Appendix A – Cross-Reference of Plan Requirements

Cross-Reference Plan Requirements

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
MN Rule 8410.0160				
Subpart 3.A	Executive summary of the local water plan highlights.	Executive Summary	All	ES-1
Subpart 3.B	Water resource management-related agreements.	Section 2	Water Resources Related Agreements	2-33
Subpart 3.C	Existing and proposed physical environment description.	Section 3	Population, Land Area, Neighborhoods, and Parks	3-1
Subpart 3.C	Existing and proposed physical environment description.	Section 3	Soils	3-7
Subpart 3.C	Existing and proposed physical environment description.	Section 3	Climate	3-8
Subpart 3.C	Existing and proposed physical environment description.	Section 3	Bedrock, Surficial Geology, and Topography	3-10
Subpart 3.C	Existing and proposed land use.	Section 3	Land Use and Zoning	3-12
Subpart 3.C	Drainage area.	Section 4	Stormwater Pipeshed Area Inventory	4-24
Subpart 3.C	Drainage area.	Appendix J	2017 Stormwater Catchment Inventory	J-1
Subpart 3.C	Drainage volume.	Section 4	Stormwater Drain Hydraulic Standards	4-27
Subpart 3.C	Drainage rates.	Section 4	Stormwater Drain Hydraulic Standards	4-27
Subpart 3.C	Define paths of stormwater runoff.	Section 4	Figure 4.11 – City of Minneapolis Stormwater Runoff Pipeshed Areas	4-26
Subpart 3.D	Existing or potential water resource-related problems.	Appendix C	TMDL Status	C-1
Subpart 3.D	Existing or potential water resource-related problems.	Appendix E	Monitoring and Assessment Report	E-1
Subpart 3.E	Local implementation program including non-structural, programmatic, and structural solutions.	Section 6	Capital Improvement Program	6-4
Subpart 3.E	Local implementation program including non-structural, programmatic, and structural solutions.	Section 6	Operational Programs	6-15
Subpart 3.E	Prioritized implementation components.	Section 6	Prioritization	6-17
Subpart 3.E.(1)	Areas and elevations for stormwater storage.	Section 4	Stormwater Drain Hydraulic Standards	4-27
Subpart 3.E.(2)	Water quality protection methods.	Section 4	Table 4.4 – Stormwater Drain System Infrastructure Inventory – City and MPRB Owned	4-8
Subpart 3.E.(2)	Water quality protection methods.	Section 5	Water Resource Management Programs	5-4
Subpart 3.E.(3)	Responsibilities of local government in implementation.	Section 4	Responsibilities for Infrastructure Management	4-45
Subpart 3.E.(3)	Responsibilities of local government in implementation.	Section 5	Administrative Responsibilities	5-25

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Subpart 3.E.(4)	Official controls relative to requirements of the implementation plan.	Section 5	City of Minneapolis and Minneapolis Park and Recreation Board Ordinances	5-1
Subpart 3.E.(5)	Table to describe each component of the implementation program, includes schedule, cost, and funding source.	Section 6	Table 6.1 – City of Minneapolis Sanitary Sewer and Stormwater Operating Budget, 2015 through 2018	6-3
Subpart 3.E.(6)	Table of capital improvement programs by year with schedule, estimated cost, and funding source.	Section 6	Capital Improvement Program	6-4
Subpart 4	Describes the process by which amendments to your surface water management plan can be made.	Section 1	Water Resource Management Plan Management and Adoption	1-14
Metropolitan Council Water Resources Policy Plan				
Appendix C-1 Wastewater	Adopted community sewered forecast of households and employment in 10-year increments to 2040, based on the Council's 2040 forecasts with any subsequent negotiated modifications.	Appendix H	Sewage Flow Projections and Trunk Sewer Capacity Analysis by Interceptor Service Area	H-1
Appendix C-1 Wastewater	An electronic map or maps (GIS shape files or equivalent) that show the following information: ▪ Existing sanitary sewer system identifying lift stations, existing connection points to the metropolitan disposal system, and future connection points. ▪ Intercommunity connections and any proposed changes in government boundaries based on Orderly Annexation Agreements.	Section 4	Figure 4.1 – City of Minneapolis Sanitary Sewers, Lift Stations, Intercommunity Connections	4-4
Appendix C-1 Wastewater	Copy of an intercommunity service agreement entered into with an adjoining community after December 31, 2008.	Section 2	Sanitary Sewer Agreements	2-35
Appendix C-1 Wastewater	Description of community's management program for subsurface sewage treatment systems to comply with MPCA 7080, and a copy of the community's current subsurface sewage treatment system ordinance.	Section 1	Private Sanitary Sewers and Treatment Systems	1-10
Appendix C-1 Wastewater	A table or tables that contain capacity and design flows for existing trunk sewers and lift stations.	Appendix F	City of Minneapolis Sanitary Lift Station Inventory	F-1
Appendix C-1 Wastewater	Assignment of 2040 growth forecasts by Metropolitan interceptor facility. In the absence of this information, the Council will make its own assignments for the purpose of system capacity needs determination.	Appendix H	City of Minneapolis Sewage Flow Projections and Trunk Sewer Capacity Analysis by Interceptor Service Area	H-1

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Appendix C-1 Wastewater	Proposed time schedule for the construction of new trunk sewer systems that require connections to the Metropolitan Council Disposal System.	N/A	N/A – no new trunk sewers proposed within the City of Minneapolis	-
Appendix C-1 Wastewater	Accompanying information on the type and capacity of the treatment facilities, whether municipally or privately owned, as well as copies of their appropriate National Pollutant Discharge Elimination System (NPDES) or State Disposal System (SDS) permit.	Section 1	Private Sanitary Sewers and Treatment Systems	1-10
Appendix C-1 Wastewater	City goals, policies, and strategies for preventing and reducing excessive inflow and infiltration (I/I) in local municipal and private sewer systems.	Section 4	Inflow/Infiltration Flows	4-20
Appendix C-1 Wastewater	City goals, policies, and strategies for preventing and reducing excessive inflow and infiltration (I/I) in local municipal and private sewer systems, including: ▪ Requirements and standards for minimizing I/I and for the disconnection of sump pump and foundation drain connections to the sanitary sewer system. To be included are copies of ordinance prohibiting the discharge of foundation drains and/or roof leaders to the sanitary disposal system, as well as copies of ordinance requiring the disconnection of existing foundation drains, sump pumps, and roof leaders from the sanitary disposal system.	Section 5	Inflow/Infiltration Compliance, Private Properties	5-7
Appendix C-1 Wastewater	City goals, policies, and strategies for preventing and reducing excessive inflow and infiltration (I/I) in local municipal and private sewer systems, including: ▪ Information on the extent, source, and significance of existing I/I problems along with an analysis of costs for remediation.	Section 4	Inflow/Infiltration Flows	4-20
Appendix C-1 Wastewater	City goals, policies, and strategies for preventing and reducing excessive inflow and infiltration (I/I) in local municipal and private sewer systems, including: ▪ Implementation plan including program strategy, priorities, scheduling, and financing mechanisms for eliminating and preventing excessive I/I from entering the system.	Section 6	Capital Improvement Program: Inflow/Infiltration Mitigation Program	6-5

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Appendix C-2 Surface Water	1. An executive summary that summarizes the highlights of the local water plan.	Executive Summary	All	ES-1
Appendix C-2 Surface Water	2. A summary of the appropriate water resource management-related agreements that have been entered into by the local community.	Section 2	Water Resources Related Agreements	2-33
Appendix C-2 Surface Water	3. A description of the existing and proposed physical environment and land use. Data may be incorporated by reference for other required elements of this section as allowed by the WMO.	Section 3	Population, Land Area, Neighborhoods, and Parks	3-1
Appendix C-2 Surface Water	3. A description of the existing and proposed physical environment and land use. Data may be incorporated by reference for other required elements of this section as allowed by the WMO.	Section 3	Soils	3-7
Appendix C-2 Surface Water	3. A description of the existing and proposed physical environment and land use. Data may be incorporated by reference for other required elements of this section as allowed by the WMO.	Section 3	Climate	3-8
Appendix C-2 Surface Water	3. A description of the existing and proposed physical environment and land use. Data may be incorporated by reference for other required elements of this section as allowed by the WMO.	Section 3	Bedrock, Surficial Geology, and Topography	3-10
Appendix C-2 Surface Water	3. A description of the existing and proposed physical environment and land use. Data may be incorporated by reference for other required elements of this section as allowed by the WMO.	Section 3	Land Use and Zoning	3-12
Appendix C-2 Surface Water	The following must be defined in the plan: ▪ Drainage areas.	Section 4	Table 4.9 – City of Minneapolis Stormwater Pipesheds	4-25
Appendix C-2 Surface Water	The following must be defined in the plan: ▪ Volumes, rates, and paths of stormwater runoff (runoff rates are recommended for a 24-hour precipitation event with a return frequency of 1 or 2 years. Communities with known flooding issues may want to require rate control for storms with other return frequencies, such as 10-year, 25-year, or 100-year events.	Section 4	Stormwater Drain Hydraulic Standards	4-27

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Appendix C-2 Surface Water	4. An assessment of existing or potential water resource-related problems. At a minimum, the plan should include: ▪ A prioritized assessment of the problems related to water quality and quantity in the community.	Section 3	Minneapolis Waterbodies (see specific waterbody for information)	3-12
Appendix C-2 Surface Water	4. An assessment of existing or potential water resource-related problems. At a minimum, the plan should include: ▪ A list of any impaired waters within their jurisdiction as shown on the current Minnesota Pollution Control Agency (MPCA) 303d Impaired Waters List.	Appendix C	City of Minneapolis TMDL Status	C-1
Appendix C-2 Surface Water	4. An assessment of existing or potential water resource-related problems. At a minimum, the plan should include: ▪ If a Watershed Restoration and Protection Strategy (WRAPS) or TMDL study has been completed for the community, the community should include implementation strategies, including funding mechanisms, that will allow the community to carry out the recommendations and requirements from the WRAPS or TMDL specific to that community.	Section 3	TMDL Mitigation Plans Required Actions	3-93
Appendix C-2 Surface Water	5. A local implementation program/plan that includes prioritized non-structural, programmatic, and structural solutions to priority problems identified as part of the assessment completed for number 4, above. Local official controls must be enacted within six months of the approval of the local water plan.	Section 6	Capital Improvement Program	6-4
Appendix C-2 Surface Water	▪ 5. A local implementation program/plan that includes prioritized non-structural, programmatic, and structural solutions to priority problems identified as part of the assessment completed for number 4, above. Local official controls must be enacted within six months of the approval of the local water plan. The program/plan must: ▪ Include areas and elevations for stormwater storage adequate to meet performance standards or official controls established in the WMO plan(s).	Section 4	Stormwater Drain Hydraulic Standards	4-27
Appendix C-2 Surface Water	5. A local implementation program/plan that includes prioritized non-structural, programmatic, and structural solutions to priority problems identified as part of the	Section 5	Site Plan Review and Capital Project Task Force	5-15

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
	assessment completed for number 4, above. Local official controls must be enacted within six months of the approval of the local water plan. The program/plan must: ▪ Define water quality protection methods adequate to meet performance standards or official controls. At a minimum, the plan should include: ○ Information on the types of best management practices (BMP) to be used to improve stormwater quality and quantity. (A five-year establishment period is recommended for native plantings and bioengineering practices.) ○ The maintenance schedule for the BMP. (The maintenance schedule in plans submitted by regulated Municipal Separate Storm Sewer System (MS4) communities must be consistent with BMP inspection and maintenance requirements of the MS4 permit.)			
Appendix C-2 Surface Water	The program/plan must: ▪ Clearly define the responsibilities of the community from that of the MWO(s) for carrying out the implementation components.	Section 5	Watershed Organization Requirements	5-18
Appendix C-2 Surface Water	The program/plan must: ▪ Describe official controls and any changes to official controls.	Section 5	Change That Would Be Adequate to Meet Performance Standards or Official Controls	5-27
Appendix C-2 Surface Water	The program/plan must: ▪ Describe official controls and any changes to official controls. At a minimum, the plan should include: ○ Stormwater permit requirements and other applicable state requirements.	Section 2	NPDES Permits – MPCA	2-6
Appendix C-2 Surface Water	The program/plan must: ▪ Describe official controls and any changes to official controls. At a minimum, the plan should include: ○ An erosion and sediment control ordinance consistent with NPDES Construction.	Section 5	Erosion and Sediment Control	5-5

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Appendix C-2 Surface Water	The program/plan must: ▪ Describe official controls and any changes to official controls. At a minimum, the plan should include: ○ Identify ways to control runoff rates so that land-altering activities do not increase peak stormwater flow from the site for a 24-hour precipitation event with a return frequency of 1 or 2 years. Communities with known flooding issues may want to require rate control for storms with other return frequencies (10-year, 25-year, 100-year).	Section 5	Stormwater Management Standards for Development and Redevelopment/Post-Construction Stormwater Management	5-16
Appendix C-2 Surface Water	The program/plan must: ▪ Describe official controls and any changes to official controls. At a minimum, the plan should include: ○ Consider use of NOAA Atlas 14, Volume 8 (Precipitation Frequency Atlas of the United States) to calculate precipitation amounts and stormwater runoff rates. (MPCA uses NOAA Atlas 14 in calculations to determine whether the 1-inch standard has been met.)	Section 3	Atlas 14	3-8
Appendix C-2 Surface Water	The program/plan must: ▪ Describe official controls and any changes to official controls. At a minimum, the plan should include: ○ Consider adoption of the MPCA Minimal Impact Design Standards (MIDS) performance goals and flexible treatment options.	Section 5	Minimal Impact Design Standards Flexible Treatment Options	5-20
Appendix C-2 Surface Water	The program/plan must: ▪ Describe official controls and any changes to official controls. At a minimum, the plan should include: ○ For communities that do not adopt MIDS, the plan should use stormwater practices that promote I/I and decrease impervious areas, such as better site design and integrated stormwater management, where practical. (Communities must meet requirements of the MS4 permit if they are regulated. MS4 permit puts preference on green infrastructure, including infiltration. Construction permit will govern this either	Section 5	Stormwater Management Standards for Development and Redevelopment/Post-Construction Stormwater Management	5-16

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
	way, and requires use of green infrastructure, when possible).			
Appendix C-2 Surface Water	The program/plan must: ▪ Include a table that briefly describes each component of the implementation program and clearly details the schedule, estimated cost, and funding sources for each component.	Section 6	Capital Improvement Program	6-4
Appendix C-2 Surface Water	The program/plan must: ▪ Include a table for a capital improvement program that sets forth, by year, details of each contemplated capital improvement that includes the schedule, estimated cost, and funding source.	Section 6	Capital Improvement Program	6-4
Appendix C-2 Surface Water	6. A section titled "Amendments to Plan" that establishes the process by which amendments may be made.	Section 1	Water Resource Management Plan Management and Adoption	1-14
Mississippi Watershed Management Organization				
Table 4. Water, Natural Resources, and Land Use, #1	Executive Summary that summarizes the highlights of the local water plan. Highlights should include local water plan goals, policies, and implementation programs that address problems identified in the MWMO's Plan (Focus Statements in Section 2.7); corrective actions that affect these MWMO concerns; and, any actions requiring MWMO's collaboration.	Executive Summary	All	ES-1
Section 2.7. Focus Area	Water quality	Section 3	Minneapolis Waterbodies (see specific waterbody for information)	3-14
Section 2.7. Focus Area	Water rate and volume.	Section 4	Stormwater Drain Hydraulic Standards	4-27
Section 2.7. Focus Area	Monitoring and data.	Section 3	City-Wide Water Quality Monitoring and Other Efforts	3-83
Section 2.7. Focus Area	Monitoring and data.	Appendix E	Monitoring and Assessment Reports	E-1
Section 2.7. Focus Area	Communications outreach.	Section 5	Public Education, Participation, and Involvement	5-11

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Section 2.7. Focus Area	Ecosystem health.	Section 3	Unique Features/Fish and Wildlife/Scenic Areas/Natural Resources/Key Conservation Areas/Ecological Health	3-83
Section 2.7. Focus Area	Regulations and enforcement.	Section 5	Water Resource Management Programs	5-4
Section 2.7. Focus Area	Urban stormwater management.	Section 4	Figure 4.5 – Structural Stormwater Management Practices	4-10
Section 2.7. Focus Area	Emergency preparedness and response.	Section 5	Emergency Preparedness	5-5
Section 2.7. Focus Area	Financial responsibility and strategies.	Section 6	Water Resource Management Financing	6-1
Section 2.7. Focus Area	Emerging issues.	Section 3	Unique Features/Fish and Wildlife Habitats/Scenic Areas/Natural Resources/Key Conservation Areas/Ecological Health	3-83
Table 4. Water, Natural Resources, and Land Use, #2	Provide a citation and brief description of water resource management-related agreements that have been entered into by the community.	Section 2	Water Resources Related Agreements	2-33
Table 4. Water, Natural Resources, and Land Use, #3	Describe the city's current water resource and ecosystem health-related problems and any problems that are expected to worsen or emerge over the next 10 years given the projected change in the city's growth and land use.	Section 3	Minneapolis Waterbodies (see specific waterbody for information)	3-14
Table 4. Water, Natural Resources, and Land Use, #3	Describe the city's current water resource and ecosystem health-related problems and any problems that are expected to worsen or emerge over the next 10 years given the projected change in the city's growth and land use.	Appendix E	Monitoring and Assessments Reports	E-1
Table 4. Water, Natural Resources, and Land Use, #4	As part of the Local Water Plan and City Comprehensive Plan development process, LGUs should carefully examine how water resources and ecosystem management and protection can be integrated into land use planning and development.	Section 3	Land Use and Zoning	3-12

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Table 4. Water, Natural Resources, and Land Use, #4	Describe how decisions on land use, regional water, and natural resource needs are being reconciled.	Section 6	Project and Program Implementation	6-16
Table 4. Water, Natural Resources, and Land Use, #4	Address the order of authority.	Section 1	Minneapolis Water Resource Management Plan	1-11
Table 4. Water, Natural Resources, and Land Use, #4	Note modifications to ordinance or best practices that could improve greening, habitat protection, and stormwater reuse opportunities.	Section 5	Assessment of Minneapolis Water Resource Programs	5-26
Table 4. Water, Natural Resources, and Land Use, #4	Identify a future amendment process and schedule for reassessing ordinances.	Section 5	Change That Would Be Adequate to Meet Performance Standards or Controls	5-27
Table 4. Water, Natural Resources, and Land Use, #4	Describe efforts to integrate Safe Drinking Water Act and Wellhead Protection plans into Zoning Code.	Section 3	Source Water Protection – Minneapolis	3-89
Table 4. Water, Natural Resources, and Land Use, #4	Describe efforts to integrate Safe Drinking Water Act and Wellhead Protection plans into Zoning Code.	Section 3	Source Water Protection – Neighboring Municipalities	3-92
Table 4. Water, Natural Resources, and Land Use, #5	Include a local implementation program that covers the term of the local water plan.	Section 6	Capital Improvement Program	6-4
Table 4. Water, Natural Resources, and Land Use, #5	Describe the existing and proposed physical environment and land use.	Section 3	Population, Land Area, Neighborhoods, and Parks	3-1
Table 4. Water, Natural Resources, and Land Use, #5	Describe the existing and proposed physical environment and land use.	Section 3	Soils	3-7
Table 4. Water, Natural Resources, and Land Use, #5	Describe the existing and proposed physical environment and land use.	Section 3	Climate	3-8

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Table 4. Water, Natural Resources, and Land Use, #5	Describe the existing and proposed physical environment and land use.	Section 3	Bedrock, Surficial Geology, and Topography	3-10
Table 4. Water, Natural Resources, and Land Use, #5	Describe the existing and proposed physical environment and land use.	Section 3	Land Use and Zoning	3-12
Table 4. Water, Natural Resources, and Land Use, #5	Define drainage areas and the volumes, rates, and paths of stormwater runoff.	Section 4	Stormwater Drain Hydraulic Standards	4-27
Table 4. Water, Natural Resources, and Land Use, #5	Include a stormwater system map that shows ponds, lakes, and wetlands, structural controls, pipes, and pipe sizes, and other conveyances and outfalls.	Section 4	Figure 4.4 – Minneapolis Stormwater Drain System	4-9
Table 4. Water, Natural Resources, and Land Use, #5	Include a stormwater system amp that shows ponds, lakes, and wetlands, structural controls, pipes, and pipe sizes, and other conveyances and outfalls.	Section 4	Figure 4.5 –Structural Stormwater Management Practices	4-10
Table 4. Water, Natural Resources, and Land Use, #5	Include a table that describes each component of the implementation program.	Section 6	Capital Improvement Program	6-4
Table 4. Water, Natural Resources, and Land Use, #5	Include a table that describes each component of the implementation program.	Section 6	Operational Programs	6-15
Table 4. Water, Natural Resources, and Land Use, #5	Include a table for capital improvement program.	Section 6	Capital Improvement Program	6-4
Table 4. Water, Natural Resources, and Land Use, #5	Provide a schedule and annual process for assessing the need for improvements.	Section 6	Project and Program Implementation	6-16
Table 4. Water, Natural Resources, and Land Use, #5	Define the responsibilities of the local government unit from that of the MWMO and other entities.	Section 5	Watershed Organization Requirements	5-18

