705.0	2,071.0	35.0	2.1	0.7	12.4	1.6	0.0	0.3	0.2	1.5

2001 FALL POLLUTANT LOADINGS BY OUTFALL

2001 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/01 - 12/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			22.6	32	94	1.59	0.097	0.031	0.563	0.074	0.000250	0.016	0.010	0.066
Precipitation (meters)	0.211	8.29 inches												
41-040	0.57	35.59	334.5	473.6	1,391.3	23.5	1.4	0.5	8.3	1.1	0.0	0.2	0.2	1.0
41-050	0.60	10.48	103.1	146.0	429.0	7.3	0.4	0.1	2.6	0.3	0.0	0.1	0.0	0.3
41-060	0.60	2.95	29.0	41.1	120.8	2.0	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
51-010	0.45	29.63	219.4	310.6	912.4	15.4	0.9	0.3	5.5	0.7	0.0	0.2	0.1	0.6
51-020	0.45	4.55	33.6	47.6	139.7	2.4	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
52-010	0.28	45.29	205.3	290.7	853.9	14.4	0.9	0.3	5.1	0.7	0.0	0.1	0.1	0.6
52-020	0.45	6.09	45.0	63.7	187.0	3.2	0.2	0.1	1.1	0.1	0.0	0.0	0.0	0.1
52-030	0.45	7.18	53.0	75.0	220.4	3.7	0.2	0.1	1.3	0.2	0.0	0.0	0.0	0.2
52-040	0.41	4.54	30.8	43.6	128.0	2.2	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
52-050	0.44	15.3	109.2	154.6	454.1	7.7	0.5	0.1	2.7	0.4	0.0	0.1	0.0	0.3
52-060	0.10	3.22	5.3	7.5	22.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
52-070	0.42	86.94	603.5	854.5	2,510.1	42.5	2.6	0.8	15.0	2.0	0.0	0.4	0.3	1.8
52-080	0.24	8.08	32.1	45.4	133.4	2.3	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
52-090	0.45	4.89	36.1	51.1	150.1	2.5	0.2	0.0	0.9	0.1	0.0	0.0	0.0	0.1
52-100A/B	0.27	11.89	52.0	73.6	216.3	3.7	0.2	0.1	1.3	0.2	0.0	0.0	0.0	0.2
52-110	0.45	8.84	64.7	91.7	269.2	4.6	0.3	0.1	1.6	0.2	0.0	0.0	0.0	0.2
52-120	0.45	14.74	108.8	154.1	452.5	7.7	0.5	0.1	2.7	0.4	0.0	0.1	0.0	0.3
52-130	0.31	7.18	37.1	52.5	154.2	2.6	0.2	0.1	0.9	0.1	0.0	0.0	0.0	0.1
53-010	0.45	7.03	51.9	73.5	215.8	3.7	0.2	0.1	1.3	0.2	0.0	0.0	0.0	0.2
53-020	0.28	12.38	56.1	79.5	233.4	3.9	0.2	0.1	1.4	0.2	0.0	0.0	0.0	0.2
53-030	0.44	11.37	81.5	115.4	338.9	5.7	0.3	0.1	2.0	0.3	0.0	0.1	0.0	0.2
53-040	0.45	2.78	20.5	29.1	85.4	1.4	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.1
53-050	0.45	13.66	100.8	142.8	419.4	7.1	0.4	0.1	2.5	0.3	0.0	0.1	0.0	0.3
53-060	0.45	20.37	150.4	212.9	625.4	10.6	0.6	0.2	3.7	0.5	0.0	0.1	0.1	0.4
53-070	0.45	4.89	36.1	51.1	150.1	2.5	0.2	0.0	0.9	0.1	0.0	0.0	0.0	0.1
53-080	0.39	5.81	37.6	53.2	156.3	2.6	0.2	0.1	0.9	0.1	0.0	0.0	0.0	0.1
53-090	0.46	59.59	448.8	635.5	1,866.8	31.6	1.9	0.6	11.2	1.5	0.0	0.3	0.2	1.3
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	29.0	41.0	120.5	2.0	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
53-120A/B	0.46	129.79	970.0	1,373.5	4,034.5	68.2	4.2	1.3	24.2	3.2	0.0	0.7	0.4	2.8
53-130	0.45	5.02	37.1	52.5	154.1	2.6	0.2	0.1	0.9	0.1	0.0	0.0	0.0	0.1
53-140	0.45	6.36	46.9	66.5	195.3	3.3	0.2	0.1	1.2	0.2	0.0	0.0	0.0	0.1
53-150	0.48	90.4	717.4	1,015.8	2,984.0	50.5	3.1	1.0	17.9	2.3	0.0	0.5	0.3	2.1
53-160	0.47	252.19	1,955.7	2,769.2	8,134.5	137.6	8.4	2.7	48.7	6.4	0.0	1.3	0.9	5.7
53-170	0.36	6.39	37.8	53.6	157.3	2.7	0.2	0.1	0.9	0.1	0.0	0.0	0.0	0.1
53-180	0.10	8.09	13.3	18.8	55.2	0.9	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
53-190	0.30	11.41	56.2	79.6	233.9	4.0	0.2	0.1	1.4	0.2	0.0	0.0	0.0	0.2
54-010A/B	0.44	84.93	606.1	858.2	2,521.1	42.6	2.6	0.8	15.1	2.0	0.0	0.4	0.3	1.8
54-040A/B	0.49	255.14	2,071.4	2,933.0	8,615.5	145.7	8.9	2.8	51.6	6.8	0.0	1.4	0.9	6.1
54-050	0.17	9.27	26.4	37.4	110.0	1.9	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
54-060	0.44	32.13	231.5	327.8	962.9	16.3	1.0	0.3	5.8	0.8	0.0	0.2	0.1	0.7
54-070	0.36	60.8	357.6	506.4	1,487.4	25.2	1.5	0.5	8.9	1.2	0.0	0.2	0.2	1.0
54-080A/B/C	0.46	414.26	3,106.0	4,397.9	12,918.9	218.5	13.3	4.3	77.4	10.2	0.0	2.1	1.4	9.1
54-090	0.10	3.55	5.8	8.2	24.2	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
54-100A/B	0.60	114.24	1,116.3	1,580.6	4,643.0	78.5	4.8	1.5	27.8	3.7	0.0	0.8	0.5	3.3
54-110	0.45	24.55	181.2	256.6	753.7	12.7	0.8	0.2	4.5	0.6	0.0	0.1	0.1	0.5
54-120	0.46	62.08	465.3	658.9	1,935.4	32.7	2.0	0.6	11.6	1.5	0.0	0.3	0.2	1.4
54-130	0.10	1.07	1.8	2.5	7.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54-140A/B	0.41	113.01	756.2	1,070.7	3,145.3	53.2	3.2	1.0	18.8	2.5	0.0	0.5	0.3	2.2
54-150	0.45	55.34	404.3	572.4	1,681.4	28.4	1.7	0.6	10.1	1.3	0.0	0.3	0.2	1.2
54-160	0.60	2.62	25.8	36.5	107.3	1.8	0.1	0.0	0.6	0.1	0.0	0.0	0.0	0.1
54-170	0.59	8.08	78.8	111.6	327.8	5.5	0.3	0.1	2.0	0.3	0.0	0.1	0.0	0.2
54-180	0.60	2.82	27.8	39.3	115.4	2.0	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
54-190	0.10	2.2	3.6	5.1	15.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
54-200	0.10	2.13	3.5	4.9	14.5	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
54-210	0.10	1.14	1.9	2.6	7.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55-010	0.60	14.98	147.4	208.8	613.2	10.4	0.6	0.2	3.7	0.5	0.0	0.1	0.1	0.4
55-020	0.60	189.58	1,853.7	2,624.7	7,710.2	130.4	8.0	2.5	46.2	6.1	0.0	1.3	0.8	5.4
56-010	0.60	67.62	665.5	942.3	2,768.1	46.8	2.9	0.9	16.6	2.2	0.0	0.5	0.3	2.0
57-010	0.53	26.1	228.4	323.4	949.9	16.1	1.0	0.3	5.7	0.7	0.0	0.2	0.1	0.7
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	134.5	190.4	559.4	9.5	0.6	0.2	3.4	0.4	0.0	0.1	0.1	0.4
57-040	0.35	39.88	228.3	323.2	949.5	16.1	1.0	0.3	5.7	0.7	0.0	0.2	0.1	0.7
57-050	0.45	7.9	58.3	82.6	242.5	4.1	0.3	0.1	1.5	0.2	0.0	0.0	0.0	0.2
57-060	0.46	26.11	198.1	280.4	823.8	13.9	0.9	0.3	4.9	0.6	0.0	0.1	0.1	0.6
57-070	0.45	81.33	601.8	852.1	2,502.9	42.3	2.6	0.8	15.0	2.0	0.0	0.4	0.3	1.8
57-080	0.42	5.54	38.4	54.4	159.8	2.7	0.2	0.1	1.0	0.1	0.0	0.0	0.0	0.1
57-090	0.47	77.77	598.7	847.7	2,490.1	42.1	2.6	0.8	14.9	2.0	0.0	0.4	0.3	1.8
57-100A/B	0.47	313.43	2,428.8	3,439.0	10,102.1	170.9	10.4	3.3	60.5	8.0	0.0	1.7	1.1	7.1
57-110	0.54	21.6	191.6	271.3	797.0	13.5	0.8	0.3	4.8	0.6	0.0	0.1	0.1	0.6
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	1.9	2.7	7.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-140	0.10	1.55	2.5	3.6	10.6	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
57-150	0.43	35.68	252.6	357.7	1,050.7	17.8	1.1	0.3	6.3	0.8	0.0	0.2	0.1	0.7
57-160	0.10	1.89	3.1	4.4	12.9	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
61-010	0.55	2.86	25.9	36.6	107.7	1.8	0.1	0.0	0.6	0.1	0.0	0.0	0.0	0.1
62-010	0.45	27.84	206.5	292.3	858.7	14.5	0.9	0.3	5.1	0.7	0.0	0.1	0.1	0.6
63-010	0.45	388.79	2,883.4	4,082.7	11,993.1	202.9	12.4	4.0	71.8	9.4	0.0	2.0	1.3	8.5
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	183.8	260.2	764.4	12.9	0.8	0.3	4.6	0.6	0.0	0.1	0.1	0.5
64-110	0.45	6.01	44.4	62.8	184.5	3.1	0.2	0.1	1.1	0.1	0.0	0.0	0.0	0.1
64-120	0.45	16.04	118.4	167.6	492.5	8.3	0.5	0.2	2.9	0.4	0.0	0.1	0.1	0.3
64-130	0.45	2.44	18.0	25.5	74.9	1.3	0.1	0.0	0.4	0.1	0.0	0.0	0.0	0.1
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	333.8	472.7	1,388.5	23.5	1.4	0.5	8.3	1.1	0.0	0.2	0.2	1.0
70-010	0.46	6.23	46.9	66.4	194.9	3.3	0.2	0.1	1.2	0.2	0.0	0.0	0.0	0.1

2001 FALL POLLUTANT LOADINGS BY OUTFALL

2001 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/01 - 12/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			22.6	32	94	1.59	0.097	0.031	0.563	0.074	0.000250	0.016	0.010	0.066
Precipitation (meters)	**0.211**	**8.29 inches**												
70-015	0.45	11.69	86.3	122.2	358.9	6.1	0.4	0.1	2.1	0.3	0.0	0.1	0.0	0.3
70-020	0.45	37.55	277.2	392.5	1,152.9	19.5	1.2	0.4	6.9	0.9	0.0	0.2	0.1	0.8
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	99.4	140.8	413.5	7.0	0.4	0.1	2.5	0.3	0.0	0.1	0.0	0.3
70-035	0.45	4.53	33.4	47.3	139.1	2.4	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
70-040	0.45	2.42	17.9	25.3	74.3	1.3	0.1	0.0	0.4	0.1	0.0	0.0	0.0	0.1
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	128.5	182.0	534.5	9.0	0.6	0.2	3.2	0.4	0.0	0.1	0.1	0.4
70-055	0.46	333.43	2,538.4	3,594.2	10,558.0	178.6	10.9	3.5	63.2	8.3	0.0	1.8	1.2	7.4
70-060	0.45	3.53	26.1	36.9	108.4	1.8	0.1	0.0	0.6	0.1	0.0	0.0	0.0	0.1
70-065	0.45	1.89	14.0	19.8	58.0	1.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
70-070	0.45	5.8	42.8	60.6	178.1	3.0	0.2	0.1	1.1	0.1	0.0	0.0	0.0	0.1
70-075	0.43	5	35.4	50.1	147.2	2.5	0.2	0.0	0.9	0.1	0.0	0.0	0.0	0.1
70-080	0.46	11.96	90.6	128.3	377.0	6.4	0.4	0.1	2.3	0.3	0.0	0.1	0.0	0.3
70-085	0.45	229.48	1,683.5	2,383.7	7,002.2	118.4	7.2	2.3	41.9	5.5	0.0	1.2	0.8	4.9
70-090	0.45	18.57	137.1	194.1	570.1	9.6	0.6	0.2	3.4	0.4	0.0	0.1	0.1	0.4
70-095	0.45	9.99	73.7	104.4	306.7	5.2	0.3	0.1	1.8	0.2	0.0	0.1	0.0	0.2
70-100	0.45	9.64	71.2	100.8	296.0	5.0	0.3	0.1	1.8	0.2	0.0	0.0	0.0	0.2
70-105	0.45	1.63	12.0	17.0	50.0	0.8	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
70-110	0.45	18.13	133.8	189.5	556.6	9.4	0.6	0.2	3.3	0.4	0.0	0.1	0.1	0.4
70-115	0.45	3.71	27.4	38.8	113.9	1.9	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
70-120	0.45	4.22	31.1	44.1	129.6	2.2	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	277.7	393.2	1,155.0	19.5	1.2	0.4	6.9	0.9	0.0	0.2	0.1	0.8
70-135	0.45	7.46	55.1	78.0	229.0	3.9	0.2	0.1	1.4	0.2	0.0	0.0	0.0	0.2
70-140	0.60	0.78	7.7	10.9	31.9	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
70-145	0.60	9.19	90.4	128.1	376.2	6.4	0.4	0.1	2.3	0.3	0.0	0.1	0.0	0.3
70-150	0.45	4.51	33.3	47.1	138.5	2.3	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
70-155	0.45	2.05	15.1	21.4	62.9	1.1	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0
70-160	0.45	2.95	21.8	30.8	90.6	1.5	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.1
70-165	0.45	27.77	205.0	290.2	852.6	14.4	0.9	0.3	5.1	0.7	0.0	0.1	0.1	0.6
70-170	0.45	23.74	175.2	248.1	728.9	12.3	0.8	0.2	4.4	0.6	0.0	0.1	0.1	0.5
70-175	0.46	30.89	231.7	328.0	963.6	16.3	1.0	0.3	5.8	0.8	0.0	0.2	0.1	0.7
70-180	0.45	1.14	8.4	11.9	35.0	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
70-185	0.45	1.53	11.3	16.0	47.0	0.8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
70-190	0.17	15.04	42.5	60.1	176.6	3.0	0.2	0.1	1.1	0.1	0.0	0.0	0.0	0.1
70-195	0.45	46.02	341.6	483.6	1,420.6	24.0	1.5	0.5	8.5	1.1	0.0	0.2	0.2	1.0
70-200	0.45	31.52	232.7	329.4	967.7	16.4	1.0	0.3	5.8	0.8	0.0	0.2	0.1	0.7
70-205	0.45	1.39	10.3	14.5	42.7	0.7	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
70-210	0.45	3.58	26.4	37.4	109.9	1.9	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
70-215	0.45	5.93	43.8	62.0	182.1	3.1	0.2	0.1	1.1	0.1	0.0	0.0	0.0	0.1
70-220	0.45	4.54	33.5	47.5	139.4	2.4	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
70-225	0.45	4.99	36.8	52.2	153.2	2.6	0.2	0.1	0.9	0.1	0.0	0.0	0.0	0.1
70-230	0.45	4.72	34.8	49.3	144.9	2.5	0.1	0.0	0.9	0.1	0.0	0.0	0.0	0.1
70-235	0.45	5.04	37.2	52.7	154.7	2.6	0.2	0.1	0.9	0.1	0.0	0.0	0.0	0.1
70-240	0.45	4.52	33.4	47.2	138.8	2.3	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
70-245	0.44	9.98	71.9	101.8	298.9	5.1	0.3	0.1	1.8	0.2	0.0	0.0	0.0	0.2
70-250	0.48	41.27	326.5	462.4	1,358.2	23.0	1.4	0.4	8.1	1.1	0.0	0.2	0.1	1.0
70-255	0.45	45.37	335.0	474.3	1,393.4	23.6	1.4	0.5	8.3	1.1	0.0	0.2	0.2	1.0
70-260	0.46	24.9	187.0	264.7	777.6	13.2	0.8	0.3	4.7	0.6	0.0	0.1	0.1	0.5
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	34.4	48.7	143.1	2.4	0.1	0.0	0.9	0.1	0.0	0.0	0.0	0.1
70-275	0.45	4.28	31.6	44.7	131.4	2.2	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
70-280	0.45	9.39	69.4	98.3	288.8	4.9	0.3	0.1	1.7	0.2	0.0	0.0	0.0	0.2
70-285	0.45	19.03	140.3	198.7	583.6	9.9	0.6	0.2	3.5	0.5	0.0	0.1	0.1	0.4
70-290	0.45	2.37	17.3	24.6	72.1	1.2	0.1	0.0	0.4	0.1	0.0	0.0	0.0	0.1
70-295	0.45	7.18	53.0	75.0	220.4	3.7	0.2	0.1	1.3	0.2	0.0	0.0	0.0	0.2
70-300	0.10	0.4	0.7	0.9	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	92.8	131.3	385.8	6.5	0.4	0.1	2.3	0.3	0.0	0.1	0.0	0.3
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	28.5	40.3	118.5	2.0	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
70-320	0.44	2.32	16.7	23.7	69.5	1.2	0.1	0.0	0.4	0.1	0.0	0.0	0.0	0.0
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	2,158.9	3,056.9	8,979.6	151.9	9.3	3.0	53.8	7.1	0.0	1.5	1.0	6.3
70-335	0.45	1.99	14.7	20.8	61.1	1.0	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0
70-340	0.39	22.25	143.6	203.3	597.2	10.1	0.6	0.2	3.6	0.5	0.0	0.1	0.1	0.4
70-345	0.45	3.81	28.1	39.8	117.0	2.0	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
70-350	0.49	314.4	2,548.3	3,608.2	10,599.0	179.3	10.9	3.5	63.5	8.3	0.0	1.8	1.2	7.5
70-355	0.45	1.29	9.5	13.5	39.6	0.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
70-360	0.45	131.96	983.8	1,393.0	4,092.0	69.2	4.2	1.3	24.5	3.2	0.0	0.7	0.4	2.9
70-365	0.45	6.7	49.5	70.0	205.7	3.5	0.2	0.1	1.2	0.2	0.0	0.0	0.0	0.1
70-370	0.44	3.75	27.2	38.6	113.3	1.9	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
70-375	0.47	7.1	55.0	77.9	228.9	3.9	0.2	0.1	1.4	0.2	0.0	0.0	0.0	0.2
70-380	0.45	14.4	106.3	150.5	442.1	7.5	0.5	0.1	2.6	0.3	0.0	0.1	0.0	0.3
70-385	0.45	14.97	110.5	156.5	459.6	7.8	0.5	0.2	2.8	0.4	0.0	0.1	0.1	0.3
70-390	0.46	58.11	441.6	625.2	1,836.6	31.1	1.9	0.6	11.0	1.4	0.0	0.3	0.2	1.3
70-395	0.43	57.19	402.9	570.5	1,675.9	28.3	1.7	0.6	10.0	1.3	0.0	0.3	0.2	1.2
70-400	0.44	9.67	69.6	98.6	289.5	4.9	0.3	0.1	1.7	0.2	0.0	0.0	0.0	0.2
70-405	0.25	7.16	29.4	41.6	122.2	2.1	0.1	0.0	0.7	0.1	0.0	0.0	0.0	0.1
70-410	0.43	5.8	40.8	57.8	169.7	2.9	0.2	0.1	1.0	0.1	0.0	0.0	0.0	0.1
70-415	0.45	120.75	899.2	1,273.1	3,739.9	63.3	3.9	1.2	22.4	2.9	0.0	0.6	0.4	2.6
70-420	0.45	16.99	125.4	177.6	521.6	8.8	0.5	0.2	3.1	0.4	0.0	0.1	0.1	0.4
70-425	0.51	20.63	172.9	244.8	719.2	12.2	0.7	0.2	4.3	0.6	0.0	0.1	0.1	0.5
70-430	0.10	6.19	10.2	14.4	42.2	0.7	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
70-435	0.10	9.16	15.0	21.3	62.5	1.1	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0
70-440	0.50	34.48	280.9	397.8	1,168.5	19.8	1.2	0.4	7.0	0.9	0.0	0.2	0.1	0.8