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Table 4. Water, Natural Resources, and Land Use, #6	Explain interdepartmental coordination of water and natural resource issues in the city.	Section 4	Responsibilities for Infrastructure Management	4-45
Table 4. Water, Natural Resources, and Land Use, #5	Identify a communication process.	Section 5	Administrative Responsibilities	5-25
Table 4. Water, Natural Resources, and Land Use, #5	Provide a description of the interdepartmental city process that facilitates the approval and installation of innovative stormwater management facilities.	Section 5	Site Plan Review and Capital Project Task Forces	5-15
Table 4. Water, Natural Resources, and Land Use, #7	Provide a summary of the member organization's SWPPP and conformance with NPDES permit.	Section 1	Relationship to Minneapolis Stormwater Management Program	1-11
Table 4. Water, Natural Resources, and Land Use, #7	Inspection and maintenance plans.	Section 5	Ongoing Stormwater Management Compliance	5-20
Table 4. Water, Natural Resources, and Land Use, #7	Street sweeping.	Section 4	Street Maintenance	4-35
Table 4. Water, Natural Resources, and Land Use, #7	Spill response and containment plans.	Section 5	Spill Response	5-5
Table 4. Water, Natural Resources, and Land Use, #7	Responsibilities.	Section 5	Administrative Responsibilities	5-25
Table 4. MWMO Standards and Agency Regulations	Wetland alternation permitting process.	Section 5	Wetland Conservation Act	5-19
Table 4. MWMO Standards and Agency Regulations	Permitting, site review, and enforcement ordinances.	Section 5	Stormwater Management Standards for Development and Redevelopment/Post-Construction Stormwater Management	5-16

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Table 4. MWMO Standards and Agency Regulations	County groundwater plan compliance.	N/A	N/A – Hennepin County does not have an adopted groundwater management plan.	-
Table 4. MWMO Standards and Agency Regulations	Lakes on Metropolitan Council priority lake list.	Section 3	Minneapolis Waterbodies (see specific waterbody for information)	3-14
Table 4. MWMO Standards and Agency Regulations	Lakes of MPCA's list of impaired waters.	Appendix C	City of Minneapolis TMDL Status	C-1
Table 4. MWMO Standards and Agency Regulations	TMDL compliance requirement summaries.	Section 3	TMDL Mitigation Plans Required Actions	3-93
Table 4. MWMO Standards and Agency Regulations	TMDL activities completed to-date summaries.	Section 3	TMDL Mitigation Plans Required Actions	3-93
Table 4. Surface Water Appropriations	Identify city administration of small watercourse appropriations.	Section 5	Appropriations from Small Watercourses	5-23
Table 4. Evaluation	Identify measurements to track compliance with local water plan implementation.	Section 1	Annual Reports	1-15
Shingle Creek Watershed Management Commission				
Section 4.4.1	Update existing and proposed physical environment and land use.	Section 3	Population, Land Area, Neighborhoods, and Parks	3-1
Section 4.4.1	Update existing and proposed physical environment and land use.	Section 3	Soils	3-7
Section 4.4.1	Update existing and proposed physical environment and land use.	Section 3	Climate	3-8
Section 4.4.1	Update existing and proposed physical environment and land use.	Section 3	Bedrock, Surficial Geology, and Topography	3-10
Section 4.4.1	Update existing and proposed physical environment and land use.	Section 3	Land Use and Zoning	3-12
Section 4.4.1	Update existing hydrology.	Section 4	Stormwater Drain Hydraulic Standards	4-27
Section 4.4.1	Update proposed hydrology.	Section 4	Stormwater Drain Hydraulic Standards	4-27

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Section 4.4.1	Subwatershed figure and shapefiles.	Section 3	Figure 3.6 – City of Minneapolis Waterbodies Drainage Areas	3-15
Section 4.4.1	Storm drainage system figure and shapefiles.	Section 4	Figure 4.11 – City of Minneapolis Stormwater Runoff Pipeshed Areas	4-26
Section 4.4.1	Storm drainage system figure and shapefiles.	Appendix J	2017 Stormwater Catchment Inventory	J-1
Section 4.4.1	BMP figure and shapefiles.	Section 4	Figure 4.5 – Structural Stormwater Management Practices	4-10
Section 4.4.1	Implementation of goals, policies, rules, and standards at local level.	Section 2	Minneapolis Goals and Policies	2-18
Section 4.4.1	Demonstrate actions to achieve load reductions and other requirements/goals of TMDL implementation plans.	Section 3	TMDL Mitigation Plans Required Actions	3-93
Section 4.4.1	Identify known upcoming projects related to TMDL implementation.	Section 3	TMDL Mitigation Plans Required Actions	3-93
Section 4.4.1	Explain implementation of City Review project review requirements.	Section 5	Site Plan Review and Capital Project Task Force	5-16
Section 4.4.1	Update existing and potential water resource related problems.	Section 3	Minneapolis Waterbodies (see specific waterbody for information)	3-14
Section 4.4.1	Update existing and potential water resource related problems.	Appendix C	City of Minneapolis TMDL Status	C-1
Section 4.4.1	Identify non-structural, programmatic, and structural solutions (including those program elements detailed in Rule 8410).	Section 5	Water Resource Management Programs	5-4
Section 4.4.1	Estimated cost of implementation.	Section 6	Expenditures	6-3
Section 4.4.1	Analysis of City's ability to finance recommended actions.	Section 6	Revenue	6-1
Section 4.4.1	Description of implementation program.	Section 6	Capital Improvement Program	6-4
Section 4.4.1	Description of adoption or amendment of official controls and local policies.	Section 6	Project and Program Implementation	6-16
Section 4.4.1	Programs necessary to implement rules and standards.	Section 5	Water Resource Management Programs	5-4
Section 4.4.1	Policies necessary to implement rules and standards.	Section 2	Minneapolis Goals and Policies	2-18
Section 4.4.1	Capital Improvement Plan.	Section 6	Capital Improvement Program	6-4
Bassett Creek Watershed Management Commission				

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Section 5.3.1.1	Assess problems identified by the BCWMC that affect the City.	Section 3	Bassett Creek	3-11
Section 5.3.1.1	Assess problems identified by the BCWMC that affect the City.	Section 3	Wirth Lake	3-78
Section 5.3.1.1	Assess problems identified by the BCWMC that affect the City.	Section 3	Watershed Organization Required Actions	3-97
Section 5.3.1.1	Propose corrective actions for problems identified by the BCWMC that affect the City; consider collaborative role with BCWMC (no specific problems identified in BCWMC Plan).	Section 3	Table 3.52 – TMDL Implementation Plan Requirements and Activities for the City of Minneapolis	3-94
Section 5.3.1.1	Propose corrective actions for problems identified by the BCWMC that affect the City; consider collaborative role with BCWMC (no specific problems identified in BCWMC Plan).	Section 4	BCWMC Flood Control Structures	4-34
Section 5.3.1.1	Policies and goals must be consistent with the BCWMC Plan.	Section 2	Minneapolis Goals and Policies	2-18
Section 4.2.1 Water Quality Policies	3. Member cities to classify waterbodies according to BCWMC classification system.	Section 3	Watershed Organization Required Actions	3-97
Section 4.2.1 Water Quality Policies	5. Work with BCWMC to implement identified improvement projects.	Section 3	Watershed Organization Required Actions	3-97
Section 4.2.1 Water Quality Policies	15. Member cities shall not allow drainage of sanitary sewage or non-permitted industrial wastes onto land or watercourse discharging to Bassett Creek.	Section 5	Table 5.1 – City of Minneapolis Code of Ordinances	5-1
Section 4.2.1 Water Quality Policies	17. Member cities encouraged to implement practices to minimize chloride loading.	Section 4	Winter Street Maintenance Practices	4-35
Section 4.2.2 Flooding and Rate Control Policies	24. Member cities are responsible for routing maintenance and report of BCWMC flood control structures.	Section 4	BCWMC Flood Control Structures	4-34

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Section 4.2.2 Flooding and Rate Control Policies	29. Member cities must implement BCWMC flood level requirements for new and redeveloped structures (including 2-foot separation between building and 100-year elevation).	Section 5	Zoning Code and Land Use	5-23
Section 4.2.2 Flooding and Rate Control Policies	30. Member cities must require rate control in conformance with Flood Control Project System design.	Section 5	Regulatory Controls for BCWMC Flood Control Projects	5-27
Section 4.2.2 Flooding and Rate Control Policies	37. Member cities are encouraged to remove streets, utilities, and structures that are below current 100-year floodplain as development or redevelopment allows.	Section 5	Zoning Code and Land Use	5-23
Section 4.2.2 Flooding and Rate Control Policies	39. Member cities must maintain ordinances that are consistent with BCWMC floodplain standards. Ordinances must be submitted to BCWMC for review.	Section 5	Zoning Code and Land Use	5-23
Section 4.2.3 Groundwater Management Policies	49. Member cities are encouraged to educate residents regarding the importance of implementing BMPs to protect groundwater quality and quantity.	Section 5	Public Education, Participation, and Involvement	5-11
Section 4.2.3 Groundwater Management Policies	50. Member cities shall share groundwater elevation data, where available, with the BCWMC.	Section 3	Groundwater	3-82
Section 4.2.4 Erosion and Sediment Control Policies	51. Member cities shall continue managing erosion and sediment control permitting programs and ordinances.	Section 5	Erosion and Sediment Control	5-5
Section 4.2.4 Erosion and Sediment Control Policies	54. Member cities shall perform regular erosion and sediment control inspections for projects triggering BCWMC review. Member cities will provide an annual report to BCWMC on compliance with BCWMC standards (as part of MS4 reporting requirements).	Section 5	Erosion and Sediment Control	5-5
Section 4.2.4 Erosion and Sediment Control Policies	55. Local water management plans required to describe existing and proposed ordinances, permits, and procedures addressing erosion and sediment control.	Section 5	Table 5.1 – City of Minneapolis Code of Ordinances	5-1

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Section 4.2.5 Stream Restoration and Protection Policies	62. Member cities are responsible for funding maintenance and repairs of aesthetic improvements.	N/A	N/A – Cost share of capital improvement projects is determined for each specific project	-
Section 4.2.5 Stream Restoration and Protection Policies	64. Member cities shall maintain and enforce BCWMC buffer requirements along priority streams.	Section 5	Wetland Conservation Act	5-19
Section 4.2.6 Wetland Management Policies	65. Member cities are required to inventory, classify, and determine the functions and values of wetlands, maintain a database, and are encouraged to complete comprehensive wetland management plans.	Section 3	Wetland Inventories	3-79
Section 4.2.6 Wetland Management Policies	66. Member cities are required to develop and implement wetland protection ordinances.	Section 5	Wetland Conservation Act	5-19
Section 4.2.6 Wetland Management Policies	68. Member cities shall maintain and enforce BCWMC buffer requirements for projects containing more than one acre of new or redeveloped impervious area.	Section 5	Watershed Organization Requirements	5-18
Section 4.2.6 Wetland Management Policies	69. Member cities are required to manage wetlands in accordance with the WCA.	Section 5	Wetland Conservation Act	5-19
Section 4.2.6 Wetland Management Policies	72. Member cities are required to annually inspect wetlands classified as “Preserve.”	N/A	N/A – There are no wetlands within Minneapolis municipal boundaries that are designated classified by BCWMC as “Preserve”	-
Section 4.2.6 Wetland Management Policies	73. Member cities are encouraged to pursue wetland restoration projects.	Section 3	Wetland Inventories	3-79
Section 4.2.6 Wetland Management Policies	74. Member cities are encouraged to participate in wetland monitoring programs such as WHEP.	Section 3	Wetland Health Evaluation Project	3-88
Section 4.2.8 Recreation, Habitat, and Shoreland Management Policies	80. Member cities are responsible for shoreland regulation.	Section 5	Zoning Code and Land Use	5-23
Section 4.2.8 Recreation, Habitat, and Shoreland Management Policies	82. Member cities are encouraged to develop and maintain water-related recreation features.	N/A	N/A – Water recreation is the responsibility of the Minneapolis Park and Recreation Board	-

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Section 4.2.8 Recreation, Habitat, and Shoreland Management Policies	85. Member cities shall consider opportunities to maintain, enhance, or provide new open spaces and/or habitat as part of water resource projects.	N/A	N/A – Features of capital improvement projects is determined for each specific project	-
Section 4.2.8 Recreation, Habitat, and Shoreland Management Policies	89. Member cities shall adopt State buffer and/or shoreland management requirements for public waters.	Section 2	Buffer Law	2-37
Section 4.2.10 Administration Policies	113. Member cities must inform BCWMC regarding updates to city ordinance or comprehensive plans that affect stormwater management.	Section 5	Watershed Organization Requirements	5-18
Section 4.2.10 Administration Policies	119. Member cities shall appoint a technical advisor to the BCWMC TAC.	Section 3	N/A	-
Section 4.2.10 Administration Policies	120. Member cities shall inform developer and other project applicants regarding BCWMC requirements.	Section 5	Watershed Organization Requirements	5-18
Section 4.2.10 Administration Policies	121. Member cities shall permit only those projects that conform to the policies and standards of the BCWMC.	Section 5	Watershed Organization Requirements	5-18
Section 4.2.10 Administration Policies	122. Member cities are required to acquire and maintain easements, right-of-way, or interest in land for BCWMC ordered CIP projects.	Section 5	Watershed Organization Requirements	5-18
Section 5.3.1.1	Describe the maintenance of the stormwater system to prevent flooding and water quality problems.	Section 4	Stormwater System Operation and Maintenance	4-30
Section 5.3.1.1	Assess the need for periodic maintenance of public works, facilities, and natural conveyance systems under the City's jurisdiction.	Section 4	Baseline Sanitary Sewer and Stormwater Drain Condition Assessments	4-38
Section 5.3.1.1	Assess the need to establish a waterbody management classification system to provide for water quality and quantity management. Correlate selected system with BCWMC classification system.	Section 3	Watershed Organization Required Actions	3-97

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Section 5.3.1.1	Identify official controls and programs (ordinances, management plans) to enforce policies of the BCWMC. Implement changes to system within 2 years of BCWMC plan adoption.	Section 3	Watershed Organization Required Actions	3-97
Minnehaha Creek Watershed District				
Appendix A. Data & Information	Identify regional data systems maintained by the District and describe their application to LGU activity.	Appendix E	Monitoring and Assessment Reports	E-1
Appendix A. Data & Information	Describe hydrology and hydraulics (H&H) model.	Section 4	Stormwater Drain Hydraulic Standards	4-27
Appendix A. Data & Information	Provide waterbody flood elevations derived from Atlas 14 precipitation data.	Section 4	Stormwater Drain Hydraulic Standards	4-27
Appendix A. Data & Information	Describe functional assessment of wetlands.	Section 3	Wetland Inventories	3-79
Appendix A. Data & Information	Provide data on biological and physical condition of District streams.	Section 3	Minnehaha Creek	3-33
Appendix A. Data & Information	Provide hydrologic data on water quality, water quantity, and ecological integrity conditions and trends for District resources.	Appendix E	Monitoring and Assessment Reports	E-1
Appendix A. Data & Information	A summary of water resource management-related agreements, including joint powers agreements, into which the LGU has entered with watershed management organizations, adjoining LGU's, private parties, or others.	Section 2	Water Resources Related Agreements	2-33
Appendix A. Data & Information	Maps of current land use and land use at the LGU planning horizon.	Section 3	Figure 3.4 – City of Minneapolis Land Use	3-13
Appendix A. Data & Information	Maps of drainage areas under current and future planned land use with paths, rates, and volumes of stormwater runoff.	Section 4	Figure 4.11 – City of Minneapolis Stormwater Runoff Pipeshed Areas	4-26
Appendix A. Data & Information	Stormwater conveyance map meeting standards of the current MS4 general permit and indicating an outfall or a connection at the LGU boundary.	Section 4	Figure 4.4 – Minneapolis Stormwater Drain System	4-9
Appendix A. Data & Information	An inventory of public and private stormwater management facilities including the location, facility type, and party responsible for maintenance.	Section 4	Figure 4.5 – Structural Stormwater Management Practices	4-10

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Appendix A. Data & Information	A listing and summary of existing or potential water resource-related problems wholly or partly within LGU corporate limits. A problem assessment consistent with Minnesota Rules 8410.0045, subpart 7, is to be completed for each. This includes, but is not limited to: ▪ Areas of present or potential future local flooding. ▪ Landlocked areas. ▪ Regional storage needs.	Section 3	Minneapolis Waterbodies (see specific waterbody for information)	3-14
Appendix A. Data & Information	Executive summary of the local plan highlights.	Executive Summary	All	ES-1
Appendix A. Data & Information	Statement of the process to amend the local plan.	Section 1	Amendment Procedures	1-15
Appendix A. LGU Housekeeping	Describe land, facilities, and operations.	N/A	N/A – Information contained in *Minneapolis Stormwater Management Program, Municipal Separate Storm Sewer System (MS4) Phase I Permit*, revised July 22, 2015	-
Appendix A. LGU Housekeeping: Land	Inventory real property owned by the LGU, including classification of properties in useful terms such as developed, land suited for development/redevelopment, right-of-way, dedicated outlets, park and recreation land, non-developable, or conservation.	N/A	N/A – Information contained in *Minneapolis Stormwater Management Program, Municipal Separate Storm Sewer System (MS4) Phase I Permit*, revised July 22, 2015	-
Appendix A. LGU Housekeeping: Land	Indicate locations of facilities and operations identified in the LGU SWPPP.	N/A	N/A – Information contained in *Minneapolis Stormwater Management Program, Municipal Separate Storm Sewer System (MS4) Phase I Permit*, revised July 22, 2015	-
Appendix A. LGU Housekeeping: Land	Discuss water resource issues and opportunities associated with its properties.	N/A	N/A – Information contained in *Minneapolis Stormwater Management Program, Municipal Separate Storm Sewer System (MS4) Phase I Permit*, revised July 22, 2015	-
Appendix A. LGU Housekeeping: Land	Identify potential opportunities to coordinate with the District or other partners.	Section 5	Coordination with Other Government Agencies – Water Resource Management Programs	5-26
Appendix A. LGU Housekeeping: Facilities and Operations	Inventory facilities that it owns or operates and municipal operations that may contribute pollutants to groundwater or surface waters as required in NPDES MS4 stormwater permit.	N/A	N/A – Information contained in *Minneapolis Stormwater Management Program, Municipal Separate Storm Sewer System (MS4) Phase I Permit*, revised July 22, 2015	-

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Appendix A. LGU Housekeeping: Facilities and Operations	Describe best management practices that it commits to implement to address potential water resource impacts as required in NPDES MS4 stormwater permit.	N/A	N/A – Information contained in *Minneapolis Stormwater Management Program, Municipal Separate Storm Sewer System (MS4) Phase I Permit*, revised July 22, 2015	-
Appendix A. LGU Housekeeping: Facilities and Operations	Discuss issues or opportunities related to particular facilities or operations where the District's technical assistance, LGU/District cooperation, shared facilities/service with other LGUs or other forms of collaboration with other interested parties may results in water resource benefits.	N/A	N/A – To be contained in Memorandum of Understanding between Minneapolis and MCWD	-
Appendix A. LGU Housekeeping: Stormwater Management Facilities	Map locating all stormwater best management practices within the LGU's stormwater conveyance system.	Section 4	Figure 4.4 – Minneapolis Stormwater Drain System	4-9
Appendix A. LGU Housekeeping: Stormwater Management Facilities	Inventory of all stormwater management basins within its political boundaries, whether owned by the LGU or otherwise.	Section 4	Figure 4.5 – Structural Stormwater Management Practices	4-10
Appendix A. LGU Housekeeping: Stormwater Management Facilities	For each basin and other stormwater management practice contained in the map and inventory, the local plan is to identify the party responsible to maintain the practice; state whether the practice is in maintained condition.	N/A	N/A – Information contained in *Minneapolis Stormwater Management Program, Municipal Separate Storm Sewer System (MS4) Phase I Permit*, revised July 22, 2015	-
Appendix A. LGU Housekeeping: Stormwater Management Facilities	For practices that the LGU is responsible to maintain, the date of next maintenance, if maintenance is programmed.	N/A	N/A – Information contained in *Minneapolis Stormwater Management Program, Municipal Separate Storm Sewer System (MS4) Phase I Permit*, revised July 22, 2015	-
Appendix A. LGU Housekeeping: Stormwater	Describe its approach to maintenance of stormwater management practices constructed in conjunction with private development. This includes:	Section 5	Ongoing Stormwater Management Compliance	5-20