2001 FALL POLLUTANT LOADINGS BY OUTFALL

2001 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/01 - 12/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			22.6	32	94	1.59	0.097	0.031	0.563	0.074	0.000250	0.016	0.010	0.066
Precipitation (meters)	**0.211**	**8.29 inches**												
70-445	0.45	5.6	41.3	58.5	171.9	2.9	0.2	0.1	1.0	0.1	0.0	0.0	0.0	0.1
70-450	0.45	2.65	19.6	27.7	81.4	1.4	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.1
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	19.7	27.9	82.0	1.4	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.1
70-465	0.45	2.58	19.0	27.0	79.2	1.3	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.1
70-470	0.38	8.55	53.9	76.3	224.0	3.8	0.2	0.1	1.3	0.2	0.0	0.0	0.0	0.2
70-475	0.46	229.14	1,730.2	2,449.9	7,196.5	121.7	7.4	2.4	43.1	5.7	0.0	1.2	0.8	5.1
70-480	0.60	0.31	3.1	4.3	12.7	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70-485	0.45	13.36	98.6	139.6	410.2	6.9	0.4	0.1	2.5	0.3	0.0	0.1	0.0	0.3
70-490	0.47	48.75	375.3	531.4	1,561.1	26.4	1.6	0.5	9.4	1.2	0.0	0.3	0.2	1.1
70-495	0.45	7.74	57.1	80.9	237.6	4.0	0.2	0.1	1.4	0.2	0.0	0.0	0.0	0.2
70-500	0.45	0.56	4.1	5.9	17.2	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70-505	0.41	8.12	54.8	77.6	228.0	3.9	0.2	0.1	1.4	0.2	0.0	0.0	0.0	0.2
70-510	0.45	41.82	309.7	438.5	1,288.1	21.8	1.3	0.4	7.7	1.0	0.0	0.2	0.1	0.9
70-515	0.47	62.73	483.5	684.7	2,011.2	34.0	2.1	0.7	12.0	1.6	0.0	0.3	0.2	1.4
70-520	0.45	6.05	44.7	63.2	185.7	3.1	0.2	0.1	1.1	0.1	0.0	0.0	0.0	0.1
70-525	0.45	6.23	46.0	65.1	191.3	3.2	0.2	0.1	1.1	0.2	0.0	0.0	0.0	0.1
70-530	0.45	1.67	12.3	17.5	51.3	0.9	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
70-535	0.45	30.24	223.7	316.8	930.6	15.7	1.0	0.3	5.6	0.7	0.0	0.2	0.1	0.7
70-540	0.21	5.1	17.9	25.3	74.3	1.3	0.1	0.0	0.4	0.1	0.0	0.0	0.0	0.1
70-545	0.45	1.89	14.0	19.8	58.0	1.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
70-550	0.26	1.3	5.5	7.8	23.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70-555	0.45	1.73	12.8	18.1	53.1	0.9	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
70-560	0.45	3.33	24.6	34.8	102.2	1.7	0.1	0.0	0.6	0.1	0.0	0.0	0.0	0.1
70-565	0.24	16.63	65.6	92.9	272.9	4.6	0.3	0.1	1.6	0.2	0.0	0.0	0.0	0.2
70-570	0.45	1.23	9.1	12.9	37.8	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
70-575	0.45	15.39	113.5	160.7	472.0	8.0	0.5	0.2	2.8	0.4	0.0	0.1	0.1	0.3
70-580	0.43	119.93	853.4	1,208.3	3,549.5	60.0	3.7	1.2	21.3	2.8	0.0	0.6	0.4	2.5
71-010	0.10	1.12	1.8	2.6	7.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-020	0.45	14.05	103.7	146.8	431.4	7.3	0.4	0.1	2.6	0.3	0.0	0.1	0.0	0.3
71-030	0.45	28.58	212.1	300.3	882.3	14.9	0.9	0.3	5.3	0.7	0.0	0.1	0.1	0.6
71-040	0.22	20.93	75.4	106.7	313.4	5.3	0.3	0.1	1.9	0.2	0.0	0.1	0.0	0.2
71-050	0.46	120.42	904.7	1,281.0	3,762.8	63.6	3.9	1.2	22.5	3.0	0.0	0.6	0.4	2.7
71-060	0.45	3.11	23.0	32.5	95.5	1.6	0.1	0.0	0.6	0.1	0.0	0.0	0.0	0.1
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	761.8	1,078.7	3,168.8	53.6	3.3	1.0	19.0	2.5	0.0	0.5	0.3	2.2
71-090	0.45	6.5	47.5	67.3	197.6	3.3	0.2	0.1	1.2	0.2	0.0	0.0	0.0	0.1
71-100	0.10	1.99	3.3	4.6	13.6	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
72-010	0.18	17.32	49.7	70.4	206.9	3.5	0.2	0.1	1.2	0.2	0.0	0.0	0.0	0.1
72-020	0.40	24.7	160.1	226.7	665.9	11.3	0.7	0.2	4.0	0.5	0.0	0.1	0.1	0.5
72-030	0.10	5.25	8.6	12.2	35.8	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
72-040	0.42	166.54	1,137.9	1,611.2	4,732.8	80.1	4.9	1.6	28.3	3.7	0.0	0.8	0.5	3.3
72-050	0.10	5.16	8.5	12.0	35.2	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
72-060	0.36	113.04	670.7	949.7	2,789.7	47.2	2.9	0.9	16.7	2.2	0.0	0.5	0.3	2.0
72-070	0.10	2.21	3.6	5.1	15.1	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
72-080	0.60	4.74	46.7	66.1	194.0	3.3	0.2	0.1	1.2	0.2	0.0	0.0	0.0	0.1
72-090	0.45	68.71	504.0	713.6	2,096.3	35.5	2.2	0.7	12.6	1.7	0.0	0.3	0.2	1.5
72-100	0.46	68.32	518.9	734.7	2,158.2	36.5	2.2	0.7	12.9	1.7	0.0	0.4	0.2	1.5
72-110	0.10	3.22	5.3	7.5	22.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
72-120	0.45	62.98	464.9	658.2	1,933.6	32.7	2.0	0.6	11.6	1.5	0.0	0.3	0.2	1.4
72-130	0.46	58.06	434.6	615.4	1,807.6	30.6	1.9	0.6	10.8	1.4	0.0	0.3	0.2	1.3
72-140	0.10	10.19	16.7	23.7	69.5	1.2	0.1	0.0	0.4	0.1	0.0	0.0	0.0	0.0
72-150	0.10	4.76	7.8	11.1	32.5	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
72-160	0.10	4.55	7.5	10.6	31.0	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
73-010	0.44	20.76	149.5	211.6	621.6	10.5	0.6	0.2	3.7	0.5	0.0	0.1	0.1	0.4
73-020	0.44	57.47	417.2	590.8	1,735.3	29.4	1.8	0.6	10.4	1.4	0.0	0.3	0.2	1.2
73-030	0.10	21.56	35.4	50.1	147.1	2.5	0.2	0.0	0.9	0.1	0.0	0.0	0.0	0.1
74-010	0.48	44.39	348.5	493.5	1,449.7	24.5	1.5	0.5	8.7	1.1	0.0	0.2	0.2	1.0
74-020	0.45	4.41	32.6	46.1	135.4	2.3	0.1	0.0	0.8	0.1	0.0	0.0	0.0	0.1
75-005	0.45	12.39	91.3	129.3	379.9	6.4	0.4	0.1	2.3	0.3	0.0	0.1	0.0	0.3
75-010	0.60	3.65	35.9	50.9	149.4	2.5	0.2	0.0	0.9	0.1	0.0	0.0	0.0	0.1
75-020	0.45	1.53	11.3	16.0	47.0	0.8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
75-030	0.45	8.38	61.9	87.6	257.3	4.4	0.3	0.1	1.5	0.2	0.0	0.0	0.0	0.2
75-040	0.45	14.74	108.8	154.1	452.5	7.7	0.5	0.1	2.7	0.4	0.0	0.1	0.0	0.3
76-010	0.46	907.31	6,903.3	9,774.6	28,712.8	485.7	29.6	9.5	172.0	22.6	0.1	4.8	3.1	20.3
76-020	0.46	88.62	662.4	937.9	2,755.1	46.6	2.8	0.9	16.5	2.2	0.0	0.5	0.3	1.9
76-030	0.45	7.55	55.7	78.9	231.8	3.9	0.2	0.1	1.4	0.2	0.0	0.0	0.0	0.2
76-040	0.19	4.67	14.3	20.2	59.3	1.0	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	51.1	72.4	212.7	3.6	0.2	0.1	1.3	0.2	0.0	0.0	0.0	0.1
82-010	0.49	23.53	187.8	265.9	781.1	13.2	0.8	0.3	4.7	0.6	0.0	0.1	0.1	0.6
82-020	0.45	73.45	548.0	775.9	2,279.2	38.6	2.4	0.8	13.7	1.8	0.0	0.4	0.2	1.6
82-030	0.45	90.04	671.6	950.9	2,793.3	47.2	2.9	0.9	16.7	2.2	0.0	0.5	0.3	2.0
82-040	0.46	98.49	749.5	1,061.2	3,117.3	52.7	3.2	1.0	18.7	2.5	0.0	0.5	0.3	2.2
83-010	0.45	6.59	48.6	68.9	202.3	3.4	0.2	0.1	1.2	0.2	0.0	0.0	0.0	0.1
83-015	0.45	0.99	7.3	10.3	30.4	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
83-020	0.43	85.96	613.0	868.0	2,549.8	43.1	2.6	0.8	15.3	2.0	0.0	0.4	0.3	1.8
83-025	0.45	51.23	378.2	535.4	1,572.9	26.6	1.6	0.5	9.4	1.2	0.0	0.3	0.2	1.1
83-030	0.60	0.82	8.1	11.4	33.6	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
83-040	0.10	1.08	1.8	2.5	7.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-050	0.45	40.4	299.0	423.4	1,243.7	21.0	1.3	0.4	7.4	1.0	0.0	0.2	0.1	0.9
83-060	0.45	10.05	74.2	105.0	308.6	5.2	0.3	0.1	1.8	0.2	0.0	0.1	0.0	0.2
83-070	0.10	1.19	2.0	2.8	8.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-080	0.48	178.63	1,393.1	1,972.5	5,794.3	98.0	6.0	1.9	34.7	4.6	0.0	1.0	0.6	4.1
83-090	0.41	9.16	61.6	87.2	256.1	4.3	0.3	0.1	1.5	0.2	0.0	0.0	0.0	0.2
84-010	0.47	21.56	166.3	235.5	691.9	11.7	0.7	0.2	4.1	0.5	0.0	0.1	0.1	0.5

2001 FALL POLLUTANT LOADINGS BY OUTFALL

2001 FALL POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (09/01/01 - 12/31/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Fall Median Event Mean Concentration			22.6	32	94	1.59	0.097	0.031	0.563	0.074	0.000250	0.016	0.010	0.066
Precipitation (meters)	**0.211**	**8.29 inches**												
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FALL SEASONAL SUM (kg)			**221,573.52**	**313,732.42**	**921,588.99**	**15,588.58**	**951.00**	**303.93**	**5,519.73**	**725.51**	**2.45**	**152.94**	**100.98**	**650.01**

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/01 - 04/15/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			10.0	129	702	2.38	0.536	0.364	0.570	0.174	0.000606	0.029	0.027	0.360
Precipitation (meters)	**0.184**	**7.26 inches**												
10-010	0.43	113.55	310.1	3,999.8	21,766.3	73.8	16.6	11.3	17.7	5.4	0.0	0.9	0.8	11.2
10-020	0.45	7.81	22.2	287.0	1,561.6	5.3	1.2	0.8	1.3	0.4	0.0	0.1	0.1	0.8
10-030	0.10	4.05	2.6	33.1	179.9	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
10-040	0.45	167.42	473.5	6,108.6	33,242.3	112.7	25.4	17.2	27.0	8.2	0.0	1.3	1.3	17.0
10-050	0.46	114.18	329.0	4,243.7	23,093.7	78.3	17.6	12.0	18.8	5.7	0.0	0.9	0.9	11.8
10-060	0.60	10.5	39.9	514.4	2,799.2	9.5	2.1	1.5	2.3	0.7	0.0	0.1	0.1	1.4
10-070	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-080	0.38	30.66	74.2	956.6	5,205.9	17.6	4.0	2.7	4.2	1.3	0.0	0.2	0.2	2.7
10-090A	0.00	0.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090B	0.00	1.48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090C	0.54	12.77	43.8	564.6	3,072.6	10.4	2.3	1.6	2.5	0.8	0.0	0.1	0.1	1.6
10-090D	0.00	4.68	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-100	0.36	1392.1	3,196.0	41,228.0	224,357.1	760.6	171.3	116.3	182.2	55.6	0.2	9.1	8.6	115.1
10-110	0.47	300.11	886.2	11,431.8	62,210.1	210.9	47.5	32.3	50.5	15.4	0.1	2.5	2.4	31.9
10-120A/B	0.44	372.78	1,027.0	13,247.9	72,093.4	244.4	55.0	37.4	58.5	17.9	0.1	2.9	2.8	37.0
10-130	0.45	336.46	961.5	12,403.9	67,500.5	228.8	51.5	35.0	54.8	16.7	0.1	2.7	2.6	34.6
10-140a	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-140a,b	0.58	220.65	803.6	10,366.8	56,414.8	191.3	43.1	29.3	45.8	14.0	0.0	2.3	2.2	28.9
10-150	0.47	157.15	466.4	6,016.2	32,739.1	111.0	25.0	17.0	26.6	8.1	0.0	1.3	1.3	16.8
10-160	0.00	17	0.3	3.5	18.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-170	0.50	176.01	560.6	7,231.8	39,354.6	133.4	30.0	20.4	32.0	9.8	0.0	1.6	1.5	20.2
10-180	0.45	284.26	801.2	10,335.5	56,244.5	190.7	42.9	29.2	45.7	13.9	0.0	2.3	2.2	28.8
10-190	0.59	14.58	54.6	704.4	3,833.4	13.0	2.9	2.0	3.1	1.0	0.0	0.2	0.1	2.0
10-200	0.40	42.44	106.7	1,375.8	7,487.0	25.4	5.7	3.9	6.1	1.9	0.0	0.3	0.3	3.8
10-210	0.49	98.32	305.9	3,946.2	21,474.8	72.8	16.4	11.1	17.4	5.3	0.0	0.9	0.8	11.0
10-220	0.56	18.83	66.6	859.6	4,677.6	15.9	3.6	2.4	3.8	1.2	0.0	0.2	0.2	2.4
10-230	0.47	235.02	703.2	9,070.7	49,361.5	167.4	37.7	25.6	40.1	12.2	0.0	2.0	1.9	25.3
10-240	0.51	103.83	337.6	4,355.0	23,699.4	80.3	18.1	12.3	19.2	5.9	0.0	1.0	0.9	12.2
10-250	0.49	242.96	751.7	9,697.5	52,772.6	178.9	40.3	27.4	42.8	13.1	0.0	2.1	2.0	27.1
10-260	0.56	23.77	83.8	1,081.3	5,884.3	19.9	4.5	3.1	4.8	1.5	0.0	0.2	0.2	3.0
10-270	0.47	72.45	217.3	2,803.0	15,253.8	51.7	11.6	7.9	12.4	3.8	0.0	0.6	0.6	7.8
10-280	0.44	55.08	154.7	1,996.0	10,861.7	36.8	8.3	5.6	8.8	2.7	0.0	0.4	0.4	5.6
10-290	0.10	6.83	4.3	55.8	303.5	1.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2
10-300	0.36	17.74	40.5	522.3	2,842.3	9.6	2.2	1.5	2.3	0.7	0.0	0.1	0.1	1.5
10-310	0.47	60.29	180.2	2,324.6	12,650.1	42.9	9.7	6.6	10.3	3.1	0.0	0.5	0.5	6.5
10-320	0.45	341.99	977.9	12,614.7	68,647.7	232.7	52.4	35.6	55.7	17.0	0.1	2.8	2.6	35.2
10-330	0.35	21.61	48.1	620.3	3,375.7	11.4	2.6	1.8	2.7	0.8	0.0	0.1	0.1	1.7
10-340	0.45	20.74	59.2	764.1	4,158.0	14.1	3.2	2.2	3.4	1.0	0.0	0.2	0.2	2.1
10-350	0.60	28.16	106.7	1,377.0	7,493.5	25.4	5.7	3.9	6.1	1.9	0.0	0.3	0.3	3.8
10-360	0.59	29.02	108.9	1,404.3	7,641.9	25.9	5.8	4.0	6.2	1.9	0.0	0.3	0.3	3.9
10-370	0.59	14.46	54.0	696.1	3,787.9	12.8	2.9	2.0	3.1	0.9	0.0	0.2	0.1	1.9
10-380	0.45	14.38	40.5	522.7	2,844.4	9.6	2.2	1.5	2.3	0.7	0.0	0.1	0.1	1.5
10-390	0.49	41.97	131.0	1,689.6	9,194.8	31.2	7.0	4.8	7.5	2.3	0.0	0.4	0.4	4.7
10-400A	0.10	1.07	0.7	8.7	47.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-400B	0.47	17.66	52.7	680.0	3,700.4	12.5	2.8	1.9	3.0	0.9	0.0	0.2	0.1	1.9
10-400C	0.57	50.25	179.9	2,321.3	12,632.3	42.8	9.6	6.6	10.3	3.1	0.0	0.5	0.5	6.5
10-410A	0.50	46.22	145.6	1,878.7	10,223.7	34.7	7.8	5.3	8.3	2.5	0.0	0.4	0.4	5.2
10-410B	0.32	21.29	42.6	550.0	2,993.0	10.1	2.3	1.6	2.4	0.7	0.0	0.1	0.1	1.5
10-410C	0.53	22.8	76.2	982.6	5,346.9	18.1	4.1	2.8	4.3	1.3	0.0	0.2	0.2	2.7
10-410D	0.60	27.34	103.9	1,339.9	7,291.5	24.7	5.6	3.8	5.9	1.8	0.0	0.3	0.3	3.7
10-410E	0.58	256.04	932.5	12,029.5	65,463.1	221.9	50.0	33.9	53.2	16.2	0.1	2.7	2.5	33.6
10-410F	0.59	37.92	141.2	1,821.2	9,910.8	33.6	7.6	5.1	8.0	2.5	0.0	0.4	0.4	5.1
10-420A	0.27	23.05	39.8	512.9	2,790.9	9.5	2.1	1.4	2.3	0.7	0.0	0.1	0.1	1.4
10-420B	0.00	10.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420C	0.00	7.42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420D	0.00	20.73	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-420E	0.59	127.89	475.0	6,127.7	33,346.1	113.1	25.5	17.3	27.1	8.3	0.0	1.4	1.3	17.1
10-430A	0.00	8.14	0.1	1.7	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430B	0.53	54.72	185.1	2,387.3	12,991.5	44.0	9.9	6.7	10.5	3.2	0.0	0.5	0.5	6.7
10-430C	0.48	44.83	136.3	1,758.4	9,568.9	32.4	7.3	5.0	7.8	2.4	0.0	0.4	0.4	4.9
10-430D	0.49	85.79	266.9	3,443.5	18,739.1	63.5	14.3	9.7	15.2	4.6	0.0	0.8	0.7	9.6
10-430E	0.56	86.66	305.8	3,945.4	21,470.5	72.8	16.4	11.1	17.4	5.3	0.0	0.9	0.8	11.0
10-430F	0.10	377.97	239.2	3,086.1	16,794.0	56.9	12.8	8.7	13.6	4.2	0.0	0.7	0.6	8.6
10-430G	0.50	125.89	394.9	5,094.0	27,720.8	94.0	21.2	14.4	22.5	6.9	0.0	1.1	1.1	14.2
10-430H	0.49	33.18	103.2	1,331.2	7,244.2	24.6	5.5	3.8	5.9	1.8	0.0	0.3	0.3	3.7
10-430I	0.59	32.61	121.5	1,567.2	8,528.7	28.9	6.5	4.4	6.9	2.1	0.0	0.3	0.3	4.4
10-430J	0.43	532.36	1,462.2	18,862.3	102,646.0	348.0	78.4	53.2	83.3	25.4	0.1	4.2	3.9	52.6
10-430K	0.48	337.06	1,019.0	13,145.2	71,534.5	242.5	54.6	37.1	58.1	17.7	0.1	2.9	2.8	36.7
10-430L	0.45	84.4	240.8	3,106.2	16,903.6	57.3	12.9	8.8	13.7	4.2	0.0	0.7	0.7	8.7
10-430M	0.54	75.94	260.7	3,363.0	18,300.9	62.0	14.0	9.5	14.9	4.5	0.0	0.7	0.7	9.4
10-430N	0.44	26.43	74.3	958.0	5,213.1	17.7	4.0	2.7	4.2	1.3	0.0	0.2	0.2	2.7
10-430O	0.00	109.53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430P	0.00	229.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-430Q	0.10	8.03	5.1	65.6	356.8	1.2	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
10-430R	0.47	150.32	444.8	5,737.5	31,222.4	105.9	23.8	16.2	25.4	7.7	0.0	1.3	1.2	16.0
10-430S	0.10	5.15	3.3	42.0	228.8	0.8	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
10-430T	0.46	262.47	759.4	9,796.2	53,309.7	180.7	40.7	27.6	43.3	13.2	0.0	2.2	2.1	27.3
10-430U	0.47	431.37	1,282.8	16,548.7	90,055.5	305.3	68.8	46.7	73.1	22.3	0.1	3.7	3.5	46.2
10-430V	0.46	329.11	968.3	12,490.8	67,973.0	230.4	51.9	35.2	55.2	16.8	0.1	2.8	2.6	34.9
10-440A	0.46	23.18	67.2	867.1	4,718.4	16.0	3.6	2.4	3.8	1.2	0.0	0.2	0.2	2.4
10-440B	0.49	34.23	106.8	1,377.3	7,495.0	25.4	5.7	3.9	6.1	1.9	0.0	0.3	0.3	3.8
10-440C/D	0.00	56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-440E	0.51	831.25	2,705.5	34,901.4	189,928.5	643.9	145.0	98.5	154.2	47.1	0.2	7.7	7.3	97.4
10-440F	0.46	538.85	1,569.6	20,248.1	110,187.4	373.6	84.1	57.1	89.5	27.3	0.1	4.5	4.2	56.5
10-450A	0.00	343.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-450B	0.52	3.41	11.2	143.8	782.8	2.7	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
10-450C	0.59	55.64	209.1	2,697.8	14,681.0	49.8	11.2	7.6	11.9	3.6	0.0	0.6	0.6	7.5

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/01 - 04/15/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			10.0	129	702	2.38	0.536	0.364	0.570	0.174	0.000606	0.029	0.027	0.360
Precipitation (meters)	**0.184**	**7.26 inches**												
10-450D	0.45	4.62	13.2	169.7	923.7	3.1	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
10-450E	0.44	3.2	9.0	115.5	628.4	2.1	0.5	0.3	0.5	0.2	0.0	0.0	0.0	0.3
10-450F	0.46	158.55	461.0	5,947.5	32,365.3	109.7	24.7	16.8	26.3	8.0	0.0	1.3	1.2	16.6
10-450G/H	0.48	75.02	228.2	2,943.1	16,016.2	54.3	12.2	8.3	13.0	4.0	0.0	0.7	0.6	8.2
10-450I	0.49	243.64	757.5	9,771.9	53,177.1	180.3	40.6	27.6	43.2	13.2	0.0	2.2	2.0	27.3
10-450J	0.49	17.16	52.7	680.2	3,701.5	12.5	2.8	1.9	3.0	0.9	0.0	0.2	0.1	1.9
10-450K	0.58	37.01	135.7	1,750.4	9,525.7	32.3	7.3	4.9	7.7	2.4	0.0	0.4	0.4	4.9
10-450L	0.51	213.41	682.2	8,800.5	47,891.1	162.4	36.6	24.8	38.9	11.9	0.0	1.9	1.8	24.6
10-460	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460A	0.00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460B	0.52	7.29	23.8	307.6	1,673.9	5.7	1.3	0.9	1.4	0.4	0.0	0.1	0.1	0.9
10-460C/D/F	0.00	159.87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460E	0.49	231.41	723.3	9,330.8	50,777.1	172.2	38.8	26.3	41.2	12.6	0.0	2.1	2.0	26.0
10-460F	0.49	14.75	46.2	595.8	3,242.2	11.0	2.5	1.7	2.6	0.8	0.0	0.1	0.1	1.7
10-460G	0.51	79.66	257.5	3,322.3	18,079.6	61.3	13.8	9.4	14.7	4.5	0.0	0.7	0.7	9.3
10-460H	0.48	12.35	37.5	483.4	2,630.7	8.9	2.0	1.4	2.1	0.7	0.0	0.1	0.1	1.3
10-460I	0.00	72.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460J	0.46	5.36	15.7	202.9	1,104.3	3.7	0.8	0.6	0.9	0.3	0.0	0.0	0.0	0.6
10-460K	0.36	5.48	12.5	160.9	875.8	3.0	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.4
10-460L	0.46	3.5	10.3	132.4	720.7	2.4	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
10-460M	0.48	9.55	28.9	373.2	2,030.8	6.9	1.6	1.1	1.6	0.5	0.0	0.1	0.1	1.0
10-460N	0.45	3.85	11.0	141.5	769.8	2.6	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
10-460O	0.45	4.15	11.9	153.7	836.6	2.8	0.6	0.4	0.7	0.2	0.0	0.0	0.0	0.4
10-460P	0.45	4.34	12.4	159.5	867.8	2.9	0.7	0.4	0.7	0.2	0.0	0.0	0.0	0.4
10-460Q	0.56	19.73	70.5	908.8	4,945.7	16.8	3.8	2.6	4.0	1.2	0.0	0.2	0.2	2.5
10-460R	0.00	51.51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-460S	0.56	233.54	834.1	10,760.2	58,555.3	198.5	44.7	30.4	47.5	14.5	0.1	2.4	2.3	30.0
10-465	0.10	8.56	5.4	69.9	380.3	1.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
10-470	0.38	25.6	61.8	797.7	4,341.0	14.7	3.3	2.3	3.5	1.1	0.0	0.2	0.2	2.2
10-480	0.58	39.66	145.6	1,878.7	10,223.8	34.7	7.8	5.3	8.3	2.5	0.0	0.4	0.4	5.2
10-485	0.00	7.27	0.1	1.5	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-490	0.43	150.96	414.2	5,343.4	29,078.2	98.6	22.2	15.1	23.6	7.2	0.0	1.2	1.1	14.9
10-500A	0.26	26.21	43.5	561.6	3,056.3	10.4	2.3	1.6	2.5	0.8	0.0	0.1	0.1	1.6
10-500B	0.46	8.48	24.7	318.7	1,734.3	5.9	1.3	0.9	1.4	0.4	0.0	0.1	0.1	0.9
10-500C	0.44	111.36	306.9	3,958.4	21,541.2	73.0	16.4	11.2	17.5	5.3	0.0	0.9	0.8	11.0
10-500D	0.24	3.83	5.8	74.5	405.2	1.4	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
10-500E	0.53	23.34	78.7	1,014.7	5,521.6	18.7	4.2	2.9	4.5	1.4	0.0	0.2	0.2	2.8
10-500F	0.49	12.04	37.6	485.4	2,641.6	9.0	2.0	1.4	2.1	0.7	0.0	0.1	0.1	1.4
10-500G	0.00	112.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-505	0.10	7.85	5.0	64.1	348.8	1.2	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
10-510	0.51	62.36	200.8	2,589.8	14,093.3	47.8	10.8	7.3	11.4	3.5	0.0	0.6	0.5	7.2
10-520	0.00	139.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-530	0.45	116.15	331.4	4,274.9	23,263.6	78.9	17.8	12.1	18.9	5.8	0.0	0.9	0.9	11.9
10-540	0.12	53.9	40.4	521.2	2,836.1	9.6	2.2	1.5	2.3	0.7	0.0	0.1	0.1	1.5
10-550	0.46	25.83	75.2	970.0	5,278.4	17.9	4.0	2.7	4.3	1.3	0.0	0.2	0.2	2.7
10-560A/B	0.44	600.63	1,663.2	21,454.9	116,754.3	395.8	89.1	60.5	94.8	28.9	0.1	4.7	4.5	59.9
10-570A	0.54	14.64	50.4	650.0	3,537.2	12.0	2.7	1.8	2.9	0.9	0.0	0.1	0.1	1.8
10-570B	0.44	228.18	630.4	8,132.5	44,256.1	150.0	33.8	22.9	35.9	11.0	0.0	1.8	1.7	22.7
10-580	0.45	73.39	208.5	2,689.5	14,635.8	49.6	11.2	7.6	11.9	3.6	0.0	0.6	0.6	7.5
10-600	0.48	89.24	273.2	3,523.7	19,175.5	65.0	14.6	9.9	15.6	4.8	0.0	0.8	0.7	9.8
10-610	0.46	25.6	74.3	958.0	5,213.6	17.7	4.0	2.7	4.2	1.3	0.0	0.2	0.2	2.7
10-620	0.00	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630A	0.10	6.24	3.9	50.9	277.3	0.9	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
10-630B	0.45	4.68	13.3	172.0	935.7	3.2	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
10-630C	0.48	96.03	293.7	3,788.1	20,614.5	69.9	15.7	10.7	16.7	5.1	0.0	0.8	0.8	10.6
10-630D	0.45	6.37	18.1	234.0	1,273.6	4.3	1.0	0.7	1.0	0.3	0.0	0.1	0.0	0.7
10-630E	0.45	8.52	24.3	313.0	1,703.5	5.8	1.3	0.9	1.4	0.4	0.0	0.1	0.1	0.9
10-630F	0.54	17.56	60.0	774.6	4,215.1	14.3	3.2	2.2	3.4	1.0	0.0	0.2	0.2	2.2
10-630G	0.45	5.9	16.8	216.8	1,179.7	4.0	0.9	0.6	1.0	0.3	0.0	0.0	0.0	0.6
10-630H	0.30	25.63	49.1	633.8	3,449.1	11.7	2.6	1.8	2.8	0.9	0.0	0.1	0.1	1.8
10-630I	0.47	12.48	36.7	473.8	2,578.6	8.7	2.0	1.3	2.1	0.6	0.0	0.1	0.1	1.3
10-630J	0.55	14.69	51.5	664.1	3,613.8	12.3	2.8	1.9	2.9	0.9	0.0	0.1	0.1	1.9
10-630K	0.47	95.29	285.5	3,682.3	20,038.7	67.9	15.3	10.4	16.3	5.0	0.0	0.8	0.8	10.3
10-630L	0.52	100.42	331.1	4,271.8	23,246.3	78.8	17.7	12.1	18.9	5.8	0.0	0.9	0.9	11.9
10-630M	0.50	11.71	36.8	474.7	2,583.4	8.8	2.0	1.3	2.1	0.6	0.0	0.1	0.1	1.3
10-630N	0.45	8.45	24.1	310.5	1,689.5	5.7	1.3	0.9	1.4	0.4	0.0	0.1	0.1	0.9
10-630O	0.36	5.77	13.3	171.5	933.4	3.2	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
10-630P/Q	0.00	67.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630R	0.33	83.89	177.3	2,287.6	12,448.9	42.2	9.5	6.5	10.1	3.1	0.0	0.5	0.5	6.4
10-630S	0.22	37.02	50.9	657.1	3,575.6	12.1	2.7	1.9	2.9	0.9	0.0	0.1	0.1	1.8
10-630T	0.56	7.72	27.5	354.6	1,929.5	6.5	1.5	1.0	1.6	0.5	0.0	0.1	0.1	1.0
10-630U	0.52	115.42	382.1	4,929.5	26,825.9	90.9	20.5	13.9	21.8	6.6	0.0	1.1	1.0	13.8
10-630V	0.11	33.85	22.6	291.9	1,588.3	5.4	1.2	0.8	1.3	0.4	0.0	0.1	0.1	0.8
10-630W	0.47	23.68	71.0	915.9	4,984.0	16.9	3.8	2.6	4.0	1.2	0.0	0.2	0.2	2.6
10-630X	0.44	14.78	41.4	533.9	2,905.2	9.8	2.2	1.5	2.4	0.7	0.0	0.1	0.1	1.5
10-630Y	0.00	112.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-630Z	0.47	45.66	136.1	1,755.1	9,551.2	32.4	7.3	5.0	7.8	2.4	0.0	0.4	0.4	4.9
10-640	0.46	258.18	747.4	9,641.0	52,465.2	177.9	40.1	27.2	42.6	13.0	0.0	2.1	2.0	26.9
10-650	0.56	19.53	68.9	888.2	4,833.6	16.4	3.7	2.5	3.9	1.2	0.0	0.2	0.2	2.5
10-660	0.46	306.37	898.3	11,588.2	63,061.3	213.8	48.1	32.7	51.2	15.6	0.1	2.6	2.4	32.3
10-670	0.45	137.88	392.1	5,058.5	27,527.9	93.3	21.0	14.3	22.4	6.8	0.0	1.1	1.1	14.1
10-680	0.46	707.95	2,054.5	26,503.6	144,228.9	489.0	110.1	74.8	117.1	35.7	0.1	5.9	5.5	74.0
10-690	0.50	70.63	223.6	2,885.0	15,700.0	53.2	12.0	8.1	12.7	3.9	0.0	0.6	0.6	8.1
10-700	0.46	222.07	652.7	8,419.6	45,818.0	155.3	35.0	23.8	37.2	11.4	0.0	1.9	1.8	23.5
10-710	0.33	29.95	63.1	814.6	4,433.0	15.0	3.4	2.3	3.6	1.1	0.0	0.2	0.2	2.3
10-720A	0.44	15.77	44.3	570.9	3,107.0	10.5	2.4	1.6	2.5	0.8	0.0	0.1	0.1	1.6
10-720B	0.48	422.18	1,287.4	16,607.2	90,373.8	306.4	69.0	46.9	73.4	22.4	0.1	3.7	3.5	46.3