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Management Facilities	A. Whether the LGU assumes maintenance responsibility and, if so, under what circumstances. B. The LGU's program to inspect practices and secure maintenance by private parties. C. The means by which the LGU funds its maintenance and inspection activities. D. Other means of funding that are within its legal authority but that it does not presently use.			
Appendix A. LGU Housekeeping: Stormwater Management Facilities	Discuss the scope of its knowledge on deferred maintenance of public and private stormwater management practices within its boundaries.	Section 5	Ongoing Stormwater Management Compliance	5-20
Appendix A. Land Use: Planning	Identify those areas within or adjacent to the LGU that are designated in its local comprehensive land use plan as potential development or redevelopment within comprehensive plan planning horizon. This includes planned rezoning, land assembly, and infrastructure extension or expansion.	N/A	N/A – Information to be contained in 2018 Minneapolis Comprehensive Plan	-
Appendix A. Land Use: Planning	List and describe completed or programmed small area plans and similar planning activities with respect to defined-area redevelopment.	N/A	N/A – Information to be contained in 2018 Minneapolis Comprehensive Plan	-
Appendix A. Land Use: Planning	Describe the procedures by which the LGU plans, programs, and implements transportation infrastructure.	N/A	N/A – Information to be contained in 2018 Minneapolis Comprehensive Plan	-
Appendix A. Land Use: Planning	Describe the procedures by which the LGU plans, programs, and implements sewer and water infrastructure.	Section 6	Project and Program Implementation	6-16
Appendix A. Land Use: Planning	Describe the procedures by which the LGU plans, programs, and implements park and recreation land acquisition and management.	N/A	N/A – Responsibility of Minneapolis Park and Recreation Board	-
Appendix A. Land Use: Planning	Describe the procedures by which the LGU plans, programs, and implements conservation land acquisition and management.	N/A	N/A – Minneapolis is fully developed and has minimal land available for conservation acquisition	-
Appendix A. Land Use: Planning	Date of the most recent approved capital implementation or land acquisition and management program, the frequency of program updating, and internal procedures to	Section 6	Capital Improvement Program	6-4

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
	develop and approve the implementation program and to implement specific actions, and how programming and implementation is coordinated with other LGU activities.			
Appendix A. Land Use: Planning	Provide links to small area/redevelopment plans.	N/A	N/A – Information to be contained in 2018 Minneapolis Comprehensive Plan	-
Appendix A. Land Use: Planning	Provide links to capital implementation programs.	Section 6	Capital Improvement Program	6-4
Appendix A. Land Use: Planning	Provide links to acquisition and management plans.	N/A	N/A – Minneapolis is fully developed and has minimal land available for conservation acquisition	-
Appendix A. Land Use: Development Regulation	Review zoning and subdivision codes and other measures that have been adopted or are being considered and to indicate any role the District might plan in evaluating or implementing any such measures.	Section 5	Table 5.1 – City of Minneapolis Code of Ordinances and Table 5.2 – Minneapolis Park and Recreation Board Code of Ordinances	5-1
Appendix A. Land Use: Development Regulation	Describe whether the LGU development review process incorporates voluntary or obligatory low-impact site design review. If so, describe the process and whether it will facilitate District participation.	Section 5	Site Plan Review and Capital Project Task Force	5-15
Appendix A. Land Use: Development Regulation	Describe whether the LGU requires stormwater management practices, wetlands, or wetland buffers be platted on outlets. If not, describe the obstacles for doing so.	Section 5	Stormwater Management Standards for Development and Redevelopment/Post-Construction Stormwater Management	5-16
Appendix A. Land Use: Development Regulation	Explain the LGU's maintenance responsibility policy and practice within residential, industrial, or other subdivision and how these are funded.	Section 5	Ongoing Stormwater Management Compliance	5-20
Appendix A. Land Use: Development Regulation	Describe wellhead protection plan, policies, and implementation. Describe established policies as to where and when infiltration will not be required or permitted as a stormwater management practice.	Section 5	Minimal Impact Design Standards Flexible Treatment Options	5-20
Appendix A. Land Use: Development Regulation	Describe provisions of official controls or LGU practices that make applicants aware of District permitting requirements.	Section 5	Watershed Organization Requirements	5-18
Appendix A. Land Use: Development Regulation	Identify other regulatory mandates concerning water resources under which it operates. Describe its legal role and responsibility, and compliance status.	Section 2	Regulatory Agencies, Requirements, Goals, and Programs	2-1

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Appendix A. Land Use: Development Regulation	Identify other roles not legally mandated but that the LGU elects to perform. May by in tabular form.	Section 5	Water Resource Management Programs	5-4
Appendix A. Land Use: Development Regulation	Identify any District assistance or coordination that would benefit its implementation of any particular program, specifically: ▪ NPDES MS4 program. ▪ TMDL program. ▪ Anti-degradation requirements. ▪ Safe Drinking Water Act/State wellhead protection program. ▪ National Flood Insurance Program. ▪ State floodplain management law. ▪ State shoreland management law. ▪ Minnesota Wetland Conservation Act.	N/A	N/A – To be contained in Memorandum of Understanding between Minneapolis and MCWD	-
Appendix A. Implementation Program	Describe non-structural, programmatic, and structural solutions to water resources problems.	Section 5	Water Resource Management Programs	5-4
Appendix A. Implementation Program	Present these implementation elements in a table that briefly describes each element, details the schedule, estimated cost and funding sources for the element, and annual budget totals.	Section 6	Capital Improvement Program	6-4
Appendix A. Implementation Program	Present these implementation elements in a table that briefly describes each element, details the schedule, estimated cost and funding sources for the element, and annual budget totals.	Section 6	Operational Programs	6-15
Appendix A. Implementation Program	Break out within this table a capital improvement program that sets forth, by year, details of each contemplated capital improvement including schedule, estimated cost, and funding source.	Section 6	Capital Improvement Program	6-4
Appendix A. Implementation Program	Prioritize implementation elements consistent with the principles of Minnesota Rule 8410.0045, subpart 1.A and District priorities as described in the WMP and communicated to the LGU.	Section 6	Prioritization	6-17

Citation	Requirement	WRMP Section	WRMP Sub-Section(s)	WRMP Page #
Appendix A. Implementation Program	Implementation program as in its judgment will meet these legal requirements.	Section 6	Project and Program Implementation	6-16
Appendix A. LGU/District Coordination Plan	Describe the elements of a coordination plan that the LGU and District can implement at a staff level. The plan should address: ▪ An annual meeting to review water resource plan implementation. ▪ Mutual transmittal of annual NPDES MS4 report. ▪ How the District can receive notice of and consult with the LGU on its land use, infrastructure, park and recreation, and capital improvement efforts. ▪ LGU notices to the District. ▪ District notices to the LGU. ▪ District notices of significant events related to development/redevelopment. ▪ Regulatory coordination. ▪ Public communication and education partnerships or coordination. LGU staff to be made aware of coordination plans.	N/A	N/A – To be contained in Memorandum of Understanding between Minneapolis and MCWD	-

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Appendix B – NPDES Integrated Permit

MINNESOTA POLLUTION CONTROL AGENCY

520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300

800-657-3864 | Use your preferred relay service | info.pca@state.mn.us | Equal Opportunity Employer

February 16, 2018

The Honorable Jacob Frey
Mayor, City of Minneapolis
350 South 5th Street, Room 331
Minneapolis, MN 55415

RE: Final Reissued National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit No. MN0061018
City of Minneapolis and Minneapolis Park and Recreation Board
Minneapolis, Hennepin County, Minnesota

Dear Mayor Frey:

Enclosed is the final permit for the City of Minneapolis and Minneapolis Park and Recreation Board. The Minnesota Pollution Control Agency (MPCA) has prepared this permit in compliance with the provisions of the Clean Water Act, as amended (33 U.S.C. 1251, et seq.), 40 CFR pts. 122, 123, and 124, as amended; Minn. Stat. chs. 115 and 116, as amended; and Minn. R. ch. 7001.

If you have any questions regarding any of the terms and conditions of the final permit, please contact Cole Landgraf at 651-757-2880 or by email at cole.landgraf@state.mn.us.

Sincerely,

Duane Duncanson

This document has been electronically signed.

Duane Duncanson
Supervisor, Municipal Stormwater Unit
Stormwater Section
Municipal Division

CL:ml

Enclosure: Final Permit

cc: Lois Eberhart, City of Minneapolis

MINNESOTA POLLUTION CONTROL AGENCY

National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS)

MN0061018

Permittee: City of Minneapolis and the Minneapolis Park and Recreation Board, herein after the "Permittee"

Facility name: Minneapolis Municipal Storm Water

Receiving water: Waterbodies within and adjacent to the City of Minneapolis

City: Minneapolis **County:** Hennepin

Issuance date: February 16, 2018

Expiration date: February 15, 2023

The State of Minnesota, on behalf of its citizens through the Minnesota Pollution Control Agency (MPCA/Agency), authorizes the Permittee to operate a disposal system at the facility named above in accordance with the requirements of this permit.

The goal of this permit is to reduce pollutant levels in point source discharges and protect water quality in accordance with the U.S. Clean Water Act, Minnesota statues and rules, and federal laws and regulations.

This permit is effective on the issuance date identified above. This permit expires at midnight on the expiration date identified above.

Signature: Duane Duncanson

This document has been electronically signed.

Duane Duncanson
Supervisor, Municipal Stormwater Unit
Stormwater Section
Municipal Division

for the Minnesota Pollution Control Agency

If you have questions about this permit, including specific permit requirements, permit reporting, or permit compliance status, please contact the Minnesota Pollution Control Agency at:

Municipal Stormwater Program
Municipal Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194
Telephone: 651-296-6300 or toll free in Minnesota: 800-657-3864

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PART I. AUTHORIZATION UNDER THIS PERMIT

A. ELIGIBILITY

To be eligible for authorization to **discharge stormwater** under this permit, the applicant must be an **owner** and/or **operator** (**owner/operator**) of a **large municipal separate storm sewer system** (**MS4**) as defined in 40 CFR § 122.26(b)(4).

1. Authorized **Stormwater** Discharges

   This permit authorizes **stormwater discharge**s from the **MS4**.

2. Authorized Non-**Stormwater** Discharges

   The following categories of **non-stormwater discharge**s or flows are authorized under this permit to enter the **Permittee**'s **MS4** only if the **Permittee** does not identify them as significant contributors of pollutants (i.e., **illicit discharge**s), in which case the **discharge**s or flows must be addressed in the **Permittee**'s **Stormwater Management Program** (**SWMP**): water line flushing, landscape irrigation, diverted stream flows, rising groundwaters, uncontaminated groundwater infiltration (as defined at 40 CFR § 35.2005[b][20]), uncontaminated pumped groundwater, **discharge**s from potable water sources, foundation drains, air conditioning condensation, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and **wetlands**, dechlorinated swimming pool **discharge**s, street wash water, and **discharge**s of flows from firefighting activities.

B. LIMITATIONS ON AUTHORIZATION

The following **discharge**s or activities are not authorized by this permit:

1. **Non-stormwater discharge**s, except those authorized in Part I.A.2.

2. **Discharge**s of **stormwater** to the **MS4** from activities requiring a separate NPDES/SDS permit. This permit does not replace or satisfy any other permitting requirements.

3. **Discharge**s of **stormwater** to the **MS4** from any other entity located in the drainage area or outside the drainage area. Only the **Permittee**'s **MS4** and the portions of the storm sewer system under the **Permittee**'s operational control are authorized by this permit.

4. This permit does not replace or satisfy any environmental review requirements, including those under the Minnesota Environmental Policy Act (Minn. Stat. § 116D), or the National Environmental Policy Act (42 U.S.C. §§ 4321 – 4370f).

5. This permit does not replace or satisfy any review requirements for endangered or threatened species, from new **discharge**s that adversely impact or contribute to adverse impacts on a listed endangered or threatened species, or adversely modify a designated critical habitat.

6. This permit does not replace or satisfy any review requirements for historic places or archeological sites, from new **discharge**s which adversely affect properties listed or eligible for listing in the National Register of Historic Places or affecting known or discovered archeological sites.

7. This permit does not authorize **discharge**s to **wetlands** unless the **Permittee** is in compliance with the requirements of Minn. R. 7050.0186.

C. PERMIT AUTHORIZATION

For an applicant to be authorized to **discharge stormwater** from a **large MS4** under this permit the **Commissioner** will communicate to the **Permittee** as to whether the permit should be issued or denied in accordance with Minn. R. 7001. Upon receipt of written notification from the **Commissioner** of permit coverage, the **Permittee** is authorized to **discharge stormwater** from the **large MS4** under the terms and conditions of this permit.

D. RIGHTS AND RESPONSIBILITIES

1. The **Commissioner** may modify this permit or issue other permits, in accordance with Minn. R. 7001, to include more stringent effluent limitations or permit requirements that modify or are in addition to the Minimum Control Measures (MCMs) in Part III.C. of this permit, or both. Modifications may be based on the **Commissioner**'s determination that such modifications are needed to protect water quality.

2. The **Permittee** must manage, operate, and maintain the storm sewer system and areas drained by the storm sewer system within the **Permittee**'s jurisdiction to **reduce** the **discharge** of pollutants to the **Maximum Extent Practicable** (**MEP**). Management may consist of a combination of **Best Management Practices** (**BMP**s), education, other control techniques, system design and engineering methods, and such other provisions as the **Permittee** and/or **Commissioner** determine to be appropriate.

3. Joint **Permittee**s

   a. The following entities are Joint **Permittee**s under this permit. The titles "Joint **Permittee**" and "**Permittee**" are considered the same and are used interchangeably:

      (1) City of Minneapolis by and through its City Council

      (2) City of Minneapolis by and through its Minneapolis Park and Recreation Board

   b. Each Joint **Permittee** is individually liable for:

      (1) Permit compliance for the **discharge**s from portions of the storm sewer system of which it is the **owner** and/or **operator**.

      (2) **Stormwater** management for **discharge**s from portions of the storm sewer system of which it is the **owner** and/or **operator**.

   c. The Joint **Permittee**s are jointly and severally liable for:

      (1) Compliance with annual reporting requirements.

      (2) Ensuring funding for representative monitoring according to established agreements.

      (3) Ensuring implementation of any system-wide management program elements.

(4) Compliance on portions of the storm sewer system where operation, maintenance, or other authority has been transferred from one Joint **Permittee** to another in accordance with legally binding interagency agreements.

(5) Compliance on portions of the storm sewer system where the Joint **Permittee**s jointly own or operate the system.

d. The Joint **Permittee**s must enter into an agreement to define their individual responsibilities for meeting the requirements and conditions of this permit (Agreement). As part of the Agreement, the Joint **Permittee**s must define their individual responsibilities to assure the operation, maintenance, monitoring, and management of the **SWMP** to comply with this permit. This Agreement must become part of the **SWMP** and must include, but not be limited to the following:

(1) A designation of an Authorized Representative to serve as the coordinator of the Joint **Permittee**s.

(2) A delineation of responsibilities to assure all parts of the **SWMP** are implemented and managed according to the conditions of this permit.

(3) A delineation of responsibilities for submittal of the annual report.

PART II. APPLICATION REQUIREMENTS

A. APPLICATION FOR REAUTHORIZATION

1. The **Permittee** must submit a written application for reauthorization at least 180 days before the expiration date of this permit (Minn. R. 7001.0040, subp. 3).

2. If the **Permittee** has submitted a timely application for permit reauthorization, the **Permittee** must continue to conduct the activities authorized by this permit, in compliance with the requirements of this permit, until the **Agency** takes final action on the application, unless the **Agency** determines one of the following:

   a. The **Permittee** is not in substantial compliance with the requirements of this permit, or with a stipulation agreement or compliance schedule designed to bring the **Permittee** into compliance with this permit.

   b. The **Agency**, as a result of an action or failure to act by the **Permittee**, has been unable to take final action on the application on or before the expiration date of the permit.

   c. The **Permittee** has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies (Minn. R. 7001.0160).

3. The **Permittee** must submit with an application for reauthorization a revised **SWMP**.

B. DISCHARGES TO IMPAIRED WATERS WITH A U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA)-APPROVED TOTAL MAXIMUM DAILY LOAD (TMDL) THAT INCLUDES AN APPLICABLE WASTE LOAD ALLOCATION (WLA).

For each **applicable WLA** approved prior to the submittal of the application for reauthorization, the **Permittee** must submit the following with an application for reauthorization:

1. **TMDL** project name(s).

2. Numeric **WLA**(s), including units.

3. Type of **WLA** (i.e., categorical or individual).

4. Pollutant(s) of concern.

5. Applicable flow data specific to each **applicable WLA**.

6. For each **applicable WLA** not met at the time of application, a compliance schedule is required. Compliance schedules can be developed to include multiple **applicable WLA**s and must include:

   a. Interim milestones, expressed as **BMP**s or progress toward implementation of **BMP**s to be achieved during the permit term.

   b. Dates for implementation of interim milestones.

   c. Strategies for continued **BMP** implementation beyond the permit term.

d. Target dates the **applicable WLA**(s) will be achieved.

7. For each **applicable WLA** the **Permittee** is reasonably confident is being met at the time of application, the **Permittee** must provide the following documentation:

   a. Implemented **BMP**s used to meet each **applicable WLA**.

   b. A narrative describing the **Permittee**'s strategy for long-term continuation of meeting each **applicable WLA**.

C. ANTI-DEGRADATION ASSESSMENT

The **Permittee** must submit with an application for reauthorization, data and information requested by the **Commissioner** for an anti-degradation assessment of impacts from **stormwater** runoff in accordance with Minn. R. 7050.0290, subp. 2.

D. SUBMITTING THE APPLICATION FOR REAUTHORIZATION

The **Permittee** must use an electronic submittal process, when provided by the **Agency**, for submitting an application for reauthorization developed in accordance with Part II.A. – C. of this permit. When submitting an application electronically is not possible, the **Permittee** must use the following mailing address:

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

E. APPLICATION FOR REAUTHORIZATION RECORD RETENTION

The applicant must retain copies of the application for reauthorization, all data and information used by the applicant to complete the application, and any additional information requested by the **Commissioner** during the review of the application, for a period of at least three years beyond the date of permit expiration. This period is automatically extended during the course of an unresolved enforcement action regarding the **MS4** or as requested by the **Commissioner**.

PART III. STORMWATER MANAGEMENT PROGRAM (SWMP)

The **Permittee** must continue to develop, implement, and enforce a **SWMP** designed to **reduce** the **discharge** of pollutants from the **MS4** to the **Maximum Extent Practicable** (**MEP**), to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act and the conditions of this permit. The **SWMP** is an enforceable part of the permit.

The **SWMP** must utilize an adaptive management strategy by which the **Permittee** continuously monitors, analyzes, and adjusts the **SWMP** to achieve pollutant reductions to the **MEP**. The **SWMP** must include the Minimum Control Measures (described in Part III.C.1. – 8) and must conform with the requirements of Part III.A. – E. The **SWMP** must consist of the following:

A. REGULATORY MECHANISM(S)

To the extent allowable under state, tribal or local law, the **Permittee** must develop, implement, and enforce a regulatory mechanism(s) to meet the terms and conditions of Part III.C.3. – 5. A regulatory mechanism(s) for the purposes of this permit may consist of contract language(s), ordinance(s), permit(s), standard(s), or any other mechanism(s), that will be enforced by the **Permittee**.

B. ENFORCEMENT RESPONSE PROCEDURES (ERPs)

1. The **Permittee** must develop and implement written ERPs to enforce and compel compliance with the regulatory mechanism(s) described in Part III.A.

2. Enforcement conducted by the **Permittee** pursuant to the ERPs must be documented and include, at a minimum, the following:

    a. Name of the **person** responsible for violating the terms and conditions of the **Permittee**'s regulatory mechanism(s).

    b. Date(s) and location(s) of the observed violation(s).

    c. Description of the violation(s), including reference(s) to relevant regulatory mechanism(s).

    d. Corrective action(s), including a completion schedule, issued by the **Permittee**.

    e. Date(s) and type(s) of enforcement used to compel compliance (e.g., verbal warning, written notice, citation, stop work order, withholding of local authorizations, etc.).

    f. Referrals to other regulatory organizations, if any.

    g. Date(s) violation(s) resolved.

C. MINIMUM CONTROL MEASURES (MCMs)

The MCMs listed below must be included in the **SWMP**. The **Permittee** must define appropriate **BMP**s and measurable goals for each MCM.

1. Public Education and Outreach

The **Permittee** must continue to implement a public education and outreach program of appropriate **BMP**s directed at, but not limited to: residents, developers, businesses, elected officials, policy makers, and municipal staff. **BMP**s must take into account known water quality impairments, community concerns, and the public's knowledge of **stormwater** runoff impacts. At a minimum, the **Permittee** must:

a. Implement the following education and outreach activities. The activities below must be implemented at least once throughout the permit term and the **Permittee** may prioritize the number of activities implemented during each year of the permit term.

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

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

(3) Educate the public on proper pet waste disposal.

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

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

(6) Educate the public about **impaired water**s within the jurisdiction and the **TMDL**s developed to address the impairments.

b. Develop and implement an education and outreach work plan, included in the **SWMP**, that consists of the following:

(1) Specific activities and timelines for each of the topics in Part III.C.1.a.(1) – (6).

(2) Target audiences for each activity where the audience has not been identified in Part III.C.1.a.(1) – (6).

(3) Measurable goals for each activity and target audience. Measurable goals must be stated in terms of increased awareness, increased understanding, acquired skills, and/or desired changes in behavior.

(4) A description of coordination with other **stormwater** education and outreach programs being implemented by other organizations, if applicable. Include a list of formal agreements or partnerships describing the roles performed by the other organizations on behalf of the **Permittee**.

(5) An annual evaluation to measure the extent to which measurable goals for each activity and target audience are attained.

(6) The name or title of the municipal staff responsible for work plan implementation.

c. Maintain documentation of the following information:

(1) All information required under Part III.C.1.b.