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/01 - 04/15/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			10.0	129	702	2.38	0.536	0.364	0.570	0.174	0.000606	0.029	0.027	0.360
Precipitation (meters)	**0.184**	**7.26 inches**												
10-720C	0.43	26.35	71.6	923.8	5,027.3	17.0	3.8	2.6	4.1	1.2	0.0	0.2	0.2	2.6
10-720D	0.46	22.95	66.1	853.1	4,642.4	15.7	3.5	2.4	3.8	1.2	0.0	0.2	0.2	2.4
10-720E	0.46	18.39	53.0	684.3	3,723.8	12.6	2.8	1.9	3.0	0.9	0.0	0.2	0.1	1.9
10-720F	0.48	317.75	965.0	12,448.1	67,740.9	229.7	51.7	35.1	55.0	16.8	0.1	2.8	2.6	34.7
10-720G	0.00	13.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-720H	0.45	4.55	13.0	167.2	909.7	3.1	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.5
10-720I	0.45	87.27	246.3	3,177.6	17,292.3	58.6	13.2	9.0	14.0	4.3	0.0	0.7	0.7	8.9
10-720J	0.36	3.71	8.4	108.2	588.9	2.0	0.4	0.3	0.5	0.1	0.0	0.0	0.0	0.3
10-720K	0.55	32.76	113.9	1,468.7	7,992.5	27.1	6.1	4.1	6.5	2.0	0.0	0.3	0.3	4.1
10-720L	0.45	4.57	13.0	167.9	913.7	3.1	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.5
20-010	0.42	93.99	249.7	3,221.6	17,531.8	59.4	13.4	9.1	14.2	4.3	0.0	0.7	0.7	9.0
20-020	0.44	15.09	41.9	540.5	2,941.1	10.0	2.2	1.5	2.4	0.7	0.0	0.1	0.1	1.5
20-030	0.45	7.95	22.6	292.1	1,589.6	5.4	1.2	0.8	1.3	0.4	0.0	0.1	0.1	0.8
20-040	0.37	6.79	16.0	206.7	1,124.8	3.8	0.9	0.6	0.9	0.3	0.0	0.0	0.0	0.6
20-050	0.00	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-060	0.45	5.91	16.8	217.1	1,181.7	4.0	0.9	0.6	1.0	0.3	0.0	0.0	0.0	0.6
20-070	0.44	39.07	109.6	1,414.4	7,697.0	26.1	5.9	4.0	6.2	1.9	0.0	0.3	0.3	3.9
20-080	0.45	33.72	96.8	1,248.3	6,792.9	23.0	5.2	3.5	5.5	1.7	0.0	0.3	0.3	3.5
20-090	0.55	9.95	34.8	449.1	2,443.7	8.3	1.9	1.3	2.0	0.6	0.0	0.1	0.1	1.3
20-100	0.10	0.99	0.6	8.1	44.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-110	0.24	216.04	328.1	4,232.0	23,030.1	78.1	17.6	11.9	18.7	5.7	0.0	0.9	0.9	11.8
20-120	0.47	10.22	30.2	390.1	2,122.6	7.2	1.6	1.1	1.7	0.5	0.0	0.1	0.1	1.1
20-130	0.45	16.12	45.9	592.3	3,223.1	10.9	2.5	1.7	2.6	0.8	0.0	0.1	0.1	1.7
20-140	0.44	2.97	8.3	107.0	582.4	2.0	0.4	0.3	0.5	0.1	0.0	0.0	0.0	0.3
20-150	0.45	14.48	41.2	532.0	2,895.2	9.8	2.2	1.5	2.4	0.7	0.0	0.1	0.1	1.5
20-160	0.54	3.21	11.0	141.6	770.6	2.6	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
20-170	0.37	4.94	11.6	150.3	817.8	2.8	0.6	0.4	0.7	0.2	0.0	0.0	0.0	0.4
20-180	0.51	5.3	17.0	219.0	1,191.8	4.0	0.9	0.6	1.0	0.3	0.0	0.0	0.0	0.6
20-190	0.45	1.35	3.8	49.6	269.9	0.9	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
20-200	0.45	13.84	39.4	508.5	2,767.2	9.4	2.1	1.4	2.2	0.7	0.0	0.1	0.1	1.4
20-210A	0.44	92.9	258.3	3,331.9	18,131.9	61.5	13.8	9.4	14.7	4.5	0.0	0.7	0.7	9.3
20-210B	0.50	620.78	1,982.5	25,573.9	139,169.8	471.8	106.3	72.2	113.0	34.5	0.1	5.7	5.4	71.4
20-220	0.46	26.38	77.0	993.0	5,403.8	18.3	4.1	2.8	4.4	1.3	0.0	0.2	0.2	2.8
20-230	0.00	21.46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-240	0.48	30.06	91.7	1,182.5	6,435.1	21.8	4.9	3.3	5.2	1.6	0.0	0.3	0.2	3.3
20-250	0.57	6.28	22.7	293.2	1,595.3	5.4	1.2	0.8	1.3	0.4	0.0	0.1	0.1	0.8
20-260	0.60	3.5	13.3	171.5	933.1	3.2	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
20-270	0.48	42.81	129.2	1,666.3	9,067.8	30.7	6.9	4.7	7.4	2.2	0.0	0.4	0.3	4.7
20-280	0.54	8.98	30.5	394.1	2,144.4	7.3	1.6	1.1	1.7	0.5	0.0	0.1	0.1	1.1
20-290	0.00	4.98	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-010	0.45	49.49	140.4	1,811.3	9,856.8	33.4	7.5	5.1	8.0	2.4	0.0	0.4	0.4	5.1
40-010	0.45	719.17	2,039.8	26,313.0	143,191.5	485.5	109.3	74.2	116.3	35.5	0.1	5.8	5.5	73.4
40-020	0.45	15.36	43.7	564.4	3,071.1	10.4	2.3	1.6	2.5	0.8	0.0	0.1	0.1	1.6
40-030	0.42	51.02	134.9	1,740.2	9,470.0	32.1	7.2	4.9	7.7	2.3	0.0	0.4	0.4	4.9
40-040	0.43	65.39	179.7	2,318.2	12,615.2	42.8	9.6	6.5	10.2	3.1	0.0	0.5	0.5	6.5
40-050	0.45	10.28	29.3	377.7	2,055.4	7.0	1.6	1.1	1.7	0.5	0.0	0.1	0.1	1.1
40-060	0.45	3.2	9.1	117.6	639.8	2.2	0.5	0.3	0.5	0.2	0.0	0.0	0.0	0.3
40-070	0.38	7.98	19.1	246.5	1,341.4	4.5	1.0	0.7	1.1	0.3	0.0	0.1	0.1	0.7
40-080	0.41	60.51	156.4	2,017.7	10,979.9	37.2	8.4	5.7	8.9	2.7	0.0	0.4	0.4	5.6
40-090	0.46	20.65	60.8	783.8	4,265.3	14.5	3.3	2.2	3.5	1.1	0.0	0.2	0.2	2.2
40-100	0.00	20.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-110	0.44	2.61	7.3	94.6	514.7	1.7	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.3
40-120	0.44	65.87	182.7	2,357.1	12,827.2	43.5	9.8	6.7	10.4	3.2	0.0	0.5	0.5	6.6
40-130	0.45	35.01	100.1	1,291.7	7,029.1	23.8	5.4	3.6	5.7	1.7	0.0	0.3	0.3	3.6
40-140	0.35	125.46	276.1	3,562.0	19,384.1	65.7	14.8	10.1	15.7	4.8	0.0	0.8	0.7	9.9
40-150	0.47	24.31	72.9	940.3	5,117.0	17.3	3.9	2.7	4.2	1.3	0.0	0.2	0.2	2.6
40-160	0.49	30.99	97.0	1,250.9	6,807.0	23.1	5.2	3.5	5.5	1.7	0.0	0.3	0.3	3.5
40-170	0.00	194.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-180	0.54	16.8	57.2	738.4	4,018.5	13.6	3.1	2.1	3.3	1.0	0.0	0.2	0.2	2.1
40-190	0.53	65.53	219.3	2,829.2	15,395.9	52.2	11.8	8.0	12.5	3.8	0.0	0.6	0.6	7.9
40-200	0.46	24.75	72.4	934.3	5,084.1	17.2	3.9	2.6	4.1	1.3	0.0	0.2	0.2	2.6
40-210	0.54	17.26	59.5	767.8	4,178.4	14.2	3.2	2.2	3.4	1.0	0.0	0.2	0.2	2.1
40-220	0.47	100.58	297.6	3,839.1	20,891.8	70.8	16.0	10.8	17.0	5.2	0.0	0.8	0.8	10.7
40-230	0.44	13.78	38.8	500.5	2,723.6	9.2	2.1	1.4	2.2	0.7	0.0	0.1	0.1	1.4
40-240	0.00	340.86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40-250	0.60	1.15	4.4	56.3	306.6	1.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2
40-260	0.45	3.49	9.9	128.2	697.8	2.4	0.5	0.4	0.6	0.2	0.0	0.0	0.0	0.4
40-270	0.45	9.59	27.3	352.4	1,917.5	6.5	1.5	1.0	1.6	0.5	0.0	0.1	0.1	1.0
40-280	0.53	12.76	42.5	547.9	2,981.5	10.1	2.3	1.5	2.4	0.7	0.0	0.1	0.1	1.5
40-290	0.51	13.73	44.5	574.0	3,123.6	10.6	2.4	1.6	2.5	0.8	0.0	0.1	0.1	1.6
40-300	0.52	10.38	34.2	441.6	2,403.0	8.1	1.8	1.2	2.0	0.6	0.0	0.1	0.1	1.2
40-310	0.45	97.86	280.4	3,616.7	19,681.6	66.7	15.0	10.2	16.0	4.9	0.0	0.8	0.8	10.1
40-320	0.60	9.43	35.8	462.0	2,514.0	8.5	1.9	1.3	2.0	0.6	0.0	0.1	0.1	1.3
40-330	0.59	15.34	57.5	742.3	4,039.7	13.7	3.1	2.1	3.3	1.0	0.0	0.2	0.2	2.1
40-340	0.53	35.27	119.0	1,534.7	8,351.5	28.3	6.4	4.3	6.8	2.1	0.0	0.3	0.3	4.3
40-350	0.60	8.99	34.1	440.4	2,396.7	8.1	1.8	1.2	1.9	0.6	0.0	0.1	0.1	1.2
40-360	0.60	8.09	30.7	396.3	2,156.7	7.3	1.6	1.1	1.8	0.5	0.0	0.1	0.1	1.1
40-370	0.58	12.41	45.4	586.1	3,189.6	10.8	2.4	1.7	2.6	0.8	0.0	0.1	0.1	1.6
40-380	0.39	24.92	62.1	800.5	4,356.2	14.8	3.3	2.3	3.5	1.1	0.0	0.2	0.2	2.2
40-390	0.58	5.72	21.0	270.9	1,474.0	5.0	1.1	0.8	1.2	0.4	0.0	0.1	0.1	0.8
40-400	0.10	1.07	0.7	8.7	47.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-010	0.38	94.73	226.3	2,919.4	15,886.9	53.9	12.1	8.2	12.9	3.9	0.0	0.6	0.6	8.1
41-020	0.00	14.89	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
41-030	0.50	60.47	192.1	2,478.4	13,487.3	45.7	10.3	7.0	11.0	3.3	0.0	0.5	0.5	6.9
41-040	0.57	35.59	129.1	1,665.1	9,061.1	30.7	6.9	4.7	7.4	2.2	0.0	0.4	0.3	4.6
41-050	0.60	10.48	39.8	513.4	2,793.9	9.5	2.1	1.4	2.3	0.7	0.0	0.1	0.1	1.4
41-060	0.60	2.95	11.2	144.5	786.4	2.7	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/01 - 04/15/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			10.0	129	702	2.38	0.536	0.364	0.570	0.174	0.000606	0.029	0.027	0.360
Precipitation (meters)	**0.184**	**7.26 inches**												
51-010	0.45	29.63	84.6	1,091.9	5,941.9	20.1	4.5	3.1	4.8	1.5	0.0	0.2	0.2	3.0
51-020	0.45	4.55	13.0	167.2	909.7	3.1	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.5
52-010	0.28	45.29	79.2	1,021.9	5,561.1	18.9	4.2	2.9	4.5	1.4	0.0	0.2	0.2	2.9
52-020	0.45	6.09	17.3	223.8	1,217.7	4.1	0.9	0.6	1.0	0.3	0.0	0.0	0.0	0.6
52-030	0.45	7.18	20.5	263.8	1,435.6	4.9	1.1	0.7	1.2	0.4	0.0	0.1	0.1	0.7
52-040	0.41	4.54	11.9	153.2	833.8	2.8	0.6	0.4	0.7	0.2	0.0	0.0	0.0	0.4
52-050	0.44	15.3	42.1	543.4	2,957.3	10.0	2.3	1.5	2.4	0.7	0.0	0.1	0.1	1.5
52-060	0.10	3.22	2.0	26.3	143.1	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
52-070	0.42	86.94	232.9	3,004.0	16,347.1	55.4	12.5	8.5	13.3	4.1	0.0	0.7	0.6	8.4
52-080	0.24	8.08	12.4	159.7	868.9	2.9	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.4
52-090	0.45	4.89	13.9	179.7	977.7	3.3	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
52-100A/B	0.27	11.89	20.1	258.8	1,408.6	4.8	1.1	0.7	1.1	0.3	0.0	0.1	0.1	0.7
52-110	0.45	8.84	25.0	322.2	1,753.3	5.9	1.3	0.9	1.4	0.4	0.0	0.1	0.1	0.9
52-120	0.45	14.74	42.0	541.6	2,947.2	10.0	2.3	1.5	2.4	0.7	0.0	0.1	0.1	1.5
52-130	0.31	7.18	14.3	184.5	1,004.2	3.4	0.8	0.5	0.8	0.2	0.0	0.0	0.0	0.5
53-010	0.45	7.03	20.0	258.3	1,405.6	4.8	1.1	0.7	1.1	0.3	0.0	0.1	0.1	0.7
53-020	0.28	12.38	21.7	279.4	1,520.2	5.2	1.2	0.8	1.2	0.4	0.0	0.1	0.1	0.8
53-030	0.44	11.37	31.4	405.6	2,207.1	7.5	1.7	1.1	1.8	0.5	0.0	0.1	0.1	1.1
53-040	0.45	2.78	7.9	102.1	555.8	1.9	0.4	0.3	0.5	0.1	0.0	0.0	0.0	0.3
53-050	0.45	13.66	38.9	501.9	2,731.2	9.3	2.1	1.4	2.2	0.7	0.0	0.1	0.1	1.4
53-060	0.45	20.37	58.0	748.4	4,072.9	13.8	3.1	2.1	3.3	1.0	0.0	0.2	0.2	2.1
53-070	0.45	4.89	13.9	179.7	977.7	3.3	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
53-080	0.39	5.81	14.5	187.0	1,017.7	3.5	0.8	0.5	0.8	0.3	0.0	0.0	0.0	0.5
53-090	0.46	59.59	173.2	2,234.1	12,157.5	41.2	9.3	6.3	9.9	3.0	0.0	0.5	0.5	6.2
53-100	0.00	107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53-110	0.38	4.59	11.2	144.2	785.0	2.7	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
53-120A/B	0.46	129.79	374.3	4,828.2	26,274.6	89.1	20.1	13.6	21.3	6.5	0.0	1.1	1.0	13.5
53-130	0.45	5.02	14.3	184.4	1,003.7	3.4	0.8	0.5	0.8	0.2	0.0	0.0	0.0	0.5
53-140	0.45	6.36	18.1	233.7	1,271.6	4.3	1.0	0.7	1.0	0.3	0.0	0.1	0.0	0.7
53-150	0.48	90.4	276.8	3,571.1	19,433.2	65.9	14.8	10.1	15.8	4.8	0.0	0.8	0.7	10.0
53-160	0.47	252.19	754.6	9,734.8	52,975.4	179.6	40.4	27.5	43.0	13.1	0.0	2.2	2.0	27.2
53-170	0.36	6.39	14.6	188.3	1,024.5	3.5	0.8	0.5	0.8	0.3	0.0	0.0	0.0	0.5
53-180	0.10	8.09	5.1	66.1	359.5	1.2	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
53-190	0.30	11.41	21.7	280.0	1,523.5	5.2	1.2	0.8	1.2	0.4	0.0	0.1	0.1	0.8
54-010A/B	0.44	84.93	233.9	3,017.1	16,418.4	55.7	12.5	8.5	13.3	4.1	0.0	0.7	0.6	8.4
54-040A/B	0.49	255.14	799.3	10,310.5	56,108.3	190.2	42.8	29.1	45.6	13.9	0.0	2.3	2.2	28.8
54-050	0.17	9.27	10.2	131.6	716.2	2.4	0.5	0.4	0.6	0.2	0.0	0.0	0.0	0.4
54-060	0.44	32.13	89.3	1,152.3	6,270.9	21.3	4.8	3.3	5.1	1.6	0.0	0.3	0.2	3.2
54-070	0.36	60.8	138.0	1,780.1	9,686.9	32.8	7.4	5.0	7.9	2.4	0.0	0.4	0.4	5.0
54-080A/B/C	0.46	414.26	1,198.5	15,460.5	84,133.9	285.2	64.2	43.6	68.3	20.9	0.1	3.4	3.2	43.1
54-090	0.10	3.55	2.2	29.0	157.7	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
54-100A/B	0.60	114.24	430.7	5,556.4	30,237.2	102.5	23.1	15.7	24.6	7.5	0.0	1.2	1.2	15.5
54-110	0.45	24.55	69.9	902.0	4,908.6	16.6	3.7	2.5	4.0	1.2	0.0	0.2	0.2	2.5
54-120	0.46	62.08	179.5	2,316.1	12,604.1	42.7	9.6	6.5	10.2	3.1	0.0	0.5	0.5	6.5
54-130	0.10	1.07	0.7	8.7	47.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
54-140A/B	0.41	113.01	291.8	3,764.0	20,483.3	69.4	15.6	10.6	16.6	5.1	0.0	0.8	0.8	10.5
54-150	0.45	55.34	156.0	2,012.2	10,950.1	37.1	8.4	5.7	8.9	2.7	0.0	0.4	0.4	5.6
54-160	0.60	2.62	9.9	128.4	698.5	2.4	0.5	0.4	0.6	0.2	0.0	0.0	0.0	0.4
54-170	0.59	8.08	30.4	392.3	2,134.7	7.2	1.6	1.1	1.7	0.5	0.0	0.1	0.1	1.1
54-180	0.60	2.82	10.7	138.1	751.8	2.5	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
54-190	0.10	2.2	1.4	18.0	97.8	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
54-200	0.10	2.13	1.3	17.4	94.6	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
54-210	0.10	1.14	0.7	9.3	50.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55-010	0.60	14.98	56.9	733.9	3,993.6	13.5	3.0	2.1	3.2	1.0	0.0	0.2	0.2	2.0
55-020	0.60	189.58	715.3	9,227.0	50,212.1	170.2	38.3	26.0	40.8	12.4	0.0	2.0	1.9	25.7
56-010	0.60	67.62	256.8	3,312.6	18,027.0	61.1	13.8	9.3	14.6	4.5	0.0	0.7	0.7	9.2
57-010	0.53	26.1	88.1	1,136.8	6,186.4	21.0	4.7	3.2	5.0	1.5	0.0	0.3	0.2	3.2
57-020	0.00	142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-030	0.45	18.22	51.9	669.4	3,643.0	12.4	2.8	1.9	3.0	0.9	0.0	0.1	0.1	1.9
57-040	0.35	39.88	88.1	1,136.2	6,183.3	21.0	4.7	3.2	5.0	1.5	0.0	0.3	0.2	3.2
57-050	0.45	7.9	22.5	290.3	1,579.6	5.4	1.2	0.8	1.3	0.4	0.0	0.1	0.1	0.8
57-060	0.46	26.11	76.4	985.9	5,365.0	18.2	4.1	2.8	4.4	1.3	0.0	0.2	0.2	2.8
57-070	0.45	81.33	232.2	2,995.4	16,300.3	55.3	12.4	8.5	13.2	4.0	0.0	0.7	0.6	8.4
57-080	0.42	5.54	14.8	191.2	1,040.5	3.5	0.8	0.5	0.8	0.3	0.0	0.0	0.0	0.5
57-090	0.47	77.77	231.0	2,980.0	16,216.7	55.0	12.4	8.4	13.2	4.0	0.0	0.7	0.6	8.3
57-100A/B	0.47	313.43	937.2	12,089.5	65,789.4	223.0	50.2	34.1	53.4	16.3	0.1	2.7	2.5	33.7
57-110	0.54	21.6	73.9	953.8	5,190.2	17.6	4.0	2.7	4.2	1.3	0.0	0.2	0.2	2.7
57-120A/B/C	0.00	65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-130	0.10	1.16	0.7	9.5	51.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57-140	0.10	1.55	1.0	12.7	68.9	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
57-150	0.43	35.68	97.5	1,257.4	6,842.4	23.2	5.2	3.5	5.6	1.7	0.0	0.3	0.3	3.5
57-160	0.10	1.89	1.2	15.4	84.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
61-010	0.55	2.86	10.0	128.8	701.1	2.4	0.5	0.4	0.6	0.2	0.0	0.0	0.0	0.4
62-010	0.45	27.84	79.7	1,027.6	5,592.2	19.0	4.3	2.9	4.5	1.4	0.0	0.2	0.2	2.9
63-010	0.45	388.79	1,112.6	14,352.5	78,104.3	264.8	59.6	40.5	63.4	19.4	0.1	3.2	3.0	40.1
63-020	0.00	11.91	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64-100	0.45	24.92	70.9	914.8	4,978.0	16.9	3.8	2.6	4.0	1.2	0.0	0.2	0.2	2.6
64-110	0.45	6.01	17.1	220.8	1,201.7	4.1	0.9	0.6	1.0	0.3	0.0	0.0	0.0	0.6
64-120	0.45	16.04	45.7	589.3	3,207.1	10.9	2.4	1.7	2.6	0.8	0.0	0.1	0.1	1.6
64-130	0.45	2.44	6.9	89.7	487.9	1.7	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.3
65-010	0.00	18.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-020	0.53	38.46	128.8	1,661.7	9,042.6	30.7	6.9	4.7	7.3	2.2	0.0	0.4	0.3	4.6
70-010	0.46	6.23	18.1	233.3	1,269.5	4.3	1.0	0.7	1.0	0.3	0.0	0.1	0.0	0.7
70-015	0.45	11.69	33.3	429.5	2,337.3	7.9	1.8	1.2	1.9	0.6	0.0	0.1	0.1	1.2
70-020	0.45	37.55	107.0	1,379.7	7,507.9	25.5	5.7	3.9	6.1	1.9	0.0	0.3	0.3	3.9
70-025	0.00	3.67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-030	0.45	13.48	38.4	494.9	2,693.2	9.1	2.1	1.4	2.2	0.7	0.0	0.1	0.1	1.4

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/01 - 04/15/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			10.0	129	702	2.38	0.536	0.364	0.570	0.174	0.000606	0.029	0.027	0.360
Precipitation (meters)	**0.184**	**7.26 inches**												
70-035	0.45	4.53	12.9	166.4	905.7	3.1	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.5
70-040	0.45	2.42	6.9	88.9	483.9	1.6	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.2
70-045	0.00	0.26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-050	0.45	17.41	49.6	639.7	3,481.0	11.8	2.7	1.8	2.8	0.9	0.0	0.1	0.1	1.8
70-055	0.46	333.43	979.5	12,635.1	68,758.5	233.1	52.5	35.7	55.8	17.0	0.1	2.8	2.6	35.3
70-060	0.45	3.53	10.1	129.7	705.8	2.4	0.5	0.4	0.6	0.2	0.0	0.0	0.0	0.4
70-065	0.45	1.89	5.4	69.4	377.9	1.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
70-070	0.45	5.8	16.5	213.1	1,159.7	3.9	0.9	0.6	0.9	0.3	0.0	0.0	0.0	0.6
70-075	0.43	5	13.7	176.1	958.4	3.2	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
70-080	0.46	11.96	35.0	451.1	2,455.0	8.3	1.9	1.3	2.0	0.6	0.0	0.1	0.1	1.3
70-085	0.45	229.48	649.6	8,379.7	45,601.3	154.6	34.8	23.6	37.0	11.3	0.0	1.9	1.8	23.4
70-090	0.45	18.57	52.9	682.3	3,713.0	12.6	2.8	1.9	3.0	0.9	0.0	0.2	0.1	1.9
70-095	0.45	9.99	28.5	367.1	1,997.4	6.8	1.5	1.0	1.6	0.5	0.0	0.1	0.1	1.0
70-100	0.45	9.64	27.5	354.2	1,927.5	6.5	1.5	1.0	1.6	0.5	0.0	0.1	0.1	1.0
70-105	0.45	1.63	4.6	59.9	325.9	1.1	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.2
70-110	0.45	18.13	51.6	666.1	3,625.0	12.3	2.8	1.9	2.9	0.9	0.0	0.1	0.1	1.9
70-115	0.45	3.71	10.6	136.3	741.8	2.5	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
70-120	0.45	4.22	12.0	155.1	843.8	2.9	0.6	0.4	0.7	0.2	0.0	0.0	0.0	0.4
70-125	0.00	5.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-130	0.49	34.29	107.1	1,382.2	7,521.8	25.5	5.7	3.9	6.1	1.9	0.0	0.3	0.3	3.9
70-135	0.45	7.46	21.2	274.1	1,491.6	5.1	1.1	0.8	1.2	0.4	0.0	0.1	0.1	0.8
70-140	0.60	0.78	3.0	38.2	207.9	0.7	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
70-145	0.60	9.19	34.9	450.2	2,450.0	8.3	1.9	1.3	2.0	0.6	0.0	0.1	0.1	1.3
70-150	0.45	4.51	12.8	165.7	901.7	3.1	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.5
70-155	0.45	2.05	5.8	75.3	409.9	1.4	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
70-160	0.45	2.95	8.4	108.4	589.8	2.0	0.5	0.3	0.5	0.1	0.0	0.0	0.0	0.3
70-165	0.45	27.77	79.1	1,020.3	5,552.5	18.8	4.2	2.9	4.5	1.4	0.0	0.2	0.2	2.8
70-170	0.45	23.74	67.6	872.3	4,746.7	16.1	3.6	2.5	3.9	1.2	0.0	0.2	0.2	2.4
70-175	0.46	30.89	89.4	1,153.2	6,275.4	21.3	4.8	3.3	5.1	1.6	0.0	0.3	0.2	3.2
70-180	0.45	1.14	3.2	41.9	227.9	0.8	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
70-185	0.45	1.53	4.4	56.2	305.9	1.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2
70-190	0.17	15.04	16.4	211.3	1,150.1	3.9	0.9	0.6	0.9	0.3	0.0	0.0	0.0	0.6
70-195	0.45	46.02	131.8	1,700.1	9,251.6	31.4	7.1	4.8	7.5	2.3	0.0	0.4	0.4	4.7
70-200	0.45	31.52	89.8	1,158.1	6,302.2	21.4	4.8	3.3	5.1	1.6	0.0	0.3	0.2	3.2
70-205	0.45	1.39	4.0	51.1	277.9	0.9	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
70-210	0.45	3.58	10.2	131.5	715.8	2.4	0.5	0.4	0.6	0.2	0.0	0.0	0.0	0.4
70-215	0.45	5.93	16.9	217.9	1,185.7	4.0	0.9	0.6	1.0	0.3	0.0	0.0	0.0	0.6
70-220	0.45	4.54	12.9	166.8	907.7	3.1	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.5
70-225	0.45	4.99	14.2	183.3	997.7	3.4	0.8	0.5	0.8	0.2	0.0	0.0	0.0	0.5
70-230	0.45	4.72	13.4	173.4	943.7	3.2	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
70-235	0.45	5.04	14.4	185.2	1,007.7	3.4	0.8	0.5	0.8	0.2	0.0	0.0	0.0	0.5
70-240	0.45	4.52	12.9	166.1	903.7	3.1	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.5
70-245	0.44	9.98	27.7	357.7	1,946.6	6.6	1.5	1.0	1.6	0.5	0.0	0.1	0.1	1.0
70-250	0.48	41.27	126.0	1,625.4	8,845.0	30.0	6.8	4.6	7.2	2.2	0.0	0.4	0.3	4.5
70-255	0.45	45.37	129.3	1,667.5	9,074.2	30.8	6.9	4.7	7.4	2.2	0.0	0.4	0.3	4.7
70-260	0.46	24.9	72.1	930.6	5,064.4	17.2	3.9	2.6	4.1	1.3	0.0	0.2	0.2	2.6
70-265A/B	0.00	183.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-270	0.45	4.66	13.3	171.2	931.7	3.2	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
70-275	0.45	4.28	12.2	157.3	855.8	2.9	0.7	0.4	0.7	0.2	0.0	0.0	0.0	0.4
70-280	0.45	9.39	26.8	345.6	1,880.7	6.4	1.4	1.0	1.5	0.5	0.0	0.1	0.1	1.0
70-285	0.45	19.03	54.1	698.4	3,800.8	12.9	2.9	2.0	3.1	0.9	0.0	0.2	0.1	1.9
70-290	0.45	2.37	6.7	86.3	469.8	1.6	0.4	0.2	0.4	0.1	0.0	0.0	0.0	0.2
70-295	0.45	7.18	20.5	263.8	1,435.6	4.9	1.1	0.7	1.2	0.4	0.0	0.1	0.1	0.7
70-300	0.10	0.4	0.3	3.3	17.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-305	0.45	12.68	35.8	461.7	2,512.5	8.5	1.9	1.3	2.0	0.6	0.0	0.1	0.1	1.3
70-310	0.00	5.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-315	0.30	5.79	11.0	141.8	771.8	2.6	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
70-320	0.44	2.32	6.4	83.2	452.7	1.5	0.3	0.2	0.4	0.1	0.0	0.0	0.0	0.2
70-325	0.00	2.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-330	0.47	279.41	833.0	10,746.2	58,479.1	198.3	44.7	30.3	47.5	14.5	0.1	2.4	2.2	30.0
70-335	0.45	1.99	5.7	73.1	397.9	1.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
70-340	0.39	22.25	55.4	714.7	3,889.5	13.2	3.0	2.0	3.2	1.0	0.0	0.2	0.1	2.0
70-345	0.45	3.81	10.9	140.0	761.8	2.6	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
70-350	0.49	314.4	983.3	12,684.2	69,025.8	234.0	52.7	35.8	56.0	17.1	0.1	2.8	2.7	35.4
70-355	0.45	1.29	3.7	47.4	257.9	0.9	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
70-360	0.45	131.96	379.6	4,897.1	26,649.1	90.3	20.3	13.8	21.6	6.6	0.0	1.1	1.0	13.7
70-365	0.45	6.7	19.1	246.2	1,339.6	4.5	1.0	0.7	1.1	0.3	0.0	0.1	0.1	0.7
70-370	0.44	3.75	10.5	135.6	738.1	2.5	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
70-375	0.47	7.1	21.2	274.0	1,491.0	5.1	1.1	0.8	1.2	0.4	0.0	0.1	0.1	0.8
70-380	0.45	14.4	41.0	529.1	2,879.2	9.8	2.2	1.5	2.3	0.7	0.0	0.1	0.1	1.5
70-385	0.45	14.97	42.6	550.0	2,993.2	10.1	2.3	1.6	2.4	0.7	0.0	0.1	0.1	1.5
70-390	0.46	58.11	170.4	2,197.9	11,960.5	40.5	9.1	6.2	9.7	3.0	0.0	0.5	0.5	6.1
70-395	0.43	57.19	155.5	2,005.7	10,914.5	37.0	8.3	5.7	8.9	2.7	0.0	0.4	0.4	5.6
70-400	0.44	9.67	26.9	346.5	1,885.5	6.4	1.4	1.0	1.5	0.5	0.0	0.1	0.1	1.0
70-405	0.25	7.16	11.3	146.2	795.6	2.7	0.6	0.4	0.6	0.2	0.0	0.0	0.0	0.4
70-410	0.43	5.8	15.7	203.1	1,105.2	3.7	0.8	0.6	0.9	0.3	0.0	0.0	0.0	0.6
70-415	0.45	120.75	346.9	4,475.6	24,355.7	82.6	18.6	12.6	19.8	6.0	0.0	1.0	0.9	12.5
70-420	0.45	16.99	48.4	624.2	3,397.1	11.5	2.6	1.8	2.8	0.8	0.0	0.1	0.1	1.7
70-425	0.51	20.63	66.7	860.7	4,683.9	15.9	3.6	2.4	3.8	1.2	0.0	0.2	0.2	2.4
70-430	0.10	6.19	3.9	50.5	275.0	0.9	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
70-435	0.10	9.16	5.8	74.8	407.0	1.4	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
70-440	0.50	34.48	108.4	1,398.4	7,609.7	25.8	5.8	3.9	6.2	1.9	0.0	0.3	0.3	3.9
70-445	0.45	5.6	15.9	205.8	1,119.7	3.8	0.9	0.6	0.9	0.3	0.0	0.0	0.0	0.6
70-450	0.45	2.65	7.5	97.4	529.9	1.8	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.3
70-455	0.00	2.66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70-460	0.45	2.67	7.6	98.1	533.9	1.8	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.3
70-465	0.45	2.58	7.3	94.8	515.9	1.7	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.3