(2) Any modifications made to the program as a result of the annual evaluation under Part III.C.1.b.(5).

(3) Activities held, including dates, to reach measurable goals described in Part III.C.1.b.(3).

(4) Quantities and descriptions of educational materials distributed, including dates distributed.

2. Public Participation and Involvement

The **Permittee** must revise their current program and continue to implement a public participation and involvement program to solicit public input on the **SWMP**. At a minimum, the **Permittee** must:

a. Hold at least one public meeting per year for the public to provide input on the adequacy of the **SWMP** and the annual report. The **Permittee** must hold the public meeting prior to the submittal of the annual report to the **Commissioner**. The meeting and notice must include the following information:

(1) The public meeting must be held within the jurisdiction of the **Permittee**.

(2) The **Permittee** must prepare and publish a notice of the public meeting at least 30 days before the meeting. The notice of the public meeting must include the following information:

(a) A reference to the **SWMP**, the annual report, and the proposed modifications to the **SWMP**.

(b) The date, time, and location of the public meeting.

(c) A description of the manner in which the public meeting will be conducted and information about where a copy of the **SWMP** and annual report are available for public review.

(3) The **Permittee** must publish the notice in a newspaper or similar publication of general circulation in the vicinity of the **Permittee**'s jurisdiction. A copy of the notice must be made available to the following: the **Agency Commissioner**, appropriate county officials, any governmental entities that have jurisdiction over activities that directly or indirectly relate to **stormwater** management in the **Permittee**'s jurisdiction, and all other **person**s who have requested that they be informed of public meetings regarding the **SWMP** and annual report.

b. Provide access to the following **stormwater**-related public documents on the **Permittee**'s website:

(1) Current Phase I **MS4** individual permit.

(2) Current **SWMP**.

(3) Current annual report.

(4) Current **stormwater** runoff monitoring and analysis report.

c. Collect public input on the adequacy of the **SWMP**, including input from the public meeting. The **Permittee** must provide the public a reasonable opportunity to make oral statements concerning the **SWMP**.

d. Consider the public input received on the **SWMP** and make appropriate adjustments.

e. Include a formal resolution from the **Permittee**'s governing body adopting the annual report and the **SWMP** with the annual report.

f. Maintain documentation of the following information:

(1) All relevant written input submitted by **person**s regarding the **SWMP**.

(2) All responses from the **Permittee** to written input received regarding the **SWMP**, including any modifications made to the **SWMP** as a result of the written input received.

(3) Date(s) and location(s) of events held for purposes of compliance with this requirement.

(4) Notices provided to the public of any events scheduled to meet this requirement, including any electronic correspondence (e.g., website, e-mail distribution lists, notices, etc.).

3. **Illicit Discharge** Detection and Elimination (IDDE)

The **Permittee** must continue to implement and enforce a program to detect and eliminate **illicit discharge**s as defined in 40 CFR § 122.26(b)(2). To the **MEP**, the **Permittee** must minimize any adverse impact to **receiving water**s from all unauthorized **discharge**s, whether random, frequent, infrequent, accidental or otherwise consisting of pathogens, nutrients, oil, toxic pollutants or other hazardous substances consistent with Minn. Stat. §115.061 and 40 CFR pts. 110 and 116. This requirement applies to **discharge**s to the storm sewer system within the **Permittee**'s jurisdiction including physical connections. The **Permittee** must also select and implement a program of appropriate **BMP**s and measurable goals for this MCM. At a minimum, the **Permittee** must:

a. Update an electronic inventory and map of the storm sewer system, identifying:

(1) **Receiving water**s.

(2) **Structural stormwater BMP**s (except catch basins and storm drain inlets without sumps), including:

(a) The size of the subwatershed area draining to the **structural stormwater BMP**.

(b) The design capacity, estimated design capacity or size of the **structural stormwater BMP**.

(3) Land use types.

(4) All **pipe**s, ditches and swales, including **stormwater** flow direction. Catch basin lead **pipe**s must be added, when applicable.

(5) **Permittee**-owned facilities.

(6) **Outfalls**, including:

(a) **Outfall** identification number.

(b) Geographic coordinate of **outfall** location.

(c) Size of **outfall pipe**.

(d) Size of the subwatershed area draining to each **outfall**.

(e) Percent of **impervious surface**s in the subwatershed area draining to each **outfall**.

(f) The number and type of **structural stormwater BMP**s in the subwatershed area that drains to each **outfall**.

(7) **Stormwater** inflows from other **MS4**s.

b. Effectively prohibit, through ordinance or **other regulatory mechanism** and appropriate ERPs, **illicit discharge**s into the **MS4**.

c. Continue to develop and implement the following processes and procedures:

(1) Receive, track, and investigate complaints of **illicit discharge**s including goals for responding to and eliminating **illicit discharge**s.

(2) Identify the source of the **illicit discharge**s.

(3) Enforce violations of prohibitions on **illicit discharge**s.

(4) Limit infiltration of seepage from municipal sanitary sewers to the **MS4**.

d. Continue to develop and implement a dry weather field screening program to detect and eliminate **illicit discharge**s (except non-**stormwater discharge**s as identified in Part I.A.2.), including illegal dumping, to the system. The field screening program must include:

(1) Written procedures that describe how the **Permittee** will prioritize and investigate portions of the **MS4** where there is a reasonable potential to contain **illicit discharge**s or other sources of **illicit discharge**s. The **Permittee** must prioritize investigations based on the results of field screening, the presence of potential sources of illicit **discharge**s in the geographic area drained by that portion of the **MS4**, history, land use, sanitary sewer system, proximity to sensitive waters and other appropriate information.

(2) Areas or locations to be evaluated.

(3) A schedule for the field screening activities.

(4) Pollutants of interest.

(5) Evaluation procedures including non-sampling evaluation (e.g., visual observations, odors, etc.).

(6) Sampling procedures.

(7) Record keeping.

(8) Notification to the Department of Public Safety Duty Officer as required in Minn. Stat. § 115.061.

(9) The dry weather field screening may be implemented in conjunction with the **outfall** inspection and monitoring programs required by Part III.C.6.e(2) as well as during routine maintenance activities performed in areas included in the **Permittee**'s jurisdiction.

(10) Implementation of enforcement response procedures when **illicit discharge**s are discovered.

e. Continue to implement an education and outreach program for municipal staff, the public, businesses, and industry regarding **illicit discharge**s and improper disposal of waste, including:

(1) Communication and outreach to inform the public, municipal employees, and businesses about the following topics:

(a) Identifying **illicit discharge**s and illicit connections to catch basins, ditches, swales and **structural stormwater BMP**s.

(b) Hazards associated with **illicit discharge**s and illicit connections to the **MS4**.

(c) Reporting **illicit discharge**s and illicit connections to the **Permittee**.

(d) Preventing **illicit discharge**s and illicit connections to the **MS4**.

(e) Containment and response to **illicit discharge**s and spills that may **discharge** to the **MS4**.

(2) Written procedures to promote, publicize, and facilitate public reporting of **illicit discharge**s or water quality impacts associated with **discharge**s into or from the **MS4**.

(3) A central contact, including a phone number for complaints and spill reporting.

(4) The responsibility for municipal staff to notify the Department of Public Safety Duty Officer as required in this permit and the internal procedures for other municipal staff to respond and contain **illicit discharge**s and spills.

f. Implement the following measures for hazardous waste and other industrial facilities:

(1) Maintain and continue to develop an inventory of industrial, commercial, or institutional facilities that **discharge** any flow other than **stormwater** to the **MS4**. The inventory must include the name, location, discharge location to the **MS4**, the receiving water, **discharge** description, and any permit issued for the **discharge**. The **Agency** will provide a list of permitted facilities to the **Permittee** upon request.

(2) A program that identifies non-NPDES permitted **discharge**s from industrial facilities the **Permittee** determines are contributing a substantial pollutant loading to the **MS4**, including:

(a) **Stormwater hotspot**s, to the extent possible, using industrial/commercial **stormwater** risk factors and input from Hennepin County Environmental Services and Minneapolis Inspections Departments to identify these **stormwater hotspot**s and establish priorities.

(b) Municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA).

(3) Written procedures for addressing non-NPDES permitted **discharge**s from industrial facilities the **Permittee** determines are contributing a substantial pollutant loading to the **MS4**, including:

(a) Inspecting the facilities.

(b) Monitoring the facilities' **illicit discharge**s.

(c) Implementing **BMP**s for **illicit discharge**s associated with the **stormwater hotspot**s and priority industrial facilities identified in Part III.C.3.f.(2).

g. Maintain documentation of the following information:

(1) Date(s) and location(s) of illicit discharge inspections conducted.

(2) Reports of alleged **illicit discharge**s received, including date(s) of the report(s), and any follow-up action(s) taken by the **Permittee**.

(3) Date(s) of discovery of all **illicit discharge**s.

(4) Identification of **outfall**s, or other areas, where **illicit discharges** have been discovered.

(5) Sources (including a description and the responsible party) of **illicit discharges** (if known).

(6) Action(s) taken by the **Permittee**, including date(s), to address discovered **illicit discharges**.

4. Construction Site **Stormwater** Runoff Control

Continue to develop, implement and enforce a construction site **stormwater** runoff control program that **reduce**s pollutants in **stormwater** runoff to the **MS4** from **construction activity** with a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger **common plan of development or sale**, that occurs within the **Permittee**'s jurisdiction. The program must incorporate the following components:

a. Regulatory mechanism(s)

A regulatory mechanism(s) that establishes requirements for erosion, sediment, and waste controls that is at least as stringent as the **Agency**'s general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001* (as of the effective date of this permit). If the **Agency**'s general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001* is reissued, the Permittee must revise their regulatory mechanism(s), if necessary, within six months of the issuance date of that permit, to be at least as stringent as the erosion, sediment, and waste controls required by that permit. The regulatory mechanism(s) must include the following:

(1) **Owner**s and **operator**s of **construction activity** develop site plans that must be submitted to the **Permittee** for review and approval, prior to the start of **construction activity**. **Stormwater** runoff controls described in site plans must be regularly updated by **owner**s and **operator**s during active **construction activity**.

(2) A requirement for site plans to incorporate erosion, sediment, and waste controls as specified in the **Agency**'s general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*. The regulatory mechanism(s) must require that site plans incorporate the following categories of erosion, sediment, and waste controls as described in the above referenced permit:

(a) **BMP**s to minimize erosion.

(b) **BMP**s to minimize the **discharge** of sediment and other pollutants.

(c) **BMP**s for dewatering activities.

(d) Site inspections and records of rainfall events.

(e) **BMP** maintenance.

(f) Management of solid and hazardous wastes on each project site.

(g) Final stabilization upon the completion of **construction activity**, including the use of perennial vegetative cover on all exposed soils or other equivalent means.

(h) Criteria for the use of temporary sediment basins.

b. Site plan review

The program must include written procedures for site plan reviews conducted by the **Permittee** prior to the start of **construction activity**, to ensure compliance with the regulatory mechanism(s). The site plan review procedures must include notification to **owner**s and **operator**s proposing **construction activity** of the need to apply for and obtain coverage under the **Agency**'s general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*.

c. Public input

Provide the opportunity for the public to report non-compliant erosion, sediment, and waste controls within the **Permittee** jurisdiction. Various methods for reporting noncompliant erosion, sediment, and waste controls must be available to the public, including: website application, phone calls, and/or email communication.

d. Site inspections

The program must include written procedures for conducting site inspections to determine compliance with the **Permittee**'s regulatory mechanism(s). The written procedures must include:

(1) Procedures for identifying priority sites for inspection. Prioritization can be based on parameters such as: topography, soil characteristics, types of **receiving water**(s), stage of construction, compliance history, weather conditions, or other local characteristics and concerns.

(2) A frequency at which site inspections will be conducted.

(3) Name(s) of individual(s) or position titles responsible for conducting site inspections.

(4) A checklist or form to document site inspections when determining compliance.

e. ERPs required by Part III.B. in this permit.

f. A database of construction sites subject to the **Permittee**'s regulatory mechanism to track site plan review, construction progress and erosion, sediment, and waste control compliance.

g. Staff training

The training must address the job-specific duties for the following position titles or municipal staff:

(1) Erosion and sediment control/**stormwater** inspectors:

(a) Knowledge of the erosion, sediment, and waste control requirements in the **Agency**'s general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001.*

(b) Familiarity with compliant and noncompliant erosion, sediment, and waste control **BMP**s at construction sites.

(c) Appropriate **BMP** selection, installation, and maintenance.

(d) Erosion, sediment, and waste control inspection documentation and use of enforcement response procedures.

(2) Other construction inspectors: erosion, sediment, and waste control **BMP**s for construction sites and procedures for notifying the appropriate **Permittee** staff of noncompliance.

(3) Construction site plan reviewers: knowledge of the erosion, sediment, and waste control **BMP**s required in the **Agency**'s general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001* and other erosion and sediment control design standards.

h. Maintain documentation of the following information:

(1) For each site plan review – The project name, location, total acreage to be disturbed, **owner** of the proposed **construction activity**, and any **stormwater** related comments and supporting documentation used by the **Permittee** to determine project approval or denial.

(2) For each site inspection – Inspection checklists or other written means used to document site inspections.

(3) Staff training, including a list of topics covered, names of employees in attendance, and date of each event.

5. Post-Construction **Stormwater** Management

Continue to develop, implement, and enforce a post-construction **stormwater** management program that prevents or **reduce**s **water pollution** after **construction activity** is completed, related to **new development** and **redevelopment** projects and **linear project**s with land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger **common plan of development or sale**, within the **Permittee**'s jurisdiction and that **discharge** to the **Permittee**'s **MS4**. At a minimum, the program must consist of the following:

a. A regulatory mechanism(s) that incorporates:

(1) A requirement that **owner**s and/or **operator**s of **construction activity** submit site plans with post-construction **stormwater** management **BMP**s to the **Permittee** for review and approval, prior to the start of **construction activity**.

(2) Conditions for post-construction **stormwater** management:

The **Permittee** must develop and implement a post-construction **stormwater** management program for **construction activity** that requires volume reduction using any combination of **BMP**s, with the highest preference given to **green infrastructure** techniques and practices (e.g., infiltration, evapotranspiration, harvest and use, urban forestry, green roofs, or other volume reduction practices). For projects that create or fully reconstruct one or more acres of **impervious surface**, the project must retain on-site to the **MEP** (not discharge to a surface water) the following treatment volumes by type of project:

(a) For **new development** or **redevelopment** projects (excluding **linear project**s) a **water quality volume** of one (1) inch times the new and/or fully reconstructed **impervious surface**s, unless precluded by the **stormwater** infiltration prohibitions in Part III.C.5.a.(3).

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

(3) **Stormwater** infiltration prohibitions

The **Permittee**'s regulatory mechanism(s) must prohibit the construction of infiltration **structural stormwater BMP**s to achieve the conditions for post-construction **stormwater** management in Part III.C.5.a(2) when the infiltration **structural stormwater BMP** will receive **discharge**s from, or be constructed in areas:

(a) That receive discharges from vehicle fueling and maintenance, regardless of the amount of new and/or fully reconstructed **impervious surface**.

(b) That receive **stormwater** runoff from entities regulated under NPDES for industrial **stormwater**: automobile salvage yards; scrap recycling and waste recycling facilities; hazardous waste treatment, storage, or disposal facilities; or air transportation facilities that conduct deicing activities.

(c) Where high levels of contaminants in soil or groundwater may be mobilized by the infiltrating **stormwater**. To make this determination, the **owner**s and/or **operator**s of **construction activity** must complete the **Agency**'s site screening assessment checklist, which is available in the Minnesota Stormwater Manual, or conduct their own assessment. The assessment must be retained with the site plans.

(d) Where soil infiltration rates are more than 8.3 inches per hour unless soils are amended to slow the infiltration rate below 8.3 inches per hour.

(e) Of predominately Hydrologic Soil Group D (clay) soils.

(f) Within 1,000 feet up-gradient or 100 feet down gradient of active karst features.

(g) Within a Drinking Water Supply Management Area (DWSMA) classified as high or very high vulnerability, as defined in Minn. R. 4720.5100, subp. 13., unless the **Permittee** performs a higher level of engineering review sufficient to provide a functioning treatment system and to maximize protection of groundwater.

(h) Within an Emergency Response Area as defined by the Minnesota Department of Health.

(i) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.

(4) **Stormwater** treatment requirements when infiltration is prohibited.

For those projects where the **water quality volume** reduction requirement as described in Part III.C.5.a.(2), cannot be met on site, the **Permittee**'s regulatory mechanism(s) must require the use of other methods of **stormwater** treatment (e.g., wet sedimentation basin, filtration basin) for the required **water quality volume** not treated through volume reduction practices.

(5) Mitigation provisions

There may be circumstances where the **Permittee** or other **owner**s and **operator**s of a **construction activity** cannot cost effectively meet the conditions for post-construction **stormwater** management in Part III.C.5.a.(2) and (4) on the site of the original **construction activity**. For this purpose, the **Permittee** must identify, or may require **owner**s or **operator**s of a **construction activity** to identify, locations where mitigation projects can be completed. The **Permittee**'s regulatory mechanism(s) must ensure that any **stormwater discharge**s not addressed on the site of the original **construction activity** are addressed through mitigation and, at a minimum, must ensure the following requirements are met:

(a) Mitigation project areas are selected in the following order of preference:

1) Locations that yield benefits to the same **receiving water** that receives runoff from the original **construction activity**.

2) Locations within the same Department of Natural Resources (DNR) catchment areas as the original **construction activity**.

3) Locations in the next adjacent **DNR catchment area** up-stream.

4) Locations anywhere within the **Permittee**'s jurisdiction.

(b) Mitigation projects must involve the creation of new **structural stormwater BMP**s or the retrofit of existing **structural stormwater BMP**s, or the use of a properly designed regional **structural stormwater BMP**.

(c) Routine maintenance of **structural stormwater BMP**s already required by this permit cannot be used to meet mitigation requirements of this Part.

(d) The **Permittee** must develop and retain documentation that mitigation projects are carried out consistently with Part III.C.5.a.(5)(a) and (b).

(e) The **Permittee** must document who is responsible for long-term maintenance on all mitigation projects of this Part.

(f) If the **Permittee** receives payment from the **owner** and/or **operator** of a **construction activity** for mitigation purposes in lieu of the **owner** or **operator** of that **construction activity** meeting the conditions for post-construction **stormwater** management in Part III.C.5.a.(2) and (4) the **Permittee** must apply any such payment received to a public **stormwater** project, all projects must be in compliance with Part III.C.5.a.(5)(a)-(e).

(6) Long-term maintenance of **structural stormwater BMP**s

The **Permittee**'s regulatory mechanism(s) must provide for the establishment of legal mechanism(s) between the **Permittee** and **owner**s or **operator**s responsible for the long-term maintenance of **structural stormwater BMP**s not owned or operated by the **Permittee**, that have been implemented to meet the conditions for post-construction **stormwater** management in Part III.C.5.a.(2) and (4). This only includes **structural stormwater BMP**s constructed after the issuance date of this permit, that are directly connected to the **Permittee**'s **MS4**, and that are in the **Permittee**'s jurisdiction. The legal mechanism must include provisions that, at a minimum:

(a) Allow the **Permittee** to conduct inspections of **structural stormwater BMP**s not owned or operated by the **Permittee**, perform necessary maintenance, and assess costs for those **structural stormwater BMP**s when the **Permittee** determines that the **owner** and/or **operator** of that **structural stormwater BMP** has not conducted maintenance.

(b) Include conditions that are designed to preserve the **Permittee**'s right to ensure maintenance responsibility, for **structural stormwater BMP**s not owned or operated by the **Permittee**, when those responsibilities are legally transferred to another party.

(c) Include conditions that are designed to protect/preserve **structural stormwater BMP**s and site features that are implemented to comply with Part III.C.5.a.(2) and (4). If site configurations or **structural stormwater BMP**s change, causing decreased **structural stormwater BMP** effectiveness, new or improved **structural stormwater BMP**s must be implemented to ensure the conditions for post-construction **stormwater** management continue to be met.

b. Site plan review

(1) The program must include written procedures for site plan reviews conducted by the **Permittee** prior to the start of **construction activity**, to ensure compliance with requirements of the regulatory mechanism(s).

(2) Include a process for the review of impacts to the design capacity of existing **structural stormwater BMP**s when new or **redevelopment** projects propose to increase the drainage area, loading and/or **stormwater** volume to the **structural stormwater BMP**s compared to the original design capacity.

c. Maintain documentation of the following:

(1) Any supporting documentation used by the **Permittee** to determine compliance with Part III.C.5.a, including the total **water quality volume** to be achieved, the project name, location, **owner** of the **construction activity**, any checklists used for conducting site plan reviews, and any calculations used to determine compliance.

(2) All supporting documentation associated with the **Permittee**'s approval of proposed stormwater infiltration in high or very high vulnerability areas within a DWSMA.

(3) All supporting documentation associated with mitigation projects authorized by the **Permittee**.

(4) Payments received and used in accordance with Part III.C.5.a.(5)(f).

(5) All legal mechanisms drafted in accordance with Part III.C.5.a.(6).