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL

2001 WINTER/SNOWMELT POLLUTANT LOADINGS BY OUTFALL - KILOGRAMS (01/01/01 - 04/15/01)

OUTFALL	RUNOFF COEFF.	ACRES	BOD mg\l	TSS mg\l	TDS mg\l	TKN mg\l	NH3-N mg\l	NO2-NO3 mg\l	TP mg\l	TDP mg\l	Cd mg\l	Cu mg\l	Pb mg\l	Zn mg\l
Winter/snowmelt Median Event Mean Concentration			10.0	129	702	2.38	0.536	0.364	0.570	0.174	0.000606	0.029	0.027	0.360
Precipitation (meters)	**0.184**	**7.26 inches**												
70-470	0.38	8.55	20.8	268.1	1,459.0	4.9	1.1	0.8	1.2	0.4	0.0	0.1	0.1	0.7
70-475	0.46	229.14	667.6	8,612.3	46,866.9	158.9	35.8	24.3	38.1	11.6	0.0	1.9	1.8	24.0
70-480	0.60	0.31	1.2	15.2	82.6	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
70-485	0.45	13.36	38.1	490.9	2,671.3	9.1	2.0	1.4	2.2	0.7	0.0	0.1	0.1	1.4
70-490	0.47	48.75	144.8	1,868.2	10,166.7	34.5	7.8	5.3	8.3	2.5	0.0	0.4	0.4	5.2
70-495	0.45	7.74	22.0	284.4	1,547.6	5.2	1.2	0.8	1.3	0.4	0.0	0.1	0.1	0.8
70-500	0.45	0.56	1.6	20.6	112.0	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
70-505	0.41	8.12	21.2	272.9	1,485.1	5.0	1.1	0.8	1.2	0.4	0.0	0.1	0.1	0.8
70-510	0.45	41.82	119.5	1,541.6	8,389.0	28.4	6.4	4.3	6.8	2.1	0.0	0.3	0.3	4.3
70-515	0.47	62.73	186.6	2,406.9	13,097.9	44.4	10.0	6.8	10.6	3.2	0.0	0.5	0.5	6.7
70-520	0.45	6.05	17.2	222.3	1,209.7	4.1	0.9	0.6	1.0	0.3	0.0	0.0	0.0	0.6
70-525	0.45	6.23	17.7	228.9	1,245.7	4.2	1.0	0.6	1.0	0.3	0.0	0.1	0.0	0.6
70-530	0.45	1.67	4.8	61.4	333.9	1.1	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
70-535	0.45	30.24	86.3	1,113.7	6,060.4	20.5	4.6	3.1	4.9	1.5	0.0	0.2	0.2	3.1
70-540	0.21	5.1	6.9	88.9	483.7	1.6	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.2
70-545	0.45	1.89	5.4	69.4	377.9	1.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
70-550	0.26	1.3	2.1	27.5	149.5	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
70-555	0.45	1.73	4.9	63.6	345.9	1.2	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
70-560	0.45	3.33	9.5	122.4	665.8	2.3	0.5	0.3	0.5	0.2	0.0	0.0	0.0	0.3
70-565	0.24	16.63	25.3	326.6	1,777.5	6.0	1.4	0.9	1.4	0.4	0.0	0.1	0.1	0.9
70-570	0.45	1.23	3.5	45.2	245.9	0.8	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
70-575	0.45	15.39	43.8	564.9	3,074.1	10.4	2.3	1.6	2.5	0.8	0.0	0.1	0.1	1.6
70-580	0.43	119.93	329.3	4,247.8	23,115.8	78.4	17.6	12.0	18.8	5.7	0.0	0.9	0.9	11.9
71-010	0.10	1.12	0.7	9.1	49.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-020	0.45	14.05	40.0	516.2	2,809.2	9.5	2.1	1.5	2.3	0.7	0.0	0.1	0.1	1.4
71-030	0.45	28.58	81.8	1,055.8	5,745.6	19.5	4.4	3.0	4.7	1.4	0.0	0.2	0.2	2.9
71-040	0.22	20.93	29.1	375.1	2,041.2	6.9	1.6	1.1	1.7	0.5	0.0	0.1	0.1	1.0
71-050	0.46	120.42	349.1	4,503.1	24,505.1	83.1	18.7	12.7	19.9	6.1	0.0	1.0	0.9	12.6
71-060	0.45	3.11	8.9	114.3	621.8	2.1	0.5	0.3	0.5	0.2	0.0	0.0	0.0	0.3
71-070	0.00	386.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71-080	0.46	101.79	294.0	3,792.1	20,636.3	70.0	15.8	10.7	16.8	5.1	0.0	0.8	0.8	10.6
71-090	0.45	6.5	18.3	236.5	1,286.8	4.4	1.0	0.7	1.0	0.3	0.0	0.1	0.0	0.7
71-100	0.10	1.99	1.3	16.2	88.4	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
72-010	0.18	17.32	19.2	247.6	1,347.5	4.6	1.0	0.7	1.1	0.3	0.0	0.1	0.1	0.7
72-020	0.40	24.7	61.8	796.9	4,336.5	14.7	3.3	2.2	3.5	1.1	0.0	0.2	0.2	2.2
72-030	0.10	5.25	3.3	42.9	233.3	0.8	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
72-040	0.42	166.54	439.1	5,663.9	30,822.4	104.5	23.5	16.0	25.0	7.6	0.0	1.3	1.2	15.8
72-050	0.10	5.16	3.3	42.1	229.3	0.8	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
72-060	0.36	113.04	258.8	3,338.5	18,167.7	61.6	13.9	9.4	14.8	4.5	0.0	0.7	0.7	9.3
72-070	0.10	2.21	1.4	18.0	98.2	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
72-080	0.60	4.74	18.0	232.2	1,263.6	4.3	1.0	0.7	1.0	0.3	0.0	0.1	0.0	0.6
72-090	0.45	68.71	194.5	2,508.7	13,651.8	46.3	10.4	7.1	11.1	3.4	0.0	0.6	0.5	7.0
72-100	0.46	68.32	200.2	2,582.8	14,055.0	47.7	10.7	7.3	11.4	3.5	0.0	0.6	0.5	7.2
72-110	0.10	3.22	2.0	26.3	143.1	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1
72-120	0.45	62.98	179.4	2,314.0	12,592.5	42.7	9.6	6.5	10.2	3.1	0.0	0.5	0.5	6.5
72-130	0.46	58.06	167.7	2,163.2	11,772.1	39.9	9.0	6.1	9.6	2.9	0.0	0.5	0.5	6.0
72-140	0.10	10.19	6.4	83.2	452.8	1.5	0.3	0.2	0.4	0.1	0.0	0.0	0.0	0.2
72-150	0.10	4.76	3.0	38.9	211.5	0.7	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
72-160	0.10	4.55	2.9	37.2	202.2	0.7	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
73-010	0.44	20.76	57.7	743.9	4,048.3	13.7	3.1	2.1	3.3	1.0	0.0	0.2	0.2	2.1
73-020	0.44	57.47	161.0	2,076.7	11,301.3	38.3	8.6	5.9	9.2	2.8	0.0	0.5	0.4	5.8
73-030	0.10	21.56	13.6	176.0	958.0	3.2	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
74-010	0.48	44.39	134.5	1,734.9	9,440.9	32.0	7.2	4.9	7.7	2.3	0.0	0.4	0.4	4.8
74-020	0.45	4.41	12.6	162.0	881.8	3.0	0.7	0.5	0.7	0.2	0.0	0.0	0.0	0.5
75-005	0.45	12.39	35.2	454.7	2,474.3	8.4	1.9	1.3	2.0	0.6	0.0	0.1	0.1	1.3
75-010	0.60	3.65	13.9	178.8	973.1	3.3	0.7	0.5	0.8	0.2	0.0	0.0	0.0	0.5
75-020	0.45	1.53	4.4	56.2	305.9	1.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2
75-030	0.45	8.38	23.9	307.9	1,675.5	5.7	1.3	0.9	1.4	0.4	0.0	0.1	0.1	0.9
75-040	0.45	14.74	42.0	541.6	2,947.2	10.0	2.3	1.5	2.4	0.7	0.0	0.1	0.1	1.5
76-010	0.46	907.31	2,663.7	34,361.6	186,990.8	634.0	142.8	97.0	151.8	46.3	0.2	7.6	7.2	95.9
76-020	0.46	88.62	255.6	3,297.1	17,942.5	60.8	13.7	9.3	14.6	4.4	0.0	0.7	0.7	9.2
76-030	0.45	7.55	21.5	277.4	1,509.6	5.1	1.2	0.8	1.2	0.4	0.0	0.1	0.1	0.8
76-040	0.19	4.67	5.5	71.0	386.2	1.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.2
76-050	0.00	2.39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81-010	0.10	31.17	19.7	254.5	1,384.9	4.7	1.1	0.7	1.1	0.3	0.0	0.1	0.1	0.7
82-010	0.49	23.53	72.5	934.8	5,087.1	17.2	3.9	2.6	4.1	1.3	0.0	0.2	0.2	2.6
82-020	0.45	73.45	211.4	2,727.6	14,843.0	50.3	11.3	7.7	12.1	3.7	0.0	0.6	0.6	7.6
82-030	0.45	90.04	259.1	3,342.8	18,191.0	61.7	13.9	9.4	14.8	4.5	0.0	0.7	0.7	9.3
82-040	0.46	98.49	289.2	3,730.5	20,301.0	68.8	15.5	10.5	16.5	5.0	0.0	0.8	0.8	10.4
83-010	0.45	6.59	18.8	242.1	1,317.6	4.5	1.0	0.7	1.1	0.3	0.0	0.1	0.1	0.7
83-015	0.45	0.99	2.8	36.4	197.9	0.7	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.1
83-020	0.43	85.96	236.5	3,051.5	16,605.7	56.3	12.7	8.6	13.5	4.1	0.0	0.7	0.6	8.5
83-025	0.45	51.23	145.9	1,882.3	10,243.1	34.7	7.8	5.3	8.3	2.5	0.0	0.4	0.4	5.3
83-030	0.60	0.82	3.1	40.2	218.6	0.7	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1
83-040	0.10	1.08	0.7	8.8	48.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-050	0.45	40.4	115.4	1,488.4	8,099.8	27.5	6.2	4.2	6.6	2.0	0.0	0.3	0.3	4.2
83-060	0.45	10.05	28.6	369.3	2,009.4	6.8	1.5	1.0	1.6	0.5	0.0	0.1	0.1	1.0
83-070	0.10	1.19	0.8	9.7	52.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
83-080	0.48	178.63	537.5	6,934.2	37,735.2	127.9	28.8	19.6	30.6	9.4	0.0	1.5	1.5	19.4
83-090	0.41	9.16	23.8	306.5	1,667.8	5.7	1.3	0.9	1.4	0.4	0.0	0.1	0.1	0.9
84-010	0.47	21.56	64.2	828.0	4,505.6	15.3	3.4	2.3	3.7	1.1	0.0	0.2	0.2	2.3
85-010	0.10	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WINTER (SNOWMELT) SEASONAL SUMMATION (kg)			**85,495.80**	**1,102,895.84**	**6,001,805.30**	**20,348.00**	**4,582.57**	**3,112.05**	**4,873.26**	**1,487.63**	**5.18**	**243.66**	**230.84**	**3,077.85**

2001 NPDES Related Costs and 5-Year Budgets

City of Minneapolis
Sewer Maintenance Department

Storm Drain Operation and Control	2001	2002	2003	2004	2005	2006
Maintenance Related Costs						
Back-up complaints	$173,000	$178,796	$184,785	$190,975	$197,373	$203,985
Miscellaneous	$53,000	$54,776	$56,610	$58,507	$60,467	$62,493
Complaints, MH Covers, Catch Basin Grates	$43,000	$44,441	$45,929	$47,468	$49,058	$50,702
Cave-ins	$12,000	$12,402	$12,817	$13,247	$13,691	$14,149
Minor Repairs	$319,000	$329,687	$340,731	$352,145	$363,942	$376,134
Major Repairs	$214,000	$221,169	$228,578	$236,236	$244,149	$252,328
CIPP	$16,000	$16,536	$17,090	$17,662	$18,254	$18,866
	$830,000	**$857,805**	**$886,541**	**$916,241**	**$946,935**	**$978,657**
Construction Related Costs						
LRT	$4,630,000	$4,785,105	$4,945,406	$5,111,077	$5,282,298	$5,459,255
33rd Ave Flood Project	$430,000	$444,405	$459,293	$474,679	$490,581	$507,015
2nd and 5th Tunnel Repair	$200,000	$206,700	$213,624	$220,781	$228,177	$235,821
31st and California	$142,000	$146,757	$151,673	$156,754	$162,006	$167,433
Nicollet Avenue	$40,000	$41,340	$42,725	$44,156	$45,635	$47,164
11th & Minnehaha	$80,000	$82,680	$85,450	$88,312	$91,271	$94,328
Bluff Street	$41,000	$42,374	$43,793	$45,260	$46,776	$48,343
Pierce Alley	$71,000	$73,379	$75,837	$78,377	$81,003	$83,716
	$5,634,000	**$5,822,739**	**$6,017,801**	**$6,219,397**	**$6,427,747**	**$6,643,076**
Storm Drain Operation and Control Total	**$6,464,000**	**$6,680,544**	**$6,904,342**	**$7,135,638**	**$7,374,682**	**$7,621,733**
Structural Controls Maintenance and Operation						
Maintenance Related Costs						
Pumping Stations	$96,000	$99,216	$102,540	$105,975	$109,525	$113,194
Grit Chambers	$75,000	$77,513	$80,109	$82,793	$85,566	$88,433
Holding Ponds	$115,000	$118,853	$122,834	$126,949	$131,202	$135,597
	$286,000	**$295,581**	**$305,483**	**$315,717**	**$326,293**	**$337,224**
Construction Related Costs						
60th and !st	$7,200,000	$7,441,200	$7,690,480	$7,948,111	$8,214,373	$8,489,555
Holland Pond	$4,600,000	$4,754,100	$4,913,362	$5,077,960	$5,248,072	$5,423,882
10ths Street Overflow	$36,000	$37,206	$38,452	$39,741	$41,072	$42,448
	$11,836,000	**$12,232,506**	**$12,642,295**	**$13,065,812**	**$13,503,517**	**$13,955,884**
Structural Controls Maintenance and Operation Total	**$12,122,000**	**$12,528,087**	**$12,947,778**	**$13,381,528**	**$13,829,810**	**$14,293,108**
Disposal Of Removed Substances						
Included in above costs						
Illicit Discharges and Improper Disposal						
Included in above costs						

Street Maintenance 2001 Costs and 5-Yr Budget
(NPDES activities: Roadways and Illicit Discharges)

Task	Task Description	2001	1997	1998	1999	2000	2002	2003	2004	2005	2006
C05	Spring Clean up	1,002,774	1,053,282	1,347,608	748,091	807,983					
C10	Summer Sweeping	560,856	444,475	252,907	499,969	584,749					
C15	Fall Clean up (10/23-11/17)	1,249,136	1,026,893	1,212,619	1,126,653	1,011,767					
C20	Storm Water Activity	165,765	117,565	53,890	198,817	220,157					
C25	Sweep Loop & Bus Dist	290,116	214,357	212,117	198,781	284,161					
C45	Misc. Street Sweep	139,366	42,384	28,684	94,662	183,378					
C55	Clean Paved Cntr Islnd	16,062	21,139	11,904	10,377	25,875					
	Subtotal	3,424,075	2,920,095	3,119,729	2,877,350	3,118,070					
D05	Mach. Sweep Alleys	177,251	160,494	215,951	152,798	149,470					
	Subtotal	177,251	160,494	215,951	152,798	149,470					
I05	Clean CB's & Drains	93,548	84,834	134,820	57,592	94,963					
I25	Flood Control	0	24,184	1,330	0	0					
	Subtotal	93,548	109,018	136,150	57,592	94,963					
J09	Special Events	68,091	46,739	59,863	54,815	56,107					
J10	Misc.	32,695	365,208	1,262,262	80,982	151,968					
J15	Waste Disposal	223,510	175,226	156,818	247,383	296,285					
J20	Dump Maint.	157,588	85,904	84,293	69,191	47,456					
	Other Tasks	336,971	142,240	156,170	193,654	548,660					
	Subtotal	818,854	815,317	1,719,405	646,025	1,100,475					
			(storms)	*(storms)*							
	GRAND TOTAL	**4,513,728**	**4,004,924**	**5,191,234**	**3,733,764**	**4,462,978**	**4,872,310**	**5,023,000**	**5,174,000**	**5,329,000**	**5,488,000**

Low Level Org Expense Status - Daily

Run Date: 04/03/2002

Last Acceptance Date: 1/31/02

Fiscal Year: 2001

Month of last transaction recorded: 12/2001

Percent of year remaining: -8.00%

Fund	Agency	Low Level	Object	Sub Object	Current Budget	Expended Amount	Encumbered Amount	Remaining Available	Percent Available
1500	**PARK - GENERAL FUND**								
	710	**PARK BOARD**							
		7173	**WATER QUALITY EDUCATION-LPC**						
			4000	**SALARIES/WAGES - REGULAR**	**0**	**55,332.43**	**0.00**	**-55,332.43**	**NA**
				01 SALARIES & WAGES REGULAR	0	55,332.43	0.00		
			4005	**BACK PAY - REGULAR TIME**	**0**	**888.92**	**0.00**	**-888.92**	**NA**
				01 BACK PAY - REGULAR TIME	0	888.92	0.00		
			4034	**COMP TIME EARNED-STR TIME**	**0**	**1,051.65**	**0.00**	**-1,051.65**	**NA**
				01 COMP TIME EARNED-STR TIME	0	1,051.65	0.00		
			4500	**VACATION**	**0**	**1,948.32**	**0.00**	**-1,948.32**	**NA**
				01 VACATION	0	1,948.32	0.00		
			4600	**SICK LEAVE**	**0**	**498.15**	**0.00**	**-498.15**	**NA**
				01 SICK LEAVE	0	498.15	0.00		
			4610	**UNUSED SICK LEAVE**	**0**	**1,004.50**	**0.00**	**-1,004.50**	**NA**
				01 UNUSED SICK LEAVE	0	1,004.50	0.00		
			Total for Object Class 400 - PERSONAL SERVICES:		**0**	**60,723.97**	**0.00**	**-60,723.97**	**NA**
			5010	**ADVERTISING & PUBLICATIONS**	**0**	**14,612.47**	**0.00**	**-14,612.47**	**NA**
				01 ADVERTISING & PROMOTIONS	0	14,612.47	0.00		
			5021	**POSTAGE**	**0**	**74.03**	**0.00**	**-74.03**	**NA**
				01 POSTAGE	0	74.03	0.00		
			5024	**RADIO SERVICES**	**0**	**262.56**	**0.00**	**-262.56**	**NA**
				01 RAD/PAGE/CELPHONE RENTAL	0	262.56	0.00		
			5025	**TELEPHONE SERVICES**	**0**	**186.09**	**0.00**	**-186.09**	**NA**
				06 TELEPHONE - INSTALLATION	0	186.09	0.00		
			5055	**PRINTING & COPYING**	**0**	**9,887.90**	**0.00**	**-9,887.90**	**NA**
				01 PRINTING & COPYING	0	9,887.90	0.00		
			5070	**PROFESSIONAL SERVICES**	**0**	**15,593.89**	**0.00**	**-15,593.89**	**NA**
				19 OTHER PROFESSIONAL SERVICES	0	15,593.89	0.00		
			5072	**TRAINING**	**0**	**1,539.00**	**0.00**	**-1,539.00**	**NA**
				01 TRAINING	0	1,539.00	0.00		
			5077	**ITS SERVICES**	**0**	**500.00**	**0.00**	**-500.00**	**NA**
				03 COMPUTER USAGE ASSESSMENT	0	500.00	0.00		
			5080	**RENT**	**0**	**0.00**	**0.00**	**0.00**	**NA**
				04 OTHER RENTALS	0	0.00	0.00		
			5090	**RENT-MOBILE EQUIPMENT**	**0**	**2,760.00**	**0.00**	**-2,760.00**	**NA**
				05 RENT-MOB EQ CITY - PARK BOARD	0	2,760.00	0.00		
			5130	**MISCELLANEOUS**	**0**	**3,443.52**	**0.00**	**-3,443.52**	**NA**
				07 MISCELLANEOUS CONTRACTUAL SRVC	0	3,443.52	0.00		
			Total for Object Class 500 - CONTRACTUAL SERVICES:		**0**	**48,859.46**	**0.00**	**-48,859.46**	**NA**
			6040	**TRANSPORTATION**	**0**	**352.84**	**0.00**	**-352.84**	**NA**
				01 AUTO ALLOWANCE	0	345.09	0.00		
				02 PARKING	0	7.75	0.00		
			6050	**EDUCATION**	**0**	**170.00**	**0.00**	**-170.00**	**NA**

Entered Paramaters: Fiscal Year=2001, Acceptance Date From =1/1/01, Acceptance Date To =2/28/02, Fund From =1500, Fund To =1500, Agency From =710, Agency To =710, Level 2 Org From =7173, Level 2 Org To =7173, Report=FR20

Low Level Org Expense Status - Daily

Run Date: 04/03/2002

Last Acceptance Date: 1/31/02

Fiscal Year: 2001

Month of last transaction recorded: 12/2001

Percent of year remaining: -8.00%

Fund	Agency	Low Level	Object	Sub Object	Current Budget	Expended Amount	Encumbered Amount	Remaining Available	Percent Available
1500	**PARK - GENERAL FUND**								
	710	**PARK BOARD**							
		7173	**WATER QUALITY EDUCATION-LPC**						
				01 REGISTRATION FEE & TUITION	0	170.00	0.00		
			6100	**ADMINISTRATION SUPPLIES**	**0**	**47.90**	**0.00**	**-47.90**	**NA**
				01 AUDIOVISUAL/PHOTOGRAPHY SUPPL	0	39.62	0.00		
				07 MISC ADMINISTRATION SUPPLIES	0	8.28	0.00		
			6102	**EDUCATION SUPPLIES**	**0**	**134.32**	**0.00**	**-134.32**	**NA**
				01 EDUCATION SUPPLIES	0	134.32	0.00		
			6104	**OFFICE SUPPLIES**	**0**	**46.66**	**0.00**	**-46.66**	**NA**
				01 OFFICE SUPPLIES	0	46.66	0.00		
			6110	**OPERATING SUPPLIES**	**0**	**449.40**	**0.00**	**-449.40**	**NA**
				03 CLEANING SUPPLIES	0	15.19	0.00		
				11 RECREATION SUPPLIES	0	125.01	0.00		
				13 MISC OPERATING SUPPLIES	0	309.20	0.00		
			6130	**REPAIR & MAINT SUPPLIES**	**0**	**53.01**	**0.00**	**-53.01**	**NA**
				04 PAINTING SUPPLIES	0	43.73	0.00		
				05 PLUMBING/PIPEFITTING SUPPLIES	0	9.28	0.00		
			6150	**SMALL TOOLS & MINOR EQUIP**	**0**	**116.09**	**0.00**	**-116.09**	**NA**
				01 SMALL TOOLS & MINOR EQUIPMENT	0	116.09	0.00		
			6170	**UNIFORMS, CLOTHING, PERS**	**0**	**763.21**	**0.00**	**-763.21**	**NA**
				01 UNIFORMS, CLOTHING & PERSONAL	0	763.21	0.00		
			6190	**OTHER OPERATING COSTS**	**0**	**1,332.83**	**0.00**	**-1,332.83**	**NA**
				17 MISC OTHER OPERATING COST	0	1,332.83	0.00		
			6192	**MEMBERSHIPS & DUES**	**0**	**15.00**	**0.00**	**-15.00**	**NA**
				01 MEMBERSHIPS & DUES	0	15.00	0.00		
			6194	**REFRESHMENTS - FOOD & BEVERAGE**	**0**	**1,384.85**	**0.00**	**-1,384.85**	**NA**
				01 REFRESHMENTS - FOOD & BEVERAGE	0	1,384.85	0.00		
			Total for Object Class 600 - OPERATING COSTS:		**0**	**4,866.11**	**0.00**	**-4,866.11**	**NA**
			7812	**PERA**	**0**	**3,133.53**	**0.00**	**-3,133.53**	**NA**
				01 PERA	0	3,133.53	0.00		
			7813	**FICA**	**0**	**3,754.45**	**0.00**	**-3,754.45**	**NA**
				01 FICA	0	3,754.45	0.00		
			7821	**MEDICARE**	**0**	**878.01**	**0.00**	**-878.01**	**NA**
				01 MEDICARE INSURANCE	0	878.01	0.00		
			7827	**DELTA DENTAL INSURANCE**	**0**	**605.71**	**0.00**	**-605.71**	**NA**
				01 DELTA DENTAL INSURANCE	0	605.71	0.00		
			7829	**HEALTH INSURANCE**	**0**	**2,340.81**	**0.00**	**-2,340.81**	**NA**
				02 BLUE CROSS BLUE SHIELD	0	2,340.81	0.00		
			7840	**SEVERANCE**	**0**	**376.64**	**0.00**	**-376.64**	**NA**
				01 SEVERANCE	0	376.64	0.00		
			7860	**LIFE INSURANCE**	**0**	**34.80**	**0.00**	**-34.80**	**NA**
				01 LIFE INSURANCE	0	34.80	0.00		

Entered Paramaters: Fiscal Year=2001, Acceptance Date From =1/1/01, Acceptance Date To =2/28/02, Fund From =1500, Fund To =1500, Agency From =710, Agency To =710, Level 2 Org From =7173, Level 2 Org To =7173, Report=FR20

Low Level Org Expense Status - Daily

Run Date: 04/03/2002

Last Acceptance Date: 1/31/02

Fiscal Year: 2001

Month of last transaction recorded: 12/2001

Percent of year remaining: -8.00%

Fund	Agency	Low Level	Object	Sub Object	Current Budget	Expended Amount	Encumbered Amount	Remaining Available	Percent Available
1500	**PARK - GENERAL FUND**								
	710	**PARK BOARD**							
		7173	**WATER QUALITY EDUCATION-LPC**						
				Total for Object Class 780 - FRINGES:	**0**	**11,123.95**	**0.00**	**-11,123.95**	**NA**
			8035	**CAPITALIZED SOFTWARE**	**0**	**510.14**	**0.00**	**-510.14**	**NA**
				01 SOFTWARE	0	510.14	0.00		
				Total for Object Class 800 - EQUIPMENT:	**0**	**510.14**	**0.00**	**-510.14**	**NA**
				Total for 2nd Org: 7173 - WATER QUALITY EDUCATION-LPC:	**0**	**126,083.63**	**0.00**	**-126,083.63**	**NA**
				Total for Agency 710 - PARK BOARD:	**0**	**126,083.63**	**0.00**	**-126,083.63**	**NA**
				Total for Fund 1500 - PARK - GENERAL FUND:	**0**	**126,083.63**	**0.00**	**-126,083.63**	**NA**
				Grand Total:	**0**	**126,083.63**	**0.00**	**-126,083.63**	**NA**

Entered Paramaters: Fiscal Year=2001, Acceptance Date From =1/1/01, Acceptance Date To =2/28/02, Fund From =1500, Fund To =1500, Agency From =710, Agency To =710, Level 2 Org From =7173, Level 2 Org To =7173, Report=FR20

Stormwater Education Program

Program Budgets 2001-2006

					Proposed		
		2001	2002	2003	2004	2005	2006
Reduce Pesticide/Fertilizer Discharge							
Spring Utility Bill Inserts	$4,410.00						
Public Service Announcements (Billboards)	$12,000.00						
Advertising- Graphic Production	$6,250.00						
Mpls. Cable TV- video showings	n/c						
Reduce Pesticide/Fertilizer Total		**$22,660.00**	**$23,339.80**	**$24,039.99**	**$24,761.19**	**$25,504.03**	**$26,269.15**
Proper Discharge of Non-Stormwater							
Solid-Waste Recycling Calendar (Written Piece 3/year)	n/c						
Non-Stormwater Discharge Fact Sheets	$4,800.00						
Advertising-Graphic Production	$6,250.00						
Proper Discharge of Non-Stormwater Total		**$11,050.00**	**$11,381.50**	**$11,722.95**	**$12,074.63**	**$12,436.87**	**$12,809.98**
City-Wide Education Programs							
Fall utility bill inserts	$4,410.00						
Catch Basin Stenciling Program	$5,000.00						
Southwest Journal Monthly Newspaper Columns	n/c						
Elementary School Outreach Program (Billy Bass/Crystal Clear)	$8,700.00						
Bookmark Design and Production	$2,400.00						
Development of Educational Displays	$6,000.00						
Educational Materials and Supplies	$4,000.00						
Annual Earth Day Watershed Clean Up Event	$15,665.00						
Program Support (0.5 FTE Aide Staffing Costs)	$19,895.20						
Program Management (Staffing Costs)	$53,467.20						
City-Wide Education Programs Total		**$119,537.40**	**$123,123.52**	**$126,817.23**	**$130,621.74**	**$134,540.40**	**$138,576.61**
Pesticide Application Pilot Program on City Property	$6,800.00	**$6,800.00**	**$7,004.00**	**$7,214.12**	**$7,430.54**	**$7,653.46**	**$7,883.06**
Annual Program Totals		**$160,047.40**	**$164,848.82**	**$169,794.29**	**$174,888.12**	**$180,134.76**	**$185,538.80**
City of Minneapolis Public Works		***$97,500.00***	***$100,425.00***	***$103,437.75***	***$106,540.88***	***$109,737.11***	***$113,029.22***

Low Level Org Expense Status - Daily

Run Date: 04/02/2002

Last Acceptance Date: 1/31/02

Fiscal Year: 2001

Month of last transaction recorded: 12/2001

Percent of year remaining: -8.00%

Fund	Agency	Low Level	Object	Sub Object	Current Budget	Expended Amount	Encumbered Amount	Remaining Available	Percent Available
1500	**PARK - GENERAL FUND**								
	710	**PARK BOARD**							
		7178	**AQUATIC-LPC**						
			4000	**SALARIES/WAGES - REGULAR**	**0**	**113,173.51**	**0.00**	**-113,173.51**	**NA**
				01 SALARIES & WAGES REGULAR	0	113,173.51	0.00		
			4005	**BACK PAY - REGULAR TIME**	**0**	**825.98**	**0.00**	**-825.98**	**NA**
				01 BACK PAY - REGULAR TIME	0	825.98	0.00		
			4034	**COMP TIME EARNED-STR TIME**	**0**	**199.26**	**0.00**	**-199.26**	**NA**
				01 COMP TIME EARNED-STR TIME	0	199.26	0.00		
			4200	**OVERTIME - 1.5 TIME**	**0**	**178.56**	**0.00**	**-178.56**	**NA**
				01 OVERTIME - 1.5 TIME	0	178.56	0.00		
			4500	**VACATION**	**0**	**3,587.41**	**0.00**	**-3,587.41**	**NA**
				01 VACATION	0	3,587.41	0.00		
			4600	**SICK LEAVE**	**0**	**1,481.07**	**0.00**	**-1,481.07**	**NA**
				01 SICK LEAVE	0	1,481.07	0.00		
			4900	**OTHER LEAVE**	**0**	**570.08**	**0.00**	**-570.08**	**NA**
				01 OTHER LEAVE	0	570.08	0.00		
			Total for Object Class 400 - PERSONAL SERVICES:		**0**	**120,015.87**	**0.00**	**-120,015.87**	**NA**
			5021	**POSTAGE**	**0**	**37.10**	**0.00**	**-37.10**	**NA**
				01 POSTAGE	0	37.10	0.00		
			5024	**RADIO SERVICES**	**0**	**362.19**	**0.00**	**-362.19**	**NA**
				01 RAD/PAGE/CELPHONE RENTAL	0	362.19	0.00		
			5025	**TELEPHONE SERVICES**	**0**	**978.29**	**0.00**	**-978.29**	**NA**
				06 TELEPHONE - INSTALLATION	0	978.29	0.00		
			5070	**PROFESSIONAL SERVICES**	**0**	**50,548.18**	**0.00**	**-50,548.18**	**NA**
				01 ACTUARIAL FEES	0	3,762.00	0.00		
				07 ENGINEERING/ARCHITECTURAL SRVC	0	665.00	0.00		
				19 OTHER PROFESSIONAL SERVICES	0	46,121.18	0.00		
			5077	**ITS SERVICES**	**0**	**3,000.00**	**0.00**	**-3,000.00**	**NA**
				03 COMPUTER USAGE ASSESSMENT	0	3,000.00	0.00		
			5080	**RENT**	**0**	**434.52**	**0.00**	**-434.52**	**NA**
				04 OTHER RENTALS	0	434.52	0.00		
			5081	**BUILDING/OFFICE RENTAL**	**0**	**4,249.90**	**0.00**	**-4,249.90**	**NA**
				01 BUILDING/OFFICE RENT	0	4,249.90	0.00		
			5090	**RENT-MOBILE EQUIPMENT**	**0**	**12,898.12**	**0.00**	**-12,898.12**	**NA**
				05 RENT-MOB EQ CITY - PARK BOARD	0	6,440.00	0.00		
				13 RENT EQUIPMENT EMIS MONTHLY	0	6,392.00	0.00		
				14 RENT EQUIPMENT EMIS OTHER	0	66.12	0.00		
			5100	**REPAIR & MAINTENANCE-CONT**	**0**	**542.80**	**0.00**	**-542.80**	**NA**
				12 MISC REPAIR & MAINTENANCE SRVC	0	542.80	0.00		
			5130	**MISCELLANEOUS**	**0**	**4,752.17**	**0.00**	**-4,752.17**	**NA**
				07 MISCELLANEOUS CONTRACTUAL SRVC	0	4,752.17	0.00		
		Total for Object Class 500 - CONTRACTUAL SERVICES:			**0**	**77,803.27**	**0.00**	**-77,803.27**	**NA**

Entered Paramaters: Fiscal Year=2001, Acceptance Date From =1/1/01, Acceptance Date To =2/28/02, Fund From =1500, Fund To =1500, Agency From =710, Agency To =710, Level 2 Org From =7178, Level 2 Org To =7178, Report=FR20

Low Level Org Expense Status - Daily

Run Date: 04/02/2002

Last Acceptance Date: 1/31/02

Fiscal Year: 2001

Month of last transaction recorded: 12/2001

Percent of year remaining: -8.00%

Fund	Agency	Low Level	Object	Sub Object	Current Budget	Expended Amount	Encumbered Amount	Remaining Available	Percent Available
1500	**PARK - GENERAL FUND**								
	710	**PARK BOARD**							
		7178	**AQUATIC-LPC**						
			6040	**TRANSPORTATION**	**0**	**65.66**	**0.00**	**-65.66**	**NA**
				01 AUTO ALLOWANCE	0	9.66	0.00		
				02 PARKING	0	56.00	0.00		
			6050	**EDUCATION**	**0**	**280.00**	**0.00**	**-280.00**	**NA**
				01 REGISTRATION FEE & TUITION	0	280.00	0.00		
			6090	**MACHINERY & EQUIP SUPPLIES**	**0**	**591.42**	**0.00**	**-591.42**	**NA**
				01 MACHINERY PARTS & SUPPLIES	0	86.77	0.00		
				02 MOTOR FUELS & LUBRICANTS	0	399.66	0.00		
				04 BATTERIES	0	104.99	0.00		
			6100	**ADMINISTRATION SUPPLIES**	**0**	**911.72**	**0.00**	**-911.72**	**NA**
				02 COMPUTER SUPPLIES-NOT SOFTWARE	0	483.74	0.00		
				03 COMPUTER SOFTWARE	0	161.00	0.00		
				07 MISC ADMINISTRATION SUPPLIES	0	266.98	0.00		
			6102	**EDUCATION SUPPLIES**	**0**	**147.63**	**0.00**	**-147.63**	**NA**
				01 EDUCATION SUPPLIES	0	147.63	0.00		
			6104	**OFFICE SUPPLIES**	**0**	**734.80**	**0.00**	**-734.80**	**NA**
				01 OFFICE SUPPLIES	0	734.80	0.00		
			6110	**OPERATING SUPPLIES**	**0**	**5,631.30**	**0.00**	**-5,631.30**	**NA**
				02 BATTERIES	0	140.66	0.00		
				03 CLEANING SUPPLIES	0	43.29	0.00		
				04 CHEMICAL SUPPLIES & GASES	0	1,457.73	0.00		
				09 PLANT & SHOP SUPPLIES	0	2,094.27	0.00		
				11 RECREATION SUPPLIES	0	362.57	0.00		
				13 MISC OPERATING SUPPLIES	0	1,532.78	0.00		
			6130	**REPAIR & MAINT SUPPLIES**	**0**	**763.98**	**0.00**	**-763.98**	**NA**
				02 CARPENTRY SUPPLIES	0	18.01	0.00		
				03 ELECTRICAL SUPPLIES	0	721.31	0.00		
				04 PAINTING SUPPLIES	0	1.19	0.00		
				06 SIGN & SIGNAL MATERIALS	0	23.47	0.00		
			6150	**SMALL TOOLS & MINOR EQUIP**	**0**	**1,143.90**	**0.00**	**-1,143.90**	**NA**
				01 SMALL TOOLS & MINOR EQUIPMENT	0	1,143.90	0.00		
			6160	**TAXES, LICENSES & FEES**	**0**	**10.00**	**0.00**	**-10.00**	**NA**
				02 LICENSE FEES & PERMITS	0	10.00	0.00		
			6170	**UNIFORMS, CLOTHING, PERS**	**0**	**335.74**	**0.00**	**-335.74**	**NA**
				01 UNIFORMS, CLOTHING & PERSONAL	0	335.74	0.00		
			6190	**OTHER OPERATING COSTS**	**0**	**2,366.69**	**0.00**	**-2,366.69**	**NA**
				17 MISC OTHER OPERATING COST	0	2,366.69	0.00		
				Total for Object Class 600 - OPERATING COSTS:	**0**	**12,982.84**	**0.00**	**-12,982.84**	**NA**
			7811	**MERF**	**0**	**17.72**	**0.00**	**-17.72**	**NA**
				01 MERF	0	17.72	0.00		
			7812	**PERA**	**0**	**5,742.23**	**0.00**	**-5,742.23**	**NA**
				01 PERA	0	5,742.23	0.00		

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Low Level Org Expense Status - Daily

Run Date: 04/02/2002

Last Acceptance Date: 1/31/02

Fiscal Year: 2001

Month of last transaction recorded: 12/2001

Percent of year remaining: -8.00%

Fund	Agency	Low Level	Object	Sub Object	Current Budget	Expended Amount	Encumbered Amount	Remaining Available	Percent Available
1500	**PARK - GENERAL FUND**								
	710	**PARK BOARD**							
		7178	**AQUATIC-LPC**						
			7813	**FICA**	**0**	**7,337.32**	**0.00**	**-7,337.32**	**NA**
				01 FICA	0	7,337.32	0.00		
			7821	**MEDICARE**	**0**	**1,715.90**	**0.00**	**-1,715.90**	**NA**
				01 MEDICARE INSURANCE	0	1,715.90	0.00		
			7827	**DELTA DENTAL INSURANCE**	**0**	**1,708.86**	**0.00**	**-1,708.86**	**NA**
				01 DELTA DENTAL INSURANCE	0	1,708.86	0.00		
			7829	**HEALTH INSURANCE**	**0**	**9,469.47**	**0.00**	**-9,469.47**	**NA**
				01 HEALTH INSURANCE	0	34.12	0.00		
				02 BLUE CROSS BLUE SHIELD	0	9,435.35	0.00		
			7840	**SEVERANCE**	**0**	**768.21**	**0.00**	**-768.21**	**NA**
				01 SEVERANCE	0	768.21	0.00		
			7860	**LIFE INSURANCE**	**0**	**98.97**	**0.00**	**-98.97**	**NA**
				01 LIFE INSURANCE	0	98.97	0.00		
			7870	**NON-TAX FRINGE BEN-I.O.E.**	**0**	**287.19**	**0.00**	**-287.19**	**NA**
				01 NON-TAX FRINGE BEN-I.O.E.	0	287.19	0.00		
				Total for Object Class 780 - FRINGES:	**0**	**27,145.87**	**0.00**	**-27,145.87**	**NA**
			8020	**EQUIPMENT**	**0**	**10,119.40**	**0.00**	**-10,119.40**	**NA**
				01 EQUIPMENT	0	10,119.40	0.00		
			8025	**HARDWARE**	**0**	**3,972.24**	**0.00**	**-3,972.24**	**NA**
				01 HARDWARE	0	3,972.24	0.00		
				Total for Object Class 800 - EQUIPMENT:	**0**	**14,091.64**	**0.00**	**-14,091.64**	**NA**
				Total for 2nd Org: 7178 - AQUATIC-LPC:	**0**	**252,039.49**	**0.00**	**-252,039.49**	**NA**
				Total for Agency 710 - PARK BOARD:	**0**	**252,039.49**	**0.00**	**-252,039.49**	**NA**
				Total for Fund 1500 - PARK - GENERAL FUND:	**0**	**252,039.49**	**0.00**	**-252,039.49**	**NA**
				Grand Total:	**0**	**252,039.49**	**0.00**	**-252,039.49**	**NA**

Entered Paramaters: Fiscal Year=2001, Acceptance Date From =1/1/01, Acceptance Date To =2/28/02, Fund From =1500, Fund To =1500, Agency From =710, Agency To =710, Level 2 Org From =7178, Level 2 Org To =7178, Report=FR20

NPDES Storm Water Permit
combined Minneapolis-St. Paul monitoring budget estimates