6. Pollution Prevention and Good Housekeeping for Municipal Operations

Continue to develop and implement an operations and maintenance program that prevents or **reduce**s the **discharge** of pollutants from **Permittee** owned/operated facilities and operations to the **MS4**. The program must include written standard operating procedures for preventing pollution during municipal operations (e.g., street sweeper operation, procedures for lawn maintenance, fertilizer and pesticide usage, equipment cleaning, and vehicle maintenance). At a minimum, the operations and maintenance program must include the following:

a. A facilities inventory

The **Permittee** must develop and maintain an inventory of **Permittee** owned/operated facilities that contribute pollutants to **stormwater discharge**s. Facilities to be inventoried may include, but are not limited to: composting, equipment storage and maintenance, hazardous waste disposal, hazardous waste handling and transfer, landfills, solid waste handling and transfer, parks, pesticide storage, public parking lots, public golf courses, public swimming pools, public works yards, recycling, salt storage, vehicle storage and maintenance (e.g., fueling and washing) yards, and materials storage yards.

b. Development and implementation of **BMP**s for inventoried facilities and municipal operations that prevent or **reduce discharge**s of pollutants to the **MS4** and from:

(1) All inventoried facilities that **discharge** to the **MS4**, and

(2) The following municipal operations that may contribute pollutants to **stormwater discharge**s, where applicable:

(a) Waste disposal and storage, including dumpsters.

(b) Municipal landfills, hazardous waste treatment, disposal and recovery facilities and industrial facilities that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA).

(c) Vehicle fueling, washing and maintenance.

(d) Emergency response, including spill prevention plans.

(e) Cleaning of maintenance equipment, building exteriors, dumpsters, and the disposal of associated waste and wastewater.

(f) Use, storage and disposal of **significant materials**.

(g) Landscaping, park, and lawn maintenance.

(h) Road maintenance, including pothole repair, road shoulder maintenance, pavement marking, sealing, and repaving.

(i) Right-of-way maintenance, including mowing.

(j) Application of herbicides, pesticides, and fertilizers.

(k) Cold-weather operations, including plowing or other snow removal practices, sand use, and application of anti-icing and deicing compounds.

c. Development and implementation of **BMP**s for **MS4 discharge**s that may affect Source Water Protection Areas (Minn. R. 4720.5100 – 4720.5590)

The **Permittee** must incorporate **BMP**s into the **SWMP** to protect any of the following drinking water sources that the **MS4 discharge** may affect and the **Permittee** must include the map of these sources with the **SWMP**, if they have been mapped.

(1) Wells and source waters for DWSMAs identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330.

(2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health under the Safe Drinking Water Act, U.S.C. §§ 300j – 13.

d. Pond assessment procedures and schedule

The **Permittee** must develop written procedures and a schedule for the purpose of determining the total suspended solids (TSS) and total phosphorus (TP) treatment effectiveness of all **Permittee** owned/operated ponds constructed and used for the collection and treatment of **stormwater**. The schedule may exceed this permit term and must be based on measurable goals and priorities established by the **Permittee**.

e. Inspections

(1) Unless inspection frequency is adjusted as described below, the **Permittee** must conduct annual inspections of **structural stormwater BMP**s to determine structural integrity, proper function and maintenance needs. Inspections of **structural stormwater BMP**s must be conducted annually unless the **Permittee** determines if either of the following conditions apply:

(a) Complaints received or patterns of maintenance indicate a greater frequency is necessary.

(b) Maintenance or sediment removal is not required after completion of the first two annual inspections, then the **Permittee** may **reduce** the frequency of inspections to once every two (2) years.

(2) Inspect, at a minimum, twenty (20) percent of the **MS4 outfall**s and ponds each year on a rotating basis in order to determine structural integrity, proper function, and maintenance needs.

(3) Inspect all stockpile, storage, and material handling areas that contribute pollutants to stormwater as follows:

(a) Weekly inspections when material is being actively handled, used or disturbed on daily basis.

(b) Monthly inspections when material is not being actively handled, used or disturbed. Install perimeter controls at stockpiles that are not covered to prevent material from discharging to the **MS4**.

f. Maintenance

Based on inspection findings, the **Permittee** must determine if repair, replacement, or maintenance measures are necessary in order to ensure the structural integrity, proper function, and treatment effectiveness of **structural stormwater BMP**s. Necessary maintenance must be completed as soon as possible to prevent or **reduce** the **discharge** of pollutants to the **MS4**. When repair, replacement, or maintenance must be delayed, the **Permittee** must prioritize the needed repair, replacement, or maintenance and implement the following:

(1) Preventive maintenance for the **MS4** components and **structural stormwater BMP**s.

(2) Dewater and dispose of solids, floatables, dredgings, or other pollutants resulting from the control and/or treatment of **stormwater** to prevent any pollutant from such materials from entering **receiving water**s. The **Permittee**, in disposing of such materials, must comply with all applicable statutes and rules.

g. Operate and maintain the **Permittee**'s parking lots, streets, roads, and highways to **reduce** the **discharge** of pollutants to the **MEP**. The **Permittee** must, at a minimum:

(1) Sweep public parking lots, streets, roads, and highways under its jurisdiction including prioritizing areas based on land use, trash, and **stormwater** pollutant levels generated.

(2) Sweep streets at least two (2) times per year, once in the spring and once in the fall and sweep higher priority areas more frequently.

h. Flood control **BMP**s

(1) Ensure that any flood control improvement projects the **Permittee** undertakes are designed to minimize the impacts on the water quality of the **receiving water**. When repairs, improvements or changes are planned for existing flood control devices, the **Permittee** must evaluate the feasibility of retrofitting the existing devices to provide volume reduction and pollutant removal from **stormwater discharge**s.

(2) Document and maintain an inventory of flood control detention facilities that provide rate control of **stormwater discharge**s.

i. Retrofit plan

(1) Develop a retrofit plan to evaluate the ability to implement **structural stormwater BMP**s in areas of the **Permittee**'s jurisdiction that currently do not have **stormwater** runoff treatment or where existing **structural stormwater BMP**s could be enhanced to improve pollutant removal capability. The **Permittee** must submit the retrofit plan to the **Agency** for review and approval within 24 months of receiving permit coverage. Once approved by the **Agency**, the retrofit plan will become an enforceable part of the **SWMP**.

(2) At a minimum, the retrofit plan must include a discussion of the following:

(a) Retrofits on lands the **Permittee** owns, including public parcels of land or public right-of-way areas for implementation of **structural stormwater BMP**s.

(b) Developing strategies to encourage privately owned parcels to install **stormwater** retrofits to **reduce** and/or treat **stormwater** runoff from privately owned **impervious surface**s.

j. Employee training

The **Permittee** must develop and implement a **stormwater** management training program commensurate with employees' job duties as they relate to the **Permittee**'s **SWMP**. The employee training program must:

(1) Address the importance of protecting water quality.

(2) Cover the requirements of the permit relevant to the job duties of the employee.

(3) Include a schedule that establishes initial training for new and seasonal employees, and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements.

k. Maintain documentation of the following information:

(1) Date(s) and description of findings of all inspections conducted in accordance with Part III.C.6.e.

(2) Any adjustments to inspection frequency as authorized under Part III.C.6.e.(1).

(3) A description of maintenance conducted, including dates, as a result of inspection findings.

(4) Pond sediment excavation and removal activities, including:

(a) The unique ID number of each **stormwater** pond from which sediment is removed.

(b) The volume (e.g., cubic yards) of sediment removed from each **stormwater** pond.

(c) Results from any testing of sediment from each removal activity.

(d) Location(s) of final disposal of sediment from each **stormwater** pond.

(5) Employee **stormwater** management training events, including a list of topics covered, names of employees in attendance, and date of each event.

I. Integrated infrastructure management program

The **Permittee** owns and operates a historically interconnected sanitary sewer system and storm sewer system. There are seven (7) controlled structures identified in the system that are capable of releases of untreated wastewater. The structures are located on Metropolitan Council's interceptors and are capable of discharging directly to the Mississippi River. The controlled structures are at the following locations in Minneapolis:

- Minnehaha Pkwy & 39th Ave South
- East 38th Street & 26th Ave South
- Southwest Meters – West River Parkway between 28th Street East & Dorman Ave
- Northwest Meters– West River Parkway between 28th Street East & Dorman Ave
- Eastside Meters – East River Terrace & Emerald Street Southeast
- East 26th Street & Seabury Ave
- Portland Ave South & Washington

The **Permittee** must continue to develop and implement an integrated infrastructure management program to maximize public investments to minimize risk to human health and the environment, to prevent loss of life, personal injury, or severe property damage, and to minimize releases and improve water quality. Requirements of the program include:

(1) Incorporation by reference

The following applicable federal and state laws are incorporated by reference in this program, are applicable to the **Permittee**, and are enforceable parts of this program: 40 CFR pt. 136; Minn. R. 7001, 7050, and 7053; and Minn. Stat. ch. 115 and 116.

(2) Toxic **discharge**s prohibited

Whether or not this program includes effluent limitations for toxic pollutants, the **Permittee** must not **discharge** a toxic pollutant except according to 40 CFR pt. 400 to 460 and Minn. R. 7050, 7052, 7053, and any other applicable **Agency** rules.

(3) Nuisance conditions prohibited

The **Permittee**'s **discharge** must not cause nuisance conditions including, but not limited to: floating solids, scum and visible oil film, acutely toxic conditions to aquatic life, or other adverse impact on the receiving water.

(4) Control users

The **Permittee** must regulate the users of its wastewater treatment facility to prevent the introduction of pollutants or materials that may result in the inhibition or disruption of the conveyance system, treatment facility or processes, or disposal system that would contribute to the violation of the conditions of this program under Part III.C.6.l. of this permit or any federal, state or local law or regulation.

(5) Additional sampling

If the **Permittee** monitors more frequently than required on the Release Sampling Form (Form) outlined in Part III.C.6.l.(13), the results and the frequency of monitoring must be submitted with the Form.

(6) Certified laboratory

A laboratory certified by the Minnesota Department of Health and/or registered by the **Agency** must conduct analyses required by this program. Analyses of dissolved oxygen, pH, temperature, specific conductance, and total residual oxidants (chlorine, bromine) do not need to be completed by a certified laboratory but must comply with manufacturers specifications for equipment calibration and use.

(7) Sample preservation and procedure

Sample preservation and test procedures for the analysis of pollutants must conform to 40 CFR pt. 136 and Minn. R. 7041.3200.

(8) Equipment calibration

Flow meters, pumps, flumes, lift stations, or other flow monitoring equipment used for purposes of determining compliance with this program must be checked and/or calibrated for accuracy at least twice annually.

(9) Maintain records

The **Permittee** must keep the records required by this program for at least three years, including any calculations, original recordings from automatic monitoring instruments, and laboratory sheets. The **Permittee** must extend these record retention periods upon request of the **Agency**. The **Permittee** must maintain records for each sample and measurement. The records must include the following information:

(a) The exact place, date, and time of the sample or measurement.

(b) The date of analysis.

(c) The name of the **person** who performed the sample collection, measurement, analysis, or calculation.

(d) The analytical techniques, procedures and methods used.

(e) The results of the analysis.

(10) Subject to enforcement action and penalties

Noncompliance with a term or condition of this program subjects the **Permittee** to penalties provided by federal and state law set forth in section 309 of the Clean Water Act; United States Code, Title 33, section 1319, as amended; and in Minn. Stat. § 115.071 and 116.072, including monetary penalties, imprisonment, or both.

(11) Noncompliance defense

It shall not be a defense for the **Permittee** in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this program.

(12) Discovery of a release

Upon discovery of a release, the **Permittee** must:

(a) Take all reasonable steps to immediately end the release.

(b) In concert with Metropolitan Council Environmental Services, notify the Minnesota Department of Public Safety Duty Officer at 1-800-422-0798 or 651-649-5451 (metro area) immediately upon discovery of the release. You may contact the **Agency** during business hours at 1-800-657-3864 or 651-296-6300 (metro area).

(c) Recover as rapidly and as thoroughly as possible all substances and materials released or immediately take other action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If the released materials or substances cannot be immediately or completely recovered, the **Permittee** must contact the **Agency**. If directed by the **Agency**, the **Permittee** must consult with other local, state or federal agencies (such as the Minnesota Department of Natural Resources and/or the Wetland Conservation Act authority) for implementation of additional clean-up or remediation activities in wetland or other sensitive areas.

(13) Sampling of a release

Upon discovery of a release, the **Permittee** must:

(a) Collect representative samples of the release. The **Permittee** must sample the release for parameters of concern immediately following discovery of the release. The **Permittee** may contact the **Agency** during business hours to discuss the sampling parameters and protocol. In addition, fecal coliform bacteria samples must be collected where it is determined by the **Permittee** that the release contains or may contain sewage. If the release cannot be immediately stopped, the **Permittee** must consult with **Agency** regarding additional sampling requirements. Samples must be collected at least, but not limited to, two times per week for as long as the release continues.

(b) Submit the sampling results on the Release Sampling Form (http://www.pca.state.mn.us/index.php/view-document.html?gid=18867). The Release Sampling Form must be submitted to the **Agency** within 30 days.

(14) **Agency** initiated permit modification, suspension, or revocation

The **Agency** may modify or revoke and reissue this program under Part III.C.6.I. of this permit pursuant to Minn. R. 7001.0170. The **Agency** may revoke without reissuance this program under Part III.C.6.I. of this permit pursuant to Minn. R. 7001.0180.

7. **Stormwater** Runoff Monitoring and Analysis

The goal of **stormwater** runoff monitoring and analysis is to quantify **stormwater** volumes and pollutant loads from the **MS4** and to provide information on the effectiveness of the **SWMP**. The **Permittee** must continue to develop and implement a monitoring and analysis program, including the following:

a. The quality assurance project plan for lab and field methods and procedures must comply with the following **USEPA** requirements and guidance or receive approval from the **Agency** for variations from these protocols:

(1) **USEPA** Requirement for Quality Assurance Project Plans (**USEPA** QA/R-5) (**USEPA**/240/B-01/003).

(2) **USEPA** Guidance for Quality Assurance Project Plans (**USEPA** QA/G-5) (**USEPA**/600/R98/018).

(3) The **Permittee** must utilize Minnesota Department of Health-certified laboratory(s).

b. The **Permittee** must monitor water quality at a minimum of six (6) sites. Each year, the **Permittee** must select sites to monitor for the following year. Sites may be changed, or rotated, for cost-effective resource use, however reasonable effort must be made to monitor for at least two consecutive years at a site. In choice and location of stations and monitoring activities, consider safety, backwatering effects, and access. The monitoring of selected sites must include:

(1) A determination of **BMP** effectiveness through adaptive management (highest priority).

(2) Representative land use management sites selected by the **Permittee** (second priority).

(3) A determination of contributions from upstream jurisdictions (third priority).

c. The **Permittee** must implement its monitoring and analysis program in accordance with TABLE 1 as follows:

TABLE 1 - MONITORING AND ANALYSIS

Analytical data for samples			**Sites 1-6 Monitored by the Permittee (Types 1, 2, 3)**					
Parameter	**Sample Type**	**Frequency** (Note 3)	**Site 1**	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**Site 6**
Chloride, Total	Flow-paced composite samples over non-ice time period (approx. March through November) Grab samples at least two times during typical winter thaw (approx. December to March)	10 samples/year, select from events 0.10 inch or greater over range of seasons and events	X	X	X	X	X	X
Copper,total (as Cu)			X	X	X	X	X	X
Lead, Total (as Pb)			X	X	X	X	X	X
Zinc, Total (as Zn)			X	X	X	X	X	X
Hardness, Carbonate (as CaCo3)			X	X	X	X	X	X
Nitrate + Nitrite, Total (as N)			X	X	X	X	X	X
Nitrogen, Total			X	X	X	X	X	X
Phosphorus, Total (as P)			X	X	X	X	X	X
Solids, Total Suspended (TSS)			X	X	X	X	X	X
Solids, Volatile Suspended (VSS)			X	X	X	X	X	X
Solids, Inorganic Suspended by difference (TSS-VSS=ISS)			X	X	X	X	X	X
Carbon, Organic Dissolved			X	X	X	X	X	X
Chemical Oxygen Demand (COD)			X	X	X	X	X	X
Phosphorus, Total Dissolved or Ortho			X	X	X	X	X	X
Solids, Total Dissolved (TDS)			X	X	X	X	X	X
Flow	Measurement	Continuous during period when flow-paced composite samples are collected as required for other parameters in this table Point-estimated when grab samples are collected as required for other parameters in this table	X	X	X	X	X	X
Precipitation	Measurement, at 3800 Bryant Avenue South location	Daily	N/A	N/A	N/A	N/A	N/A	N/A
Oil and grease (Note 1)	Grab	Quarterly (spring, summer, fall, winter)	X	X	X	X	X	X
Escherichia coli (E. coli)			X	X	X	X	X	X
pH (Note 2)	Grab, measured by multi-parameter probe		X	X	X	X	X	X

Note 1: Pilot. If oil and grease is less than 15 mg/L in all quarterly samples for the first 2 years of the permit term, the **Permittee** may end oil and grease sampling at that/those site(s). If oil and grease is at least 15 mg/L in any quarterly sample for the first 2 years of the permit term, then oil and grease sampling must continue through the entire permit term at that/those site(s).
Note 2: Field analysis.
Note 3: Taking into consideration weather and safety.
X: Monitoring of parameter is applicable
N/A: Not applicable

Type 1. A determination of **BMP** effectiveness through adaptive management (highest priority).
Type 2. Representative land use management sites selected by the **Permittee** (second priority).
Type 3. A determination of contributions from upstream jurisdictions (third priority).

8. Additional MCM requirements of the **SWMP**

   Each MCM of the **SWMP** must include the following:

   a. Identification of the sources of pollutants targeted for reduction and the sensitivity of the **receiving water**s.

   b. A description of and the scope of the **BMP**s for each MCM.

   c. Identification of staff and financial resources, including estimated annual budgets, for the permit term dedicated to implementation of the MCM.

   d. Measurable goals for each MCM that will be used to determine the success and/or benefits of the MCM.

   e. Schedules and a protocol for monitoring, recordkeeping, and reporting.

   f. An implementation schedule for new or revised **BMP**s.

   g. A detailed description or copy of any agreement between the **Permittee** and partner(s) to implement the MCM describing the rights, roles, and responsibilities of each party to the agreement.

D. DISCHARGES TO IMPAIRED WATERS WITH A EPA-APPROVED TMDL THAT INCLUDES AN APPLICABLE WLA

If the **Permittee** has one or more **Waste Load Allocations** (**WLA**) in a **USEPA**-approved **TMDL**, the **Permittee** must select and implement a program of appropriate **BMP**s and measurable goals for each MCM including schedules to meet the timeframes for the **WLA**s. At a minimum, the **Permittee** must:

1. For each **applicable WLA** approved prior to the issuance date of this permit, the **Permittee** must submit to the **Agency** for approval, on a form provided by the **Commissioner**, the following information within nine (9) months of receiving permit coverage. Once approved by the **Agency**, the submittal will become an enforceable part of the **SWMP**. The submittal must include the following:

   a. **TMDL** project name(s).

   b. Numeric **WLA**(s), including units.

   c. Type of **WLA** (i.e., categorical or individual).

   d. Pollutant(s) of concern.

   e. Applicable flow data specific to each **applicable WLA**.

   f. For each **applicable WLA** not met by the date of permit coverage, a compliance schedule is required. Compliance schedules can be developed to include multiple **WLA**s associated with a **TMDL** project and must include:

      (a) Interim milestones, expressed as **BMP**s or progress toward implementation of **BMP**s, to be achieved during the term of this permit.

      (b) Dates for implementation of interim milestones.

(c) Strategies for continued **BMP** implementation beyond the term of this permit.

(d) Target dates the **applicable WLA**(s) will be achieved.

g. For each **applicable WLA** the **Permittee** is reasonably confident is being met by the date of permit coverage, the **Permittee** must provide the following documentation:

(a) Implemented **BMP**s used to meet each **applicable WLA**.

(b) A narrative describing the **Permittee**'s strategy for long-term continuation of meeting each **applicable WLA**.

E. ALUM OR FERRIC CHLORIDE PHOSPHORUS TREATMENT SYSTEMS

If the **Permittee** uses an **alum or ferric chloride phosphorus treatment system**, the **Permittee** must comply with the following:

1. Minimum requirements of an **alum or ferric chloride phosphorus treatment system**

a. Limitations

(1) The **Permittee** must use the treatment system for the treatment of phosphorus in **stormwater**. **Non-stormwater discharge**s must not be treated by this system.

(2) The treatment system must be contained within the conveyances and **structural stormwater BMP**s of the **MS4**. The utilized conveyances and **structural stormwater BMP**s must not include any **receiving water**s.

(3) Phosphorus treatment systems utilizing chemicals other than alum or ferric chloride must receive written approval from the **Agency**.

(4) In-lake phosphorus treatment activities are not authorized under this permit.

b. Treatment system design

(1) The treatment system must be constructed in a manner that diverts the **stormwater** flow to be treated from the main conveyance system.

(2) A high flow bypass must be part of the inlet design.

(3) A flocculent storage/settling area must be incorporated into the design and adequate maintenance access must be provided (minimum of 8 feet wide) for the removal of accumulated sediment.