WORK PLAN #	task	quantity	unit costs	overhead	extension	2002 subtotals	2003 subtotals	2004 subtotals	2005 subtotals	2006 subtotals
1.1.1 runoff monitoring						YEARLY PROJECTIONS REFLECT 3.0% INFLATION				
	sampling program labor* (annual)									
	water quality analyst	1,735.00	18.16	7.96	45,311.26					
	water quality specialist	1,487.00	13.61	6.36	29,700.59					
	environmental intern	372.00	10.20	5.17	5,717.64					
	environmental manager	260.00	28.03	11.41	10,254.53					
	confined space training	5 people	$50.00		$250.00					
		subtotal				$93,971.05	$96,790.18	$99,693.88	$102,684.70	$105,765.24
	sampling equipment/supplies (annual basis)									
	materials and supplies	lump sum			4,000.00					
	batteries (rebuild/replace)	20	90.00		1,800.00					
	equipment (annual replacement cycle)									
	velocity meter	2	2,250.00		4,500.00					
	automatic sampler	2	2,595.00		5,190.00					
	safety equipment				650.00					
	lab space rent	100ft2	$ 10/ft2		1,000.00					
		subtotal				$17,654.20	$18,183.83	$18,729.34	$19,291.22	$19,869.96
	lab analysis (annual basis)									
	BOD	50	$24.00		$1,200.00					
	Cadmium	50	$10.50		$525.00					
	Chloride	50	$12.00		$600.00					
	Copper	50	$10.50		$525.00					
	Coliform	50	$20.00		$1,000.00					
	Lead	50	$10.50		$525.00					
	N02+3	50	$11.00		$550.00					
	Ammonia	50	$10.50		$525.00					
	TKN	50	$17.00		$850.00					
	pH	50	$8.00		$400.00					
	Phosphorus, dissolved	50	$19.00		$950.00					
	Phosphorus, Total	50	$17.00		$850.00					
	TDS	50	$8.50		$425.00					
	TSS	50	$12.00		$600.00					
	Zinc	50	$10.50		$525.00					
	Alkalinity	50	$10.50		$525.00					
	bottle cleaning	50	$27.00		$1,350.00					
						$12,282.75	$12,651.23	$13,030.77	$13,421.69	$13,824.34
	QAQC program									
	performance standards/supplies				$1,200.00					
	lab supplies	lump sum			$400.00					
		subtotal				$1,648.00	$1,697.44	$1,748.36	$1,800.81	$1,854.84
	Vehicle $23/day	78	$23.43		$2,741.31	$2,823.55	$2,908.26	$2,995.50	$3,085.37	$3,177.93
	program contingency	10.00%			$9,971.95	$10,271.11	$10,579.24	$10,896.62	$11,223.52	$11,560.22
				MONITORING TOTAL 1.1.1		$138,650.65	$142,810.17	$147,094.48	$151,507.31	$156,052.53
2.18.7 storm water data report (annually)										
	data analysis									
	water quality analyst	160	$18.16	$7.96	$4,178.56					
	water quality specialist	120	$13.61	$6.36	$2,396.82					
	report preparation									
	water quality analyst	100	$18.16	$7.96	$2,611.60					
	water quality specialist	80	$13.61	$6.36	$1,597.88					
	environmental manager	60	$28.03	$11.41	$2,366.43					
	printing/copying/binding	20	$10.00		$200.00	$206.00	$212.18			
					TOTAL 2.18.7	13751.8287	14164.38356	14589.31507	15026.99452	15477.80436
2.18.9 propose next year plan (annually)										
	monitoring program update									
	water quality analyst	140	$18.16	$7.96	$3,656.24					
	water quality specialist	160	$13.61	$6.36	$3,195.76					
	environmental manager	60	$28.03	$11.41	$2,366.43					
					TOTAL 2.18.9	9494.9829	9779.832387	10073.22736	10375.42418	10686.6869
2.19.2 monitoring manual update (2001 only)										
	report preparation									
	water quality analyst	140	$18.16	$7.96	$3,656.24					
	water quality specialist	160	$13.61	$6.36	$3,195.76					
	environmental manager	80	$28.03	$11.41	$3,155.24					
					TOTAL 2.19.2	0	0	0	0	0
				REPORTING TOTAL 1.1.1		$23,246.81	$23,944.22	$24,662.54	$25,402.42	$26,164.49
						$161,897.46	$166,754.39	$171,757.02	$176,909.73	$182,217.02
2.19.9 mercury monitoring pilot project (2 years only)				2002	2003	2002	2003			
	Chemiclas and expendable supplies			$3,136.91	$3,136.91					
	Lab and Sampling equipment			$13,255.71	$4,096.71					
	Labor costs			$9,168.98	$9,168.98					
	Vehicles			$702.90	$702.90					
	Lab space			$1,000.00	$1,000.00					
	Lab analysis			$1,600.00	$1,600.00					
			subtotal	$28,864.50	$20,296.67					
	Contingency - 15%			$4,329.68	$3,044.50					
				TOTAL MERCURY 2.19.9		$33,194.18	$23,341.17			
	STORM WATER MONITORING PROGRAM TOTAL					**$195,091.64**	**$190,095.56**	**$171,757.02**	**$176,909.73**	**$182,217.02**

	2002	2003	2004	2005	2005
	$195,091.64	$190,095.56	$171,757.02	$176,909.73	$182,217.02
MINNEAPOLIS	$89,032.01	$86,278.55	$76,846.20	$79,151.59	$81,526.14
ST. PAUL	$89,032.01	$86,278.55	$76,846.20	$79,151.59	$81,526.14
MPRB	$17,027.63	$17,538.46	$18,064.61	$18,606.55	$19,164.75

Flood Mitigation Program

PROJECT NUMBER	PROJECT NAME	total cost (approved)	total cost (revised)	funded	2000	2001	2002	2003	2004	2005	2006
Phased Flood Mitigation Capital Projects											
Area 26	43rd and Park	$8,550	$9,050	$5,135	$3,915						
Area 6**	33rd Ave N	$4,500	$4,500	$2,475	$2,025						
Area 34	60th and 1st	$9,300	$9,300	$5,400	$2,600	$1,300					
Area 9**	Edison High	$5,600	$5,600	$5,600							
Area 29**, 30	51st and Zenith Aves S	$2,250	$2,250	$2,250							
Area 37	29th and Logan Aves N	$5,250	$7,000	$3,250	$420	$1,580	$2,000				
Area 12, 21, 22	NW Lake Hiawatha	$9,550	$10,550		$500	$1,750	$3,975	$1,025	$3,300		
Area 5	35th and Washburn Aves N	$3,500	$3,500				$300	$1,600	$1,600		
Area 27	NE Lake Hiawatha	$4,500	$4,500		$375	$1,375			$1,375	$1,375	
Area 18	45th St @ 35W	$2,635	$2,635					$300	$780	$780	$775
SUBTOTAL - phased flood mitigation capital projects		$55,635	$58,885	$24,110	$9,835	$6,005	$6,275	$2,925	$7,055	$2,155	$775
Flood Mitigation Projects											
Areas 24, 25	45th St @ Lyndale	$390	$390							$390	
PS10	Lyndale Ave Storm Drain	$1,650	$1,650	$1,650							
PS09	Excelsior Blvd Storm Drain	$600	$600	$650							
Area 16**	Jefferson Elementary School	$1,400	$825	$825	$1,500						
Areas 8, 14, 19		$1,350	$1,350			$1,350					
Area 1	42nd and Russell Aves N	$525	$525			$525					
Areas 33, 38, 39		$850	$850				$850				
Area 43	Abbott Hospital	$0	$550								$550
Area 46	28th & Humboldt Ave S	$0	$200								$200
SUBTOTAL - flood mitigation capital projects		$6,765	$6,940	$3,125	$1,500	$1,875	$850	$0	$0	$390	$750
Total Flood Mitigation Program		**$62,400**	**$65,825**	**$27,235**	**$11,335**	**$7,880**	**$7,125**	**$2,925**	**$7,055**	**$2,545**	**$1,525**

(Costs are in 1000's of dollars)

Engineering Services 2001 NPDES costs and 5-Yr Budgets
Rollup Number : NPDES

Job Number	Job Description		2001 Actuals	2002	2003	2004	2005	2006
V. New Developments and Construction								
6001SITE	SITE PLAN REVIEW							
		Labor	24,346					
		Fringes	5,862	31,416	32,673	33,980	35,339	36,753
		Equipment	488	501	515	529	543	558
		Materials	0	0	0	0	0	0
		Contractual Services	260	267	274	282	289	297
		Labor OH	8,881	9,462	9,838	10,228	10,634	11,057
		Admin OH	16,097	13,281	13,808	14,356	14,926	15,519
		General Fund OH	1,083	1,126	1,171	1,218	1,266	1,316
		Total Cost	57,018	56,055	58,279	60,593	62,998	65,499
6001Q001	EROSION CONTROL							
		Labor	17,763					
		Fringes	4,184	22,825	23,738	24,688	25,675	26,702
		Equipment	751	771	792	813	835	858
		Materials	0	0	0	0	0	0
		Contractual Services	0	0	0	0	0	0
		Labor OH	6,453	6,937	7,212	7,497	7,794	8,103
		Admin OH	11,803	9,737	10,122	10,523	10,939	11,373
		General Fund OH	794	826	859	893	928	965
		Total Cost	41,748	41,096	42,723	44,414	46,172	48,000
600D4262	STORM WATER MGMT PLAN & ORD.							
		Labor	5,245					
		Fringes	1,107	6,607	6,871	7,146	7,432	7,729
		Equipment	56	58	59	61	62	64
		Materials	0	0	0	0	0	0
		Contractual Services	0	0	0	0	0	0
		Labor OH	1,868	1,959	2,038	2,119	2,203	2,291
		Admin OH	3,333	2,750	2,860	2,974	3,093	3,216
		General Fund OH	224	233	243	252	262	273
		Total Cost	11,834	11,607	12,070	12,552	13,053	13,573
		Sub-Total	**110,600**	**108,758**	**113,073**	**117,558**	**122,223**	**127,072**

Engineering Services 2001 NPDES costs and 5-Yr Budgets
Rollup Number : NPDES

Job Number	Job Description		2001 Actuals	2002	2003	2004	2005	2006
XIII. Coordination with Other Governmental Entities								
6001Q006	BASSETT CREEK WMO							
		Labor	2,600					
		Fringes	488	3,211	3,340	3,473	3,612	3,757
		Equipment	0	0	0	0	0	0
		Materials	71	73	75	77	79	81
		Contractual Services	16,150	16,586	17,034	17,494	17,966	18,451
		Labor OH	908	5,842	6,012	6,187	6,367	6,553
		Admin OH	1,643	8,199	8,438	8,684	8,937	9,197
		General Fund OH	676	695	716	737	758	780
		Total Cost	22,535	34,607	35,614	36,651	37,719	38,819
6001Q007	SHINGLE CREEK WMO							
		Labor	297					
		Fringes	72	384	399	415	432	449
		Equipment	0	0	0	0	0	0
		Materials	0	0	0	0	0	0
		Contractual Services	8,905	9,145	9,392	9,646	9,906	10,174
		Labor OH	109	2,802	2,879	2,958	3,040	3,123
		Admin OH	192	3,932	4,041	4,152	4,266	4,384
		General Fund OH	325	334	343	352	362	372
		Total Cost	9,900	16,597	17,054	17,523	18,006	18,502
6001Q008	MISSISSIPPI WMO							
		Labor	188					
		Fringes	34	230	240	249	259	269
		Equipment	0	0	0	0	0	0
		Materials	0	0	0	0	0	0
		Contractual Services	0	0	0	0	0	0
		Labor OH	65	68	70	73	76	79
		Admin OH	115	95	99	103	107	111
		General Fund OH	8	8	8	9	9	9
		Total Cost	410	401	417	434	451	469

Engineering Services 2001 NPDES costs and 5-Yr Budgets
Rollup Number : NPDES

Job Number	Job Description	2001 Actuals	2002	2003	2004	2005	2006
6001Q009	MINNEHAHA CREEK WATERSHED DIST						
	Labor	907					
	Fringes	204	1,156	1,202	1,250	1,300	1,352
	Equipment	35	36	37	38	39	40
	Materials	0	0	0	0	0	0
	Contractual Services	0	0	0	0	0	0
	Labor OH	327	350	364	379	394	409
	Admin OH	596	492	511	531	552	574
	General Fund OH	40	42	43	45	47	49
	Total Cost	2,109	2,075	2,158	2,243	2,332	2,424
600D4259	BLUE WATER COMM.TECH ADV. COMM						
	Labor	2,703					
	Fringes	597	3,432	3,569	3,712	3,860	4,015
	Equipment	26	27	28	28	29	30
	Materials	0	0	0	0	0	0
	Contractual Services	0	0	0	0	0	0
	Labor OH	970	1,017	1,057	1,100	1,144	1,189
	Admin OH	1,730	1,427	1,484	1,543	1,605	1,669
	General Fund OH	116	121	126	131	136	142
	Total Cost	6,142	6,024	6,264	6,514	6,774	7,044
6001Q014	MINNEAPOLIS WATER PLAN						
	Labor	2,832					
	Fringes	523	3,489	3,629	3,774	3,925	4,082
	Equipment	0	0	0	0	0	0
	Materials	0	0	0	0	0	0
	Contractual Services	0	0	0	0	0	0
	Labor OH	986	1,026	1,067	1,110	1,154	1,200
	Admin OH	1,745	1,440	1,497	1,557	1,620	1,684
	General Fund OH	117	122	127	132	137	143
	Total Cost	6,203	6,077	6,320	6,573	6,836	7,109
	Sub-Total	47,298	65,781	67,827	69,938	72,118	74,369

Engineering Services 2001 NPDES costs and 5-Yr Budgets
Rollup Number : NPDES

Job Number	Job Description	2001 Actuals	2002	2003	2004	2005	2006
X. Storm Sewer Design for New Construction							
600D0013	MISC GRIT CHAMBERS						
	Labor	2,660					
	Fringes	568	3,358	3,492	3,632	3,777	3,928
	Equipment	165	170	174	179	184	189
	Materials	0	0	0	0	0	0
	Contractual Services	0	0	0	0	0	0
	Labor OH	949	1,037	1,078	1,120	1,164	1,210
	Admin OH	1,765	1,456	1,513	1,572	1,634	1,699
	General Fund OH	119	123	128	133	139	144
	Total Cost	6,226	6,143	6,385	6,637	6,898	7,170
600D4213	POLLUTION DEMO PROJECT						
	Labor	400					
	Fringes	75	494	514	535	556	578
	Equipment	0	0	0	0	0	0
	Materials	0	0	0	0	0	0
	Contractual Services	0	0	0	0	0	0
	Labor OH	140	145	151	157	163	170
	Admin OH	247	204	212	221	229	239
	General Fund OH	17	17	18	19	19	20
	Total Cost	879	861	895	931	968	1,007
	Sub-Total	7,105	7,004	7,281	7,568	7,867	8,177
Overall Program Administration and Reporting							
6001Q012	STORMWATER PERMIT MISC PERMITS						
	Labor	13,133					
	Fringes	2,309	16,059	16,702	17,370	18,065	18,787
	Equipment	0	0	0	0	0	0
	Materials	1,230	1,263	1,297	1,332	1,368	1,405
	Contractual Services	389	400	411	422	433	445
	Labor OH	4,540	5,210	5,412	5,622	5,841	6,067
	Admin OH	8,872	7,313	7,597	7,891	8,198	8,516
	General Fund OH	597	620	644	669	695	722
	Total Cost	31,070	30,866	32,063	33,307	34,600	35,943

Engineering Services 2001 NPDES costs and 5-Yr Budgets
Rollup Number : NPDES

Job Number	Job Description		2001 Actuals	2002	2003	2004	2005	2006
600D4235	STORM WATER PROG DEV							
		Labor	1,192					
		Fringes	266	1,516	1,577	1,640	1,706	1,774
		Equipment	0	0	0	0	0	0
		Materials	0	0	0	0	0	0
		Contractual Services	0	0	0	0	0	0
		Labor OH	429	446	464	482	501	522
		Admin OH	758	626	651	677	704	732
		General Fund OH	51	53	55	57	60	62
		Total Cost	2,696	2,641	2,747	2,857	2,971	3,090
6001Q002	STORMWATER MONITORING							
		Labor	401					
		Fringes	108	529	550	572	595	619
		Equipment	18	18	18	19	19	20
		Materials	0	0	0	0	0	0
		Contractual Services	0	0	0	0	0	0
		Labor OH	150	161	167	174	181	188
		Admin OH	274	226	235	244	254	264
		General Fund OH	18	19	20	21	22	22
		Total Cost	968	953	991	1,030	1,071	1,113
6001Q003	RAINGAUGE MONITORING							
		Labor	383					
		Fringes	62	463	481	501	521	542
		Equipment	0	0	0	0	0	0
		Materials	0	0	0	0	0	0
		Contractual Services	0	0	0	0	0	0
		Labor OH	131	136	142	147	153	159
		Admin OH	231	191	199	207	215	223
		General Fund OH	16	16	17	18	18	19
		Total Cost	823	806	839	872	907	943

Engineering Services 2001 NPDES costs and 5-Yr Budgets
Rollup Number : NPDES

Job Number	Job Description		2001 Actuals	2002	2003	2004	2005	2006
6001Q005	WATER QUALITY							
		Labor	442					
		Fringes	108	572	595	619	643	669
		Equipment	0	0	0	0	0	0
		Materials	0	0	0	0	0	0
		Contractual Services	0	0	0	0	0	0
		Labor OH	162	168	175	182	189	197
		Admin OH	286	236	245	255	266	276
		General Fund OH	19	20	21	22	23	23
		Total Cost	1,017	996	1,036	1,078	1,121	1,165
600D7879	EPA							
		Labor	606					
		Fringes	136	771	802	834	868	902
		Equipment	14	14	15	15	16	16
		Materials	0	0	0	0	0	0
		Contractual Services	0	0	0	0	0	0
		Labor OH	218	231	240	250	260	270
		Admin OH	393	324	337	351	365	379
		General Fund OH	26	28	29	30	31	32
		Total Cost	1,393	1,369	1,423	1,480	1,538	1,600
		Sub-Total	**37,967**	**37,632**	**39,099**	**40,623**	**42,208**	**43,854**

Total Summary							
Labor	76,098					
Fringes	16,704	96,514	100,375	104,390	108,566	112,908
Equipment	1,553	1,595	1,638	1,682	1,728	1,774
Materials	1,301	1,336	1,372	1,409	1,447	1,486
Contractual Services	25,704	26,398	27,111	27,843	28,595	29,367
Labor OH	27,284	36,998	38,366	39,785	41,259	42,788
Admin OH	50,079	51,929	53,849	55,841	57,909	60,055
General Fund OH	4,248	4,405	4,567	4,736	4,912	5,094
Total Cost	**202,971**	**219,176**	**227,279**	**235,688**	**244,415**	**253,472**