2. Monitoring during operation

a. A designated **person** must perform visual monitoring of the treatment system for proper performance at least once every seven (7) days and within 24 hours after a rainfall event greater than 2.5 inches in 24 hours. Following visual monitoring which occurs within 24 hours after a rainfall event, the next visual monitoring must be conducted within seven (7) days after that rainfall event.

b. Three benchmark monitoring stations must be established. TABLE 2 must be used for the parameters, units of measure, and frequency of measurement for each station.

c. Samples must be collected as grab samples or flow-weighted 24-hour composite samples.

d. Each sample, excluding pH samples, must be analyzed by a laboratory certified by the Minnesota Department of Health and/or the **Agency**, and:

(1) Sample preservation and test procedures for the analysis of pollutants must conform to 40 CFR pt. 136 and Minn. R. 7041.3200.

(2) Detection limits for dissolved phosphorus, dissolved aluminum, and dissolved iron must be a minimum of 6 micrograms per liter (µg/L), 10 µg/L, and 20 µg/L, respectively.

(3) pH must be measured within 15 minutes of sample collection using calibrated and maintained equipment.

TABLE 2 - MONITORING PARAMETERS DURING OPERATION

Station	**Alum Parameters**	**Ferric Parameters**	**Units**	**Frequency**
Upstream-Background	Total Phosphorus	Total Phosphorus	mg/L	1 x week
	Dissolved Phosphorus	Dissolved Phosphorus	mg/L	1 x week
	Total Aluminum	Total Iron	mg/L	1 x month
	Dissolved Aluminum	Dissolved Iron	mg/L	1 x week
	pH	pH	SU	1 x week
	Flow	Flow	Mgd	Daily
Alum or Ferric Chloride Feed	Alum	Ferric	gallons	Daily total dosed in gallons
Discharge from Treatment	Total Phosphorus	Total Phosphorus	mg/L	1 x week
	Dissolved Phosphorus	Dissolved Phosphorus	mg/L	1 x week
	Total Aluminum	Total Iron	mg/L	1 x month
	Dissolved Aluminum	Dissolved Iron	mg/L	1 x week
	pH	pH	SU	1 x week
	Flow	Flow	Mgd	Daily

e. In the following situations, the **Permittee** must perform corrective action(s) and immediately notify the Minnesota Department of Public Safety Duty Officer at 1-800-422-0798 (toll free) or 651-649-5451 (metro area):

(1) The pH of the **discharge**d water is not within the range of 6.0 and 9.0.

(2) Any indications of toxicity or measurements exceeding **water quality standards**.

(3) A spill, as defined in Minn. Stat. § 155.061, of alum or ferric chloride.

3. On-Site Recordkeeping

   A record of the following design parameters shall be kept on-site:

   (1) Site-specific jar testing conducted using typical and representative water samples in accordance with ASTM D2035-08 (2003)

   (2) Baseline concentrations of the following parameters in the influent and **receiving water**s:

      (a) Aluminum or Iron

      (b) Phosphorus

   (3) The following system parameters and how each was determined:

      (a) Flocculent settling velocity

      (b) Minimum required retention time

      (c) Rate of diversion of **stormwater** into the system

      (d) The flow rate from the discharge of the outlet structure

      (e) Range of expected dosing rates

4. Treatment System Management

   The following site-specific procedures shall be developed and a copy kept on-site:

   a. Procedures for the installation, operation and maintenance of all pumps, generators, control systems, and other equipment.

   b. Specific parameters for determining when the solids must be removed from the system and how the solids will be handled and disposed of.

   c. Procedures for cleaning up and/or containing a spill of each chemical stored on-site.

F. STORMWATER MANAGEMENT PROGRAM (SWMP) MODIFICATION

1. The **Commissioner** may require the **Permittee** to modify the **SWMP** as needed, in accordance with the procedures of Minn. R. 7001, and must consider the following factors:

   a. **Discharge**s from the **MS4** are impacting the quality of **receiving water**s.

   b. More stringent requirements are necessary to comply with state or federal regulations.

   c. Additional conditions are deemed necessary to comply with requirements of the Clean Water Act and to protect and restore water quality.

2. Modifications required by the **Commissioner** for the **SWMP** must be requested in writing, setting forth schedules for compliance, and offering the **Permittee** the opportunity to propose alternative **SWMP** modifications to meet the objectives of the requested modification.

3. Modifications that the **Permittee** chooses to make to the **SWMP** must be approved by the **Commissioner** in accordance with the procedures of Minn. R. 7001. All requests must be in writing, setting forth schedules for compliance. The request must discuss alternative program modifications, ensure compliance with requirements of the permit, and meet other applicable laws.

4. The **SWMP** may be modified by the **Permittee** without prior approval of the **Commissioner**, provided the modification is in accordance with the following:

    a. The **Permittee** adds one or more **BMP**(s) and none subtracted from the **SWMP**.

    b. A less effective **BMP** identified in the **SWMP** is replaced with a more effective **BMP**. The alternate **BMP** must address the same, or similar, concerns as the ineffective or failed **BMP**.

    c. The **Commissioner** and public are notified of the modification in the annual report for the year the modification is made. If a less effective **BMP** is replaced with a more effective **BMP**, the **Permittee** must include an explanation of circumstance(s) and reason(s) for the replacement of the **BMP**.

5. Proposed modifications must be included in the annual report required under Part IV.D. and the public must be given prior notification and opportunity for comment through the annual report public notice and meeting required under Part III.C.2. Upon written approval of the **Commissioner**, the **Permittee** may modify the **SWMP** to implement:

    a. **BMP**s needed to make reasonable progress toward meeting one or more **applicable WLA**(s) as required under Part III.D.

    b. Modifications to the **stormwater** runoff monitoring and analysis program in accordance with Part III.C.7. of this permit.

IV. SWMP ASSESSMENT, UPDATES, REPORTING AND OTHER SUBMITTALS

A. SWMP ASSESSMENT

The **Permittee** must complete an annual assessment of the **SWMP** based on information collected and analyzed during the reporting period, including activities implemented in Part III.C.1. – 7. The purpose of the annual **SWMP** assessment is to provide information for improving performance, including but not limited to reducing pollutant loading and runoff volumes, and to optimize associated planning and design, construction, operation, and maintenance of the **MS4**. The annual **SWMP** assessment must be submitted to the **Agency** with each annual report and must include the following:

1. An analysis of the performance and effectiveness of **BMP**s in reducing **stormwater** runoff volumes and pollutant loading to **receiving water**s.

2. An analysis of the effectiveness of the **SWMP** in achieving permit compliance, measurable goals and other **long-term goals**.

3. A fiscal analysis of the budget utilized for implementing the **SWMP** including an evaluation of the resources used to implement the MCMs required by the permit. The analysis must include the capital, operation, maintenance, and staff resource costs for implementing the **SWMP**.

B. SWMP UPDATES

The **Permittee** must complete revisions to incorporate requirements of Part III.A. – E. into the current **SWMP** within 12 months of the date permit coverage is extended, unless other timelines have been specifically established in this permit.

C. RECORDKEEPING

1. The **Permittee** must keep records required by the NPDES/SDS **MS4** permit for at least three (3) years beyond the term of this permit. The **Permittee** must retain copies of the **SWMP**, all documentation necessary to comply with the permit, all data and information used by the **Permittee** to develop the **SWMP**, and any information developed as a requirement of this permit or as requested by the **Commissioner**, for a period of at least three (3) years beyond the date of permit expiration. The **Permittee** must extend these record retention periods upon request of the **Commissioner** and/or during the course of an unresolved enforcement action (Minn. R. 7001.0150, subp. 2[C]).

2. The **Permittee** must make its records, including the **SWMP**, available to the public at reasonable times during regular business hours (see 40 CFR § 122.7 for confidentiality provision).

3. Except for data determined to be confidential according to Minn. Stat. § 116.075, subd. 2, all documents, plans, and reports required by this permit must be available for inspection by the **Agency** upon request. **Stormwater** runoff monitoring or effluent data must not be considered confidential. Confidential material must be submitted according to Minn. R. 7000.1300.

D. ANNUAL REPORTING

The **Permittee** must submit an annual report to the **Agency** by June 30th of each calendar year. The annual report must cover the portion of the previous calendar year during which the **Permittee** was authorized to **discharge stormwater** under this permit. This report must, at a minimum, consist of the following:

1. Public education and outreach

    a. Quantities and descriptions of educational materials distributed and the number of visits by the public to **stormwater** education websites.

    b. A summary of the education and outreach activities held including dates of events.

    c. Any modifications made to the program as a result of the annual evaluation as described in Part III.C.1.b.(5).

    d. If the **Permittee** relied upon other organizations for some, or all, of its education and outreach program, include a summary of activities conducted by those other organizations.

2. Public participation and involvement

    a. A summary of the written public input received on the **SWMP** and the **Permittee**'s response to the input as described in Part III.C.2.

    b. Any modifications made to the **SWMP** as a result of the input received during the public meeting.

    c. The date and location of the public meeting as described in Part III.C.2.a.

    d. A formal resolution from the **Permittee**'s governing body adopting the annual report and the **SWMP** as required in Part III.C.2.e. The resolution must be submitted to the **Agency** no later than August 30th of each year if not available at the time of annual report submittal.

3. Illicit discharge detection and elimination

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

    b. The number of spills and **illicit discharge**s that occurred and a description of the response, containment, and cleanup of the spills and **illicit** discharges.

    c. The number of **illicit discharge** inspections and/or screening activities completed during the reporting year and a description of the response, investigation, and enforcement response procedures utilized to eliminate the **illicit discharge**s.

    d. Reports of alleged **illicit discharge**s received, including date(s) of the report(s), and a description of the response, investigation, and enforcement response procedures utilized to eliminate the **illicit discharge**(s).

    e. Sources of **illicit discharge**s, including a description and the responsible party if known.

    f. Identification of **outfall**s or other areas where **illicit discharge**s have been discovered and a description of the response, investigation, and enforcement response procedures utilized to eliminate the **illicit discharge**(s).

g. A description of the education and outreach activities, implemented during the reporting year, to inform municipal employees, the public, and industry about reporting, responding to, and eliminating **illicit discharge**s.

h. Update the inventory of hazardous waste and other industrial facilities, including municipal procedures implemented to **reduce illicit discharge**s to the **MS4** from facilities within the **stormwater hotspot** area.

4. Construction site **stormwater** runoff control

a. The number of construction site plans reviewed and approved.

b. The number of construction **stormwater** complaints received and the responses to those complaints.

c. The number of site inspections completed and a summary of inspection findings.

d. The number of violations of the **Permittee** regulatory mechanism(s) for construction site **stormwater** runoff control and the types of enforcement response procedures utilized.

e. The title of the construction **stormwater** training attended by **Permittee** staff.

5. Post-construction **stormwater** management

a. The number of new and **redevelopment construction activity** projects required to meet the terms of the **Permittee** regulatory mechanism(s).

b. The number and type of **structural stormwater BMP**s implemented to meet the terms of the regulatory mechanism(s) for new and **redevelopment construction activity**, including the number of **structural stormwater BMP** long-term maintenance agreements executed during the reporting year.

c. The number of new and **redevelopment construction activity** projects requiring mitigation, including:

(1) An explanation of why mitigation was required.

(2) The types of **structural stormwater BMP**s and the expected dates of implementation.

6. Pollution prevention and good housekeeping for municipal operations

a. A description of **Permittee** facilities and municipal operations that contribute pollutants to **stormwater discharge**s and the **BMP**s implemented to prevent polluted runoff from discharging to the **MS4**.

b. A description of the **BMP**s implemented for Source Water Protection Areas within the **Permittee**'s jurisdiction.

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

d. A list of the **MS4** components or facilities that need to be replaced, repaired, or maintained and a schedule for completing the replacement, repair, or maintenance activity.

e. The results of **structural stormwater BMP** inspections, assessments, maintenance, and repair activities including:

(1) Date.

(2) Estimation of sediment storage capacity and percent capacity remaining.

(3) The date of maintenance and/or repairs completed.

(4) The dates and quantity of removed substances from **structural stormwater BMPs**.

(5) The quantity of material removed by street sweeping. Seasonal sweepings for spring sand and fall leaves must be itemized as part of the total quantity.

(6) The quantity of deicing materials, chemicals, and sand applied to roadways. The location and description of all storage facilities for sand, deicing materials, and anti-icing solution used during winter maintenance activities.

(7) The number, type, and schedule of flood control improvement projects completed, including a description of the pollutant removal capabilities associated with each project.

(8) Employee **stormwater** management training events, including:

(a) Title and topic of training.

(b) Date of training.

(c) Names of **Permittee** staff attending the training.

f. The number and type of **structural stormwater BMP**s implemented as described in the retrofit plan in Part III.C.6.i, if applicable.

7. **Stormwater** runoff monitoring and analysis

a. Proposed **SWMP** modifications to substitute sources of monitoring and analysis data including a discussion of how the data will be utilized to demonstrate compliance with this permit and how it will characterize the nature of **stormwater discharge**s.

b. Any significant operational differences in monitoring and monitoring protocols as established in Part III.C.7.

c. The results of the monitoring and sampling data analysis collected by the **Permittee**, or any other entity on behalf of the **Permittee**, including:

(1) Estimated pollutant event mean concentrations.

(2) Estimated total annual pollutant load to **receiving water**(s).

(3) Estimated total annual volume to **receiving water**(s).

(4) Estimated effectiveness (e.g., removal efficiency, load reduction, etc.) of **structural stormwater BMP**s.

(5) Calibration and verification of **stormwater** models.

d. A brief narrative description of the monitoring results collected by the **Permittee**, or any other entity on behalf of the **Permittee**, including data with tabulations, statistics, summary tables and graphics, by monitoring site with **receiving water** location description, including:

(1) Continuous flow data.

(2) Sample analytical data identified as storm composite or grab with corresponding flows and storm event periods.

(3) Estimate of storm event rainfall which generated the sampled **discharge** including approximate duration between the storm event sampled and the end of the previous measurable storm event (greater than 0.10 inch rainfall).

(4) Loading calculations: estimated annual and seasonal loads (total phosphorus, chloride, total suspended solids, volatile suspended solids, inorganic suspended solids by difference (TSS – VSS = ISS), and total nitrogen for the continuous monitoring stations.

(5) Summary information for each site including drainage area and estimated annual total **discharge** volume, storm event **discharge** volume, storm event discharge values that were used to calculate event-scale pollutant loads, runoff yield (inches/year), analyte flow weighted mean concentrations and analyte annual mean concentrations.

(6) Map showing **receiving water**s and representative land use management site locations as described in Part III.C.7.b.

8. Discharges to impaired waters with a **USEPA**-approved **TMDL** that includes an **applicable WLA**

a. On a form provided by the **Commissioner**, an assessment of progress toward meeting each **applicable WLA**. The assessment of progress must include:

(1) A list of all **BMP**s being applied to achieve each **applicable WLA**. For each **structural stormwater BMP**, the **Permittee** must provide a unique identification (ID) number and geographic coordinate. If the listed **structural stormwater BMP** was inventoried during the 2011 Phase I **MS4** permit term, the same ID number must be used.

(2) A list of all **BMP**s the **Permittee** submitted with the **TMDL** compliance schedule and the stage of implementation for each **BMP**.

(3) An updated estimate of the cumulative reductions in loading achieved for each **pollutant of concern** associated with each **applicable WLA**.

(4) An updated narrative describing any adaptive management strategies used (including projected dates) for making progress toward achieving each **applicable WLA**.

(5) The results of the comparison(s) of estimated pollutant loading(s) to each **impaired water** in the **Permittee**'s jurisdiction and the **Permittee**'s **WLA** for that **impaired water**.

9. **Alum or Ferric Chloride Phosphorus Treatment System**s (if applicable)

The **Permittee** must submit the following information with the Annual Report. The Annual Report must include a month-by-month summary of:

(1) Date(s) of operation.

(2) Chemical(s) used for treatment.

(3) Gallons of water treated.

(4) Gallons of alum or ferric chloride treatment used.

(5) Calculated pounds of phosphorus removed.

(6) Any performance issues and the corrective action(s), including the date(s) when corrective action(s) were taken.

10. The status of compliance with permit terms and conditions, including an assessment of the **BMP**s identified by the **Permittee** and progress toward achieving the measurable goals for Part III.C.1. – 7. and Part III.D. The assessment must be based on the results of information collected and analyzed, including inspection findings, **stormwater** runoff monitoring and public input received during the reporting period. In addition, the annual report must include:

a. Any partnerships or activities coordinated with other local governments or organizations to assist with implementing the **SWMP** and any agreements related to this effort.

b. A change in any **BMP**s or measurable goals for Part III.C.1. – 7. and Part III.D.

11. In addition, the **Permittee** must include the following in the annual report:

a. A discussion of the modifications made to the **SWMP** as described in Part III.F.4. The discussion must include a description of why the modifications were/are needed. When feasible, this discussion must include qualitative and/or quantitative data demonstrating the effectiveness of the program elements or identifying impacts on the **receiving water**s.

b. A discussion of the proposed modifications to the **SWMP** as described in Part III.F.5. The discussion must include a description of why the modifications are needed.

c. The results of the annual assessment of the **SWMP** as required in Part IV.A.

12. Integrated infrastructure management

The **Permittee** must include in the annual report the following information on the previous calendar year efforts to minimize inflow and infiltration, including but not limited to:

a. A description of any release events from the sanitary or combined sewer system, including:

(1) **Outfall** location.

(2) Duration and volume.

(3) A summary of any sampling activities and monitoring results associated with the release.

b. A summary of studies, investigations, and monitoring activities initiated to identify sources of inflow and infiltration.

c. An updated inventory of all identified areas of inflow to the sanitary sewer system, including:

(1) Location and sewer shed of individually identified combined sewer areas.

(2) Catch basins, roof leaders, and other storm water inlets connected to the combined sewer.

(3) Sewer service area in acres for the locations identified in (1) and (2) above.

(4) MCES Regulator identification number and geographic coordinates.

(5) MCES and Minneapolis **outfall** locations and geographic coordinates.

(6) Total area of each Minneapolis sewer shed tributary to an **outfall** and the percent of combined sewer area in that sewer shed.

d. A map and summary of projects completed in the past year minimizing inflow and infiltration, including but not limited to sewer separation projects, lined sewer pipes, manhole lining and repairs, and rainleader disconnections.

e. A description of collaborative arrangements with external partners to minimize releases and improve water quality.

f. A description of the annual expenditures on items a. – e. above for the reporting year.

E. WHERE TO SUBMIT

The **Permittee** must use an electronic submittal process, when provided by the **Agency**, for submitting information required by this permit. When submitting information electronically is not possible, the **Permittee** must use the following mailing address:

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

PART V. GENERAL CONDITIONS

A. The **Agency**'s issuance of a permit does not release the **Permittee** from any liability, penalty, or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit (Minn. R. 7001.0150, subp. 3, item A).

B. The **Agency**'s issuance of a permit does not prevent the future adoption by the **Agency** of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the **Permittee** (Minn. R. 7001.0150, subp. 3, item B).

C. The permit does not convey a property right or an exclusive privilege (Minn. R. 7001.0150, subp. 3, item C).

D. The **Agency**'s issuance of a permit does not obligate the **Agency** to enforce local laws, rules or plans beyond that authorized by Minnesota statutes (Minn. R. 7001.0150, subp. 3, item D).

E. The **Permittee** must perform the actions or conduct the activity authorized by the permit in accordance with the plans and specifications approved by the **Agency** and in compliance with the conditions of the permit (Minn. R. 7001.0150, subp. 3, item E).

F. The **Permittee** must at all times properly operate and maintain the facilities and systems of treatment and control and the appurtenances related to them which are installed or used by the **Permittee** to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate **operator** staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The **Permittee** must install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these backup or auxiliary facilities are technically and economically feasible (Minn. R. 7001.0150, subp. 3, item F).

G. The **Permittee** may not knowingly make a false or misleading statement, representation, or certification in a record, report, plan, or other document required to be submitted to the **Agency** or to the **Commissioner** by the permit. The **Permittee** must immediately upon discovery report to the **Commissioner** an error or omission in these records, reports, plans, or other documents (Minn. Stat. § 609.671; Minn. R. 7001.0150, subp. 3, item G; and Minn. R. 7001.1090, subp. 1, items G and H).

H. The **Permittee** must, when requested by the **Commissioner**, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit (Minn. R. 7001.0150, subp. 3, item H).

I. When authorized by Minn. Stat. §§ 115.04, 115B.17, subd. 4, and 116.091, and upon presentation of proper credentials, the **Agency**, or an authorized employee or agent of the **Agency**, must be allowed by the **Permittee** to enter at reasonable times upon the property of the **Permittee** to examine and copy books, papers, records, or memoranda pertaining to the activity covered by the permit; and to conduct surveys and investigations, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit (Minn. R. 7001.0150, subp. 3, item I).

J. If the **Permittee** discovers, through any means, including notification by the **Agency**, that noncompliance with a condition of the permit has occurred, the **Permittee** must take all reasonable steps to minimize the adverse impacts on human health, public drinking water supplies, or the environment resulting from the noncompliance (Minn. R. 7001.0150, subp. 3, item J).

K. If the **Permittee** discovers that noncompliance with a condition of the permit has occurred which could endanger human health, public drinking water supplies, or the environment, the **Permittee** must, within 24 hours of the discovery of the noncompliance, orally notify the **Commissioner**. Within five days of the discovery of the noncompliance, the **Permittee** must submit to the **Commissioner** a written description of the noncompliance; the cause of the noncompliance; the exact dates of the period of the noncompliance; if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to **reduce**, eliminate, and prevent reoccurrence of the noncompliance (Minn. R. 7001.0150, subp. 3, item K).

L. The **Permittee** must report noncompliance with the permit not reported under item K as a part of the next report which the **Permittee** is required to submit under this permit. If no reports are required within 30 days of the discovery of the noncompliance, the **Permittee** must submit the information listed in item K within 30 days of the discovery of the noncompliance (Minn. R. 7001.0150, subp. 3, item L).

M. The **Permittee** must give advance notice to the **Commissioner** as soon as possible of planned physical alterations or additions to the permitted facility (**MS4**) or activity that may result in noncompliance with a Minnesota or federal pollution control statute or rule or a condition of the permit (Minn. R. 7001.0150, subp. 3, item M).

N. The permit is not transferable to any **person** without the express written approval of the **Agency** after compliance with the requirements of Minn. R. 7001.0190. A **person** to whom the permit has been transferred must comply with the conditions of the permit (Minn. R. 7001.0150, subp. 3, item N).

O. The permit authorizes the **Permittee** to perform the activities described in the permit under the conditions of the permit. In issuing the permit, the state and **Agency** assume no responsibility for damage to **person**s, property, or the environment caused by the activities of the **Permittee** in the conduct of its actions, including those activities authorized, directed, or undertaken under the permit. To the extent the state and **Agency** may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act, Minn. Stat. § 3.736 (Minn. R. 7001.0150, subp. 3, item O).

P. This permit incorporates by reference the applicable portions of 40 CFR §§ 122.41 and 122.42(c) and (d), and Minn. R. 7001.1090, which are enforceable parts of this permit.

Q. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

APPENDIX A: DEFINITIONS, ABBREVIATIONS, AND ACRONYMS

The definitions and abbreviations in this part are for purposes of this permit only.

1. "**Active karst**" means geographic areas underlain by carbonate bedrock (or other forms of bedrock that can erode or dissolve) with less than 50 feet of sediment cover.

2. "**Alum or Ferric Chloride Phosphorus Treatment System**" means the diversion of flowing **stormwater** from a **MS4**, removal of phosphorus through the use a continuous feed of alum or ferric chloride additive, flocculation, and the return of the treated **stormwater** back into a **MS4** or **receiving water**.

3. "**Agency**" means Minnesota Pollution Control **Agency** (Minn. Stat. § 116.36, subd. 2).

4. "**Applicable WLA**" means a **Waste Load Allocation** assigned to the **Permittee** and approved by the **USEPA**.

5. "**Best Management Practice**" or "**BMP**" means practices to prevent or **reduce** the pollution of the **waters of the state**, including schedules of activities, prohibitions of practices, and other management practices, and also includes treatment requirements, operating procedures and practices to control plan site runoff, spillage or leaks, sludge, or waste disposal or drainage from raw material storage (Minn. R. 7001.1020, subp. 5).

6. "**Commissioner**" means the **Commissioner** of the Minnesota Pollution Control **Agency** or the **Commissioner**'s designee (Minn. Stat. § 116.36, subd. 3).

7. "**Common plan of development or sale**" means one proposed plan for a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land-disturbing activities may occur.

8. "**Construction activity**" includes **construction activity** as defined in 40 CFR § 122.26(b)(14)(x) and small **construction activity** as defined in 40 CFR § 122.26(b)(15) and **construction activity** as defined by Minn. R. 7090.0080, subp. 4. This includes a disturbance to the land that results in a change in the topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated **stormwater** runoff, leading to soil erosion and movement of sediment into **surface waters** or drainage systems. Examples of **construction activity** may include clearing, grading, filling, and excavating. **Construction activity** includes the disturbance of less than one acre of total land area that is a part of a larger **common plan of development or sale** if the larger common plan will ultimately disturb one (1) acre or more. **Construction activity** does not include a disturbance to the land of less than five (5) acres for the purpose of routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. Routine maintenance does not include activities such as repairs, replacement and other types of non-routine maintenance. Pavement rehabilitation (e.g., mill and overlay projects) is not considered **construction activity**.

9. "**Discharge**" means "discharge of a pollutant" as defined in Minn. R. 7001.1020, subp. 12.

10. "**DNR catchment area**" means the Hydrologic Unit 08 areas delineated and digitized by the Minnesota DNR. The catchment areas are available for download at the Minnesota DNR Data Deli website. **DNR catchment area**s may be locally corrected, in which case the local corrections may be used.

11. "**Green infrastructure**" means a wide array of practices at multiple scales that manage wet weather and that maintains or restores natural hydrology by infiltrating, evapotranspiring, or harvesting and using **stormwater**. On a regional scale, green infrastructure is the preservation or restoration of natural landscape features, such as forests, floodplains and wetlands, coupled with policies such as infill and redevelopment that reduce overall imperviousness in a watershed. On the local scale, green infrastructure consists of site and neighborhood-specific practices, such as bioretention, trees, green roofs, permeable pavements and cisterns.

12. "**Illicit discharge**" means any discharge to a **municipal separate storm sewer** that is not composed entirely of **stormwater** except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the **municipal separate storm sewer**) and discharges resulting from firefighting activities (40 CFR § 122.26[b][2]).

13. "**Impaired water**" means waters identified as impaired by the **Agency**, and approved by the **USEPA**, pursuant to section 303(d) of the Clean Water Act (33 U.S.C. § 1313 [d]).

14. **"Impervious Surface"** means a constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development. Examples include rooftops, sidewalks, driveways, parking lots, and concrete, asphalt, or gravel roads. Bridges over surface waters are impervious surfaces.

15. "**Large municipal separate storm sewer system**" or "**Large MS4**" means all municipal separate storm sewers that are located in an incorporated place with a population of 250,000 or more owned or operated by the United States, a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, **stormwater**, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management Agency under section 208 of the CWA that discharges to waters of the United States.

16. "**Linear Project**" means construction or reconstruction of roads, trails, sidewalks, or rail lines that are not part of a common plan of development or sale. Rehabilitation is not considered reconstruction. Rehabilitation includes mill and overlay and other resurfacing activities within existing right-of-way that do not expose underlying soils.

17. "**Long-term goals**" means those goals established in the **Permittee**'s **stormwater** management program to be accomplished by implementing the NPDES Phase I **MS4** Permit. These goals may have various timeframes and durations including durations longer than one NPDES Phase I **MS4** permit cycle. For example, **long-term goals** may include, but are not limited to, compliance with all **TMDL**s by January 1, 2025; fifty percent (50%) reduction of the annual frequency of street flooding by January 1, 2020; and/or reduction of impervious cover by two percent (2%) within two years of the issuance date of the **SWMP**.

18. "**Maximum Extent Practicable**" or "**MEP**" means the statutory standard (33 U.S.C. § 1342[p][3][B][iii]) that establishes the level of pollutant reductions that an **owner** or **operator** of a regulated **MS4**s must achieve. The **USEPA** has intentionally not provided a precise definition of **MEP** to allow maximum flexibility in **MS4** permitting. The pollutant reductions that represent **MEP** may be different for each **MS4**, given the unique local hydrologic and geologic concerns that may exist and the differing pollutant control strategies. Therefore, the **Permittee** will determine appropriate **BMP**s to satisfy each of the MCMs through an evaluative process. The **USEPA** envisions application of the **MEP** standard as an iterative process.

19. "**Municipal separate storm sewer system**" or "**MS4**" means a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains:

a. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, **stormwate**r, or other wastes, including special districts under state law such as a sewer district, flood control district, or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management Agency under section 208 of the federal Clean Water Act, United States Code, Title 33, section 1288, that discharges into **waters of the state**.

b. Designed or used for collecting or conveying **stormwater**.

c. That is not a combined sewer.

d. That is not part of a Public Owned Treatment Works as defined at 40 CFR § 122.2.

Municipal separate storm sewer systems do not include separate storm sewers in very discrete areas, such as individual buildings (Minn. R. 7090.0080, subp. 8).

20. "**New development**" means all **construction activity** that is not defined as **redevelopment**.

21. "**Non-stormwater discharge**" means any **discharge** not composed entirely of **stormwater**.

22. "**Other regulatory mechanism**" means any legally enforceable document, such as a contract or other agreement that has penalties such as withholding payments, fines, or other measures to prevent noncompliance.

23. "**Operator**" means the **person** with primary operational control and legal responsibility for **the municipal separate storm sewer system** (Minn. R. 7090.0080, subp. 10).

24. "**Outfall**" means the point source where a **municipal separate storm sewer system discharge**s to a **receiving water**, or the **stormwater discharge** permanently leaves the **Permittee**'s **MS4**. It does not include diffuse runoff or conveyances which connect segments of the same stream or water systems (e.g., when a conveyance temporarily leaves a **MS4** at a road crossing).

25. "**Owner**" means the **person** that owns the **municipal separate storm sewer system** (Minn. R. 7090.0080, subp. 11).

26. "**Permittee**" means a **person** or **person**s, that signs the permit application submitted to the **Agency** and is responsible for compliance with the terms and conditions of this permit.

27. "**Person**" means the state or any Agency or institution thereof, any municipality, governmental subdivision, public or private corporation, individual, partnership, or other entity, including, but not limited to, association, commission, or any interstate body, and includes any officer or governing or managing body of any municipality, governmental subdivision, or public or private corporation, or other entity (Minn. Stat. § 115.01, subd. 10).

28. "**Pipe**" means a closed human-made conveyance device used to transport **stormwater** from location to location. The definition of **pipe** does not include foundation drain **pipe**s, irrigation **pipe**s, land drain tile **pipe**s, culverts, and road sub-grade drain **pipe**s.

29. "**Pollutant of concern**" means a pollutant specifically identified in a **USEPA**-approved **TMDL** report as causing a water quality impairment.

30. "**Receiving water**" means any lake, river, stream or **wetland** that receives **stormwater** discharges from a **MS4**.

31. "**Redevelopment**" means any **construction activity** where, prior to the start of construction, the areas to be disturbed have 15 percent or more of **impervious surface**(s).

32. "**Reduce**" means **reduce** to the **Maximum Extent Practicable** (**MEP**) unless otherwise defined in the context in which it is used.

33. "**Seasonally saturated soil**" means the highest seasonal elevation in the soil that is in a reduced chemical state because of soil voids being filled with water causing anaerobic conditions. **Seasonally saturated soil** is evident by the presence of redoximorphic features or other information determined by scientifically established methods or empirical field measurements.

34. "**Significant materials**" includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets: finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); any chemical the facility is required to report pursuant to Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA); fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with **stormwater** discharges. When determining whether a material is significant, the physical and chemical characteristics of the material should be considered (e.g., the material's solubility, transportability, and toxicity characteristics) to determine the material's pollution potential (40 CFR § 122.26[b][12]).

35. "**Stormwater**" means **stormwater** runoff, snowmelt runoff, surface runoff, and drainage (Minn. R. 7090.0080, subp. 12).

36. "**Stormwater hotspot**" means any land use or activity that may generate a higher concentration of hydrocarbons, trace metals, or toxic pollutants than are found in typical **stormwater** runoff.

37. "**Stormwater Management Program**" or "**SWMP**" means a comprehensive program developed by the **Permittee** to manage and reduce the discharge of pollutants in **stormwater** to and from the medium or **large MS4**.

38. "**Structural stormwater BMP**" means a stationary and permanent **BMP** that is designed, constructed and operated to prevent or **reduce** the discharge of pollutants in **stormwater**.

39. "**Total Maximum Daily Load**" or "**TMDL**" means the sum of the individual **Waste Load Allocations** for point sources and load allocations for nonpoint sources and natural background, as more fully defined in 40 CFR § 130.2, paragraph (i). A **TMDL** sets and allocates the maximum amount of a pollutant that may be introduced into a **water of the state** and still assure attainment and maintenance of **water quality standards** (Minn. R. 7052.0010 subp. 42).

40. "**USEPA**" means the U.S. Environmental Protection Agency.

41. "**Waste Load Allocation**" or "**WLA**" means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution, as more fully defined in 40 CFR § 130.2(h). In the absence of a **TMDL** approved by **USEPA** under 40 CFR § 130.7, or an assessment and remediation plan developed and approved according to Minn. R. 7052.0200, subp. 1.C, a **WLA** is the allocation for an individual point source that ensures that the level of water quality to be achieved by the point source is derived from and complies with all applicable **water quality standards** and criteria (Minn. R. 7052.0010 subp. 45).

42. "**Water pollution**" means:

    a. The discharge of any pollutants into any waters of the state or the contamination of any waters of the state so as to create a nuisance or renders 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.

    b. The alteration made or induced by human activity of the chemical, physical, biological, or radiological integrity of waters of the state (Minn. Stat. § 115.01, subd. 13(b)).

43. "**Water quality standards**" mean those provisions contained in Minn. R. 7050 and 7052.

44. "**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 (Minn. Stat. § 115.01, subd. 22).

45. "**Water Quality Volume**" means (by type of project):

    a. for **new development** or **redevelopment** projects (excluding **linear project**s) the **water quality volume** equals one (1) inch times the net increase of new and/or fully reconstructed **impervious surface**s (calculated as an instantaneous volume) and is the volume of water to be treated, through the use of any combination of **BMP**s, as required by this permit; or

    b. for **linear project**s, the **water quality volume** equals one (1) inch times the net increase of **impervious surface**s, in addition to a reduction in **stormwater** runoff volume from fully reconstructed surfaces (calculated as an instantaneous volume) and is the volume of water to be treated, through the use of any combination of BMPs, as required by this permit.

46. "**Wetlands**" are those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. **Wetlands** generally include swamps, marshes, bogs, and similar areas. Constructed **wetlands** designed for wastewater treatment are not **waters of the state**. **Wetlands** must have the following attributes:

    a. A predominance of hydric soils.

    b. Inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in a saturated soil condition.

    c. Under normal circumstances, support a prevalence of such vegetation (Minn. R. 7050.0186, subp. 1a.B.).

ABBREVIATIONS AND ACRONYMS

BMP – Best Management Practice
CFR – Code of Federal Regulations
CWA – Clean Water Act
DNR – Department of Natural Resources
DWSMA – Drinking Water Supply Management Area
ERPs – Enforcement Response Procedures
IDDE – Illicit Discharge Detection and Elimination
MCM – Minimum Control Measure
MEP – Maximum Extent Practicable
Mgd – Million gallons/day
Mg/L – Milligrams/liter
MPCA – Minnesota Pollution Control Agency
MS4 – Municipal Separate Storm Sewer System
NPDES – National Pollutant Discharge Elimination System
SARA – Superfund Amendments and Reauthorization Act of 1986
SDS – State Disposal System
SU – Standard Units
SWMP – Stormwater Management Program
TMDL – Total Maximum Daily Load
TP – Total Phosphorus
TSS – Total Suspended Solids
USEPA – United States Environmental Protection Agency
WLA – Waste Load Allocation

Appendix C – City of Minneapolis TMDL Status

Minnesota's Impaired Waters List

Introduction

The federal Clean Water Act requires states to adopt water quality standards to protect waters from pollution. The goal is to protect high-quality waters and improve the quality of impaired waters, so that beneficial uses (such as fishing, swimming, and protection of aquatic life) are maintained and restored, where these uses are attainable. *Adapted from MPCA 12/2011 Guidance Manual for Assessing the Quality of Minnesota Surface Waters*.

The process includes the following steps: 1) Assess waters; 2) Determine whether impaired; 3) Place water on the impaired list; 4) Monitor and study the waterbody; 5) Complete a pollutant load allocation formula (called a "Total Maximum Daily Load" or TMDL); 6) Develop a restoration strategy; 7) Implement the strategy; 8) Monitor changes in water quality; and, 9) De-list if standards are being achieved, or 10) Determine next steps. The list of impaired waterbodies, or 303(d) list, is updated every two years.

Name of Surface Water (includes lakes, creeks, wetlands, and Mississippi River). Alphabetical order. *indicates waterbody is not in the City of Minneapolis	**Receives City of Minneapolis Municipal Stormwater Runoff?**	**State ID**	**Next-in-line Receiving Water**	**Status of Impairment and TMDL Study**	**Designated Use that is Affected by the Impairment**
BASSETT CREEK	yes (and from upstream municipalities)	07010206-538	Mississippi River	FISHES BIOASSESSMENTS (listed in 2004) – TMDL study not started yet, may be reassessed.	Aquatic Life
				BACTERIA (listed 2008) – TMDL approved Nov. 2014 (metro-wide).	Aquatic Recreation
				CHLORIDE (listed 2010) – TMDL approved June 2016 (metro-wide).	Aquatic Life
BASSETT'S POND* (Part of Bassett Creek. Located in the City of Golden Valley, in Wirth Park, owned and managed by MPRB)	yes	27-0036	Bassett Creek	No impairments.	
BIRCH POND	yes (portion of southbound Wirth Parkway)	27-0653	Landlocked (historic pumping to Chain of Lakes)	No impairments.	
BROWNIE LAKE	yes (and from the City of Saint Louis Park)	27-0038	Cedar Lake	MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL approved 2008, not stormwater related, no MS4 responsibilities, target completion 2025.	Aquatic Consumption
				EXCESS NUTRIENTS (listed 2004) – **DE-LISTED** 2010 (could be listed again if TP rises).	
				CHLORIDE (listed 2014) – TMDL approved June 2016 (metro-wide).	Aquatic Life

Name of Surface Water (includes lakes, creeks, wetlands, and Mississippi River). Alphabetical order. *indicates waterbody is not in the City of Minneapolis	Receives City of Minneapolis Municipal Stormwater Runoff?	State ID	Next-in-line Receiving Water	Status of Impairment and TMDL Study	Designated Use that is Affected by the Impairment
CEDAR LAKE	yes (and from the City of Saint Louis Park)	27-0039	Lake of the Isles	MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL approved 2008, not stormwater related, no MS4 responsibilities, target completion 2025.	Aquatic Consumption
CEMETERY LAKE	no	27-0017	Lake Calhoun/Bde Maka Ska	No impairments.	
CRYSTAL LAKE* (located in the City of Robbinsdale)	yes (and from the City of Robbinsdale)	27-0034	Shingle Creek	EXCESS NUTRIENTS (listed 2002) – TMDL approved 2009, in implementation stage.	Aquatic Recreation
DIAMOND LAKE	yes	27-0022	Minnehaha Creek	Was formerly listed for EXCESS NUTRIENTS but removed from list in 2008 because it was determined to be a wetland (or game lake) that had been mischaracterized by MNDNR as a lake. There are no nutrient standards for wetlands at this time.	
				CHLORIDE (listed 2014) – TMDL approved June 2016 (metro-wide).	Aquatic Life
GRASS LAKE (officially a wetland. Was previously part of Richfield Lake, which was divided by construction of Highway 62)	yes	27-0681	Landlocked/ Lower Minnesota River	EXCESS NUTRIENTS (listed in 2006) – **DE-LISTED** in 2016.	Aquatic Recreation
HART LAKE	yes (and from Columbia Heights)	02-0081	Silver Lake	No excess nutrients impairment for Hart Lake, but Hart Lake is involved in the TMDL for Silver Lake.	
LAKE CALHOUN/BDE MAKA SKA	yes (and from upstream municipalities)	27-0031	Lake Harriet	MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL completed 2008, not stormwater-related, no MS4 responsibilities, target completion 2025.	Aquatic Consumption
				PFOS IN FISH TISSUE (listed 2008) – Regulatory action by MPCA in lieu of TMDL is underway (pollutant source in Saint Louis Park), target completion 2022.	Aquatic Consumption
LAKE HARRIET	yes	27-0016	Minnehaha Creek	MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL completed 2008, not stormwater-related, no MS4 responsibilities, target completion 2025.	Aquatic Consumption
				2) PFOS IN FISH TISSUE (listed 2008) – Regulatory action by MPCA in lieu of TMDL is underway (pollutant source in Saint Louis Park), target completion 2022.	Aquatic Consumption
LAKE HIAWATHA (Part of Minnehaha Creek)	yes (and from upstream municipalities)	27-0018	Minnehaha Creek	EXCESS NUTRIENTS (listed 2002) – Part of *Minnehaha Creek E. Coli Bacteria/Lake Hiawatha Nutrients TMDL* Study. TMDL approved 2014.	

Name of Surface Water (includes lakes, creeks, wetlands, and Mississippi River). Alphabetical order. *indicates waterbody is not in the City of Minneapolis	Receives City of Minneapolis Municipal Stormwater Runoff?	State ID	Next-in-line Receiving Water	Status of Impairment and TMDL Study	Designated Use that is Affected by the Impairment
LAKE NOKOMIS	yes (and from the City of Richfield and a portion of MSP Airport)	27-0019	Minnehaha Creek	MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL approved 2008, not stormwater-related, no MS4 responsibilities, target completion 2025.	Aquatic Consumption
				PCB IN FISH TISSUE (listed 1998) – TMDL status unknown, target completion 2025.	Aquatic Consumption
				EXCESS NUTRIENTS (listed 2002) – TMDL approved 2011, in implementation stage. (TMDL name: Minnehaha Creek Watershed Lakes)	Aquatic Recreation
LAKE OF THE ISLES	yes	27-0040	Lake Calhoun/Bde Maka Ska	MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL approved 2008, not stormwater-related, no MS4 responsibilities, target completion 2025.	Aquatic Consumption
				PFOS IN FISH TISSUE (listed 2008) Regulatory action underway by MPCA in lieu of TMDL (pollutant source in Saint Louis Park), target completion 2022.	Aquatic Consumption
LEGION LAKE* (located in the City of Richfield; the former Legion Lake wetland area in the City of Minneapolis is now Ferdinand Pond)	yes, Minneapolis discharges to one Legion Lake outfall south of Highway 62. Minneapolis also discharges to two MnDOT Ferdinand Pond outfalls north of Highway 62, which discharges to Legion Lake.	27-0024	Taft Lake	No impairment for Legion Lake, but Legion Lake is involved in the TMDL for Lake Nokomis. Minneapolis formerly had outfalls to Legion Lake, but lake was split by Highway 62 project, and Minneapolis outfalls now discharge to Ferdinand Pond, which is not a public water. It is a stormwater pond under the jurisdiction of MnDOT.	
LORING LAKE (commonly called Loring Pond)	yes (little direct runoff BUT takes runoff on occasion from 35W Tunnel)	27-0655	Mississippi River	CHLORIDE (listed 2014) – TMDL approved June 2016 (metro-wide).	Aquatic Life
MINNEHAHA CREEK	yes (and from upstream municipalities)	07010206-539	Mississippi River	FISHES BIOASSESSMENTS (listed 2004) – TMDL study not started, may reassess (baseflow not constant), appears to be on hold until 2020.	Aquatic Life
				CHLORIDE (listed 2008) – TMDL approved June 2016 (metro-wide).	Aquatic Life
				BACTERIA (listed 2008) – Part of *Minnehaha Creek E. Coli Bacteria/Lake Hiawatha Nutrients TMDL* Study. TMDL approved 2014.	Aquatic Recreation

Name of Surface Water (includes lakes, creeks, wetlands, and Mississippi River). Alphabetical order. *indicates waterbody is not in the City of Minneapolis	Receives City of Minneapolis Municipal Stormwater Runoff?	State ID	Next-in-line Receiving Water	Status of Impairment and TMDL Study	Designated Use that is Affected by the Impairment
				DISSOLVED OXYGEN (listed 2010) – TMDL not started, may reassess (baseflow not constant), appears to be on hold until 2020.	Aquatic Life
				AQUATIC MACROINVERTEBRATE BIOASSESSMENTS (listed 2014) – TMDL not started.	Aquatic Life
MISSISSIPPI RIVER (the specific reach upstream of Upper Saint Anthony Falls to Crow River [was previously Coon Creek])	yes (and from upstream municipalities)	07010206-805	N/A	PCB IN FISH TISSUE (listed 1998) – Targeted TMDL completion date 2025.	Aquatic Consumption
				BACTERIA (listed 2002) – TMDL approved Nov. 2014 (metro-wide), bacteria not an issue in this river segment this round, MPCA plans to look again in 2020.	Aquatic Consumption
				EXCESS NUTRIENTS (listed 2016) – TMDL study underway with Lake Pepin.	Aquatic Life
MISSISSIPPI RIVER (the specific reach between Upper and Lower Saint Anthony Falls)	yes (and from upstream municipalities)	07010206-814	N/A	MERCURY IN FISH TISSUE (listed 1998) - Statewide TMDL approved 2008, not stormwater-related	Aquatic Consumption
				PCB IN FISH TISSUE (listed 1998) – Targeted TMDL completion date 2025.	Aquatic Consumption
				BACTERIA (not listed, but part of TMDL study) – TMDL approved Nov. 2014 (metro-wide). Bacteria not an issue in this River segment this round. MPCA plans to look again in 2020.	Aquatic Recreation
MISSISSIPPI RIVER (the specific reach downstream of Lower Saint Anthony Falls to Lock and Dam #1)	yes (and from upstream municipalities)	07010206-814	N/A	MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL approved 2008, not stormwater-related, no MS4 responsibilities	Aquatic Consumption
				BACTERIA (listed 2002) – TMDL approved Nov. 2014 (metro-wide). Bacteria not an issue in this River segment this round. MPCA plans to look again in 2020.	Aquatic Recreation
MISSISSIPPI RIVER* (impaired downstream of confluence with Minnesota River to Lake Pepin)	this impairment is downstream of the City of Minneapolis segments	07010206-814	N/A	TOTAL SUSPENDED SOLIDS (TSS) (listed 1998) (replaced turbidity with site-specific TSS standard) – South Metro Mississippi River TSS TMDL near completion. **Zero reduction required for Minneapolis MS4.**	Aquatic Life
LAKE PEPIN* (widening of Mississippi River) (as tributary to Lake Pepin nutrient/eutrophication biological indicators TMDL)	this impairment is downstream of the City of Minneapolis segments	25-0001	N/A	EXCESS NUTRIENTS (listed 2002) – Lake Pepin TMDL in progress.	Aquatic Recreation
MOTHER LAKE* (formerly in the City of Minneapolis, now Airport)	yes	27-0023	Lake Nokomis	No excess nutrients impairment for Mother Lake, but Mother Lake is involved in the TMDL for Lake Nokomis.	

Name of Surface Water (includes lakes, creeks, wetlands, and Mississippi River). Alphabetical order. *indicates waterbody is not in the City of Minneapolis	Receives City of Minneapolis Municipal Stormwater Runoff?	State ID	Next-in-line Receiving Water	Status of Impairment and TMDL Study	Designated Use that is Affected by the Impairment
POWDERHORN LAKE	yes	27-0014	Landlocked (has been pumped to Mississippi River in the past)	MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL approved 2008, not stormwater-related, no MS4 responsibilities, target completion 2025.	Aquatic Consumption
				EXCESS NUTRIENTS (listed 2002) – **DE-LISTED** in 2012, due to improved water quality. **RE-LISTED** in 2018. TMDL not started.	Aquatic Recreation
				CHLORIDE (listed 2014) – TMDL approved June 2016 (metro-wide).	Aquatic Life
RICHFIELD LAKE	yes (and City of Richfield and MnDOT)	27-0021	Minnesota River	No impairments.	
RYAN CREEK (primarily conveyed by storm drain pipe, about two blocks exposed, on industrial property)	yes (and Ryan Lake)	Unknown	Shingle Creek	No impairments.	
RYAN LAKE part* (located in the City of Minneapolis and in the Cities of Robbinsdale and Brooklyn Center)	yes (and from upstream municipalities)	27-0058	Ryan Creek	EXCESS NUTRIENTS (listed 2002) – TMDL approved 2007, **DE-LISTED** 2014 because of restoration activities under TMDL Implementation Plan.	
SANTUARY MARSH	no	27-0065	Lake Harriet	No impairments.	
SHINGLE CREEK	yes (and from upstream municipalities)	0701206-506	Mississippi River	CHLORIDE (listed 1998). TMDL approved 2007, now in implantation stage.	Aquatic Life
				DISSOLVED OXYGEN (listed 2004) – TMDL approved 2011, now in implementation stage.	Aquatic Life
				AQUATIC MACROINVERTEBRATE BIOASSESSMENTS (listed 2006) – TMDL approved 2011, now in implementation stage.	Aquatic Life
				BACTERIA (listed 2014) – TMDL approved Nov. 2014 (metro-wide).	Aquatic Recreation
SILVER LAKE* (located in the Cities of New Brighton and Columbia Heights)	yes, from a very small corner of the City of Minneapolis (and from the Cities of New Brighton, Columbia Heights, and Saint Anthony Village)	62-0083	Ramsey County Ditch #3, then Rice Creek	EXCESS NUTREINTS (listed 2002) – TMDL approved 2010, now in implementation stage.	Aquatic Recreation
				MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL approved 2008, not stormwater-related, no MS4 responsibilities, target completion 2025.	Aquatic Consumption
				CHLORIDE (listed 2014) – TMDL approved June 2016 (metro-wide).	Aquatic Life

Name of Surface Water (includes lakes, creeks, wetlands, and Mississippi River). Alphabetical order. *indicates waterbody is not in the City of Minneapolis	Receives City of Minneapolis Municipal Stormwater Runoff?	State ID	Next-in-line Receiving Water	Status of Impairment and TMDL Study	Designated Use that is Affected by the Impairment
SPRING LAKE	yes (and from I-394)	27-0654	Connection verified to 48-inch to new BC Tunnel to Mississippi River	CHLORIDE (listed 2014) – TMDL approved June 2016 (metro-wide).	Aquatic Life
TAFT LAKE* (formerly in the City of Minneapolis, now Airport)	yes (formerly part of the City of Minneapolis, now Airport)	27-0683	Lake Nokomis	No excess nutrients impairments for Taft Lake, but Taft Lake is involved in the TMDL for Lake Nokomis.	
WEBBER POND (MPRB is requesting removal from public waters listing due to reconstruction)	no (reconstructed 2013-2015 with no stormwater outfalls to it)	27-1118	Shingle Creek	No impairments.	
WIRTH LAKE* (located in the City of Golden Valley, in Wirth Park, owned and managed by MPRB)	no apparent City of Minneapolis municipal runoff (MPRB only; parkway runoff appears to be only in the City of Golden Valley)	27-0037	Bassett Creek	MERCURY IN FISH TISSUE (listed 1998) – Statewide TMDL approved 2008, not stormwater-related, no MS4 responsibilities, target completion 2025.	Aquatic Consumption
				CHLORIDE (listed 2016) – TMDL approved June 2016 (metro-wide).	Aquatic Life
				EXCESS NUTRIENTS (listed 2002) – TMDL approved 2010 (Wirth Lake Excess Nutrients TMDL Report). **DE-LISTED** 2014 because of activities carried out under TMDL Implementation Plan.	

Color Key:
Chloride
Bacteria
Excess Nutrients
Related to Lake Nokomis Excess Nutrients TMDL
Total Suspended Solids
Dissolved Oxygen, or Bioassessments for fish or aquatic macroinvertebrates
PFOS or PCB
Mercury – no MS4 responsibilities

Notes:

MERCURY – Presence of mercury is primarily airborne, not stormwater runoff. Statewide Mercury TMDL is being carried out by MPCA. No MS4.

PFOS – Presence of perfluorooctane sulfonate (PFOS) is primarily related to industrial discharge. Regulatory action in lieu of TMDL is underway.

PCB – Polychlorinated biphenyls.

* indicates waterbody is not in the City of Minneapolis

Message from Minnesota's Clean Water Council: We recognize that people are hungry for immediate results; however, managing water resources is an ongoing task, and some clean water outcomes may take several decades to achieve. Once a best management practice have been implemented, it often takes many years, or decades, before a positive environmental outcome is achieved in a highly degraded river, lake, or groundwater source.

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Appendix D – Watershed District and Watershed Management Organizations

The City of Minneapolis falls under the jurisdiction of four watershed management organizations: Bassett Creek Watershed Management Commission (BCWMC), Minnehaha Creek Watershed District (MCWD), Mississippi Watershed Management Organization (MWMO), and Shingle Creek Water Management Commission (SCWMC). An overview of the requirements of each organization is presented below, but readers are encouraged to contact each organization directly to obtain the most up-to-date information on their goals, policies, and programs. Contact information is current as of December 2017.

Bassett Creek Watershed Management Commission

c/o Barr Engineering Co.
430 Market Pointe Drive, Suite 200
Minneapolis, MN 55435
Ph: (952) 832-2600
Fax: (952) 832-2601
http://www.bassettcreekwmo.org

The Bassett Creek watershed, nearly 40 square miles, is divided into four major subwatersheds. The nine municipalities represented by the BCWMC include: Plymouth, Medicine Lake, Golden Valley, Robbinsdale, Crystal, New Hope, Minnetonka, Saint Louis Park, and Minneapolis.

The BCWMC adopted its first Watershed Management Plan in February 1972. The Commission adopted its Second Generation Plan in September 2004. The BCWMC's Third Generation Plan was approved by Minnesota Board of Water and Soil Resources (BWSR) in August 2015 and adopted by the Commission on September 17, 2015. The BCWMC Plan sets the vision and guidelines for managing water resources within the boundaries of the BCWMC.

Summary of Goals

Water resources management goals developed by the BCWMC are included in Table E.1.

Table E.1 – Bassett Creek Watershed Management Commission Goals

Goal	Description
GOAL 1	Manage the surface water resources of the watershed to meet or exceed state standards and BCWMC water quality goals for wetlands, lakes, and streams.
GOAL 2	Improve the quality of stormwater runoff reaching the Mississippi River by reducing nonpoint source pollution.
GOAL 3	Protect and enhance fish and wildlife habitat in the BCWMC.
GOAL 4	Take into account aesthetics and recreational opportunities within the watershed when completing BCWMC projects.
GOAL 5	Reduce stormwater runoff volume for the purposes of improving water quality.
GOAL 6	Protect against flood risks along the Bassett Creek trunk system.
GOAL 7	Protect human life, property, and surface water systems that could be damaged by flood events.
GOAL 8	Reduce stormwater runoff rates and volumes to minimize flood problems, flood damages, and the future costs of stormwater management systems.
GOAL 9	Provide leadership and assist member cities with coordination of intercommunity stormwater runoff issues.
GOAL 10	Notwithstanding that which occurs from natural processes, minimize erosion and sedimentation to protect the BCWMC's water resources and health, safety, and welfare.

Goal	Description
GOAL 11	Maintain or improve shoreland integrity and implement stream restoration measures to maintain or enhance ecological functions, as well as human health, safety, and welfare.
GOAL 12	Increase the quality and quantity of wetlands in the BCWMC.
GOAL 13	Protect the quantity and quality of groundwater resources.
GOAL 14	Manage public ditches in a manner that recognizes their current use as urban drainage systems and as altered natural waterways.
GOAL 15	Raise awareness of the BCWMC's existence and its role in protecting and improving water quality, minimizing flooding, and preserving the watershed's ecological functions and aesthetics.
GOAL 16	Strengthen public confidence in the BCWMC's expertise and enable meaningful public participation in the planning process and ongoing projects conducted by the BCWMC.
GOAL 17	Raise awareness of the impact that individuals, businesses, and organizations have upon water resources and motivate the audiences to change persona/corporation behavior that has a negative impact on the watershed.
GOAL 18	Minimize the spread and manage the adverse impacts of harmful aquatic invasive species.
GOAL 19	Develop a greater understanding of climate change and its impact on water resources, including stormwater infrastructure capacity and flooding, and develop strategies to appropriately manage future impacts.

Source: BCWMC

Policies

Chapter 4 of the BCWMC Watershed Management Plan establishes water quality policies in the areas of Water Quality, Flooding and Rate Control, Groundwater Management, Erosion and Sediment Control, Stream Restoration and Protection, Wetland Management, Public Ditch, Recreation, Habitat and Shoreland Management, Education and Outreach, and Administration. Specific policies include:

Water Quality Policies

1. The BCWMC will classify priority waterbodies based on desired water quality standards and other uses of the waterbodies. Table 2-6 lists the management classifications of the priority waterbodies.

2. The BCWMC adopts MPCA water quality standards (Minnesota Rule 7050, as amended) for BCWMC priority waterbodies (Table 2-7).

3. Member cities shall classify other waterbodies according to the BCWMC classification system and include this information in their local water management plans.

4. The BCWMC will work with stakeholders to manage its priority waterbodies to meet the applicable water quality goals of the BCWMC.

5. The BCWMC and the member cities will implement the improvement options listed in the BCWMC's CIP (Table 5-3) to address the water quality of priority waterbodies based on feasibility, prioritization, and available funding (see policy 110 regarding CIP prioritization criteria).

6. The BCWMC will prioritize water quality improvement projects that are most effective at achieving water quality goals, including non-structural BMPs and education.

7. The BCWMC will cooperate with member cities, the MPCA and other stakeholders in the preparation of total maximum daily load (TMDL) studies for waterbodies on the MPCA's current or future impaired waters 303(d) list, including Northwood Lake and Bassett Creek. The BCWMC will work to align TMDL implementation items into its Watershed Management Plan to achieve efficiency. The BCWMC will work with the cities to evaluate funding options for the TMDL studies.

   The BCWMC may append future studies to this Plan with the intent that they serve as the equivalent to a TMDL study.

8. The BCWMC will continue to identify opportunities to achieve and maintain excellent water quality in priority waterbodies.

9. The BCWMC will continue to monitor its priority waterbodies on a rotating schedule as described in the BCWMC Monitoring Plan (Appendix A). Monitoring may include biota, vegetation, and water chemistry (e.g., nutrients, chloride in streams). The objective of the monitoring is to detect changes or trends in the water quality over time and the effectiveness of efforts to preserve/improve water quality. The BCWMC will determine the appropriate frequency of monitoring under programs funded by the BCWMC.

10. For every year sampling is conducted for the BCWMC's lakes and/or streams, the BCWMC will compile the available monitoring data, include the data in an annual report available on the BCWMC website, and submit the data to the MPCA in an appropriate format.

11. The BCWMC will coordinate monitoring efforts with other programs including:

    - Member city monitoring
    - Metropolitan Council Citizen Assisted Monitoring Program (CAMP) and Watershed Outlet Monitoring Program (WOMP)
    - Three Rivers Park District monitoring
    - Minneapolis Park and Recreation Board monitoring
    - Minnesota Pollution Control Agency Citizen Lake Monitoring Program (CLMP) and other monitoring
    - Hennepin County River Watch Program

12. The BCWMC requires all stormwater to be treated in accordance with the MPCA's Minimal Impact Design Standards (MIDS) performance goal for new development, redevelopment, and linear projects. If the MIDS performance goal is not feasible and/or is not allowed for a proposed project, then the project proposer must implement the MIDS flexible treatment options, as shown in the MIDS Design Sequence Flow Chart, or BCWMC approved alternative.

13. The BCWMC will review projects and developments to evaluate compliance with the MPCA's Minimal Design Standards (MIDS) performance goals, triggers, and flexible treatment options (which are adopted by the Commission as BCWMC water quality management standards) if the

projects are located in member cities that have not adopted the MIDS performance goals, triggers, and flexible treatment options, or at the request of a member city. For projects located in member cities that have adopted the MIDS performance goals, triggers, and flexible treatment options, the member cities shall review projects for conformance with MIDS water quality treatment standards, unless Commission review is requested by the member cities.

14. The BCWMC requires public agencies to comply with water quality management standards and policies presented in this Plan in order to maintain or improve water quality of stormwater runoff.

15. Member cities shall not allow the drainage of sanitary sewage or non-permitted industrial wastes onto any land or into any watercourse or storm sewer discharging into Bassett Creek.

16. The BCWMC will maintain a water quality model (e.g., P8) for each watershed. Each year, member cities shall provide the BCWMC with plans for BMPs constructed within their city. The BCWMC will update the model annually to incorporate completed BCWMC capital improvements and BMP information provided by the member cities. The BCWMC will develop a summary report of the water quality model results and provide that report to the member cities to assist in their MS4 reporting.

17. The BCWMC encourages member cities to implement best management and good housekeeping practices to minimize chloride loading to surface water and groundwater resources, utilizing emerging technology, as appropriate.

18. The BCWMC will assist and cooperate with member cities, MPCA, MDNR, MnDOT, other watersheds and other stakeholders in implementing projects or other management actions resulting from the Minnesota Pollution Control Agency's Twin Cities Metro Chloride Project or future chloride TMDL.

Flooding and Rate Control Policies

19. The BCWMC will maintain a Flood Control Emergency Repair Fund for funding emergency repairs of the BCWMC Flood Control Project features.

20. The BCWMC will maintain a Long-Term Maintenance Fund with annual assessments. The BCWMC will use the Long-Term Maintenance Fund to fund major repairs and major maintenance of the BCWMC Flood Control Project features (Flood Control Project features are listed in Table 2-8).

21. The BCWMC will regularly inspect the BCWMC Flood Control Project system, including water level control and conveyance structures, and perform the follow-up reporting. This is part of the BCWMC's annual water quality and flood control programs (see Table 5-4).

22. During the first five years of Plan implementation, the BCWMC will work with the member cities to determine responsibilities for major rehabilitation and replacement of the BCWMC Flood Control Project features and establish the associated funding mechanisms.

23. The BCWMC will finance major maintenance and repair of water level control and conveyance structures that were part of the original BCWMC Flood Control Project on the same basis as the

original project. New road crossings of the creek that were installed as part of the project will be maintained by the city where the structure is located.

24. Member cities shall be responsible for routine maintenance and repair of BCWMC Flood Control Project structures located within each city. Each member city shall be responsible for routine cleaning, including removal of debris, brushing, and tree removal from the BCWMC Flood Control Project features located within their city.

25. The BCWMC will reevaluate flood elevations and flood risk to affected properties based on the most recent NOAA precipitation data (e.g., Atlas 14) and will determine actions for protection, including partnering with and applying for grants from Federal and State agencies.

26. When implementing BCWMC flood risk reduction projects, the BCWMC will identify properties prone to flooding. The most effective and reasonable solutions as approved by the member city will be evaluated. Solutions to be considered may include purchase of the properties, with attention to impact on tax base and other community factors.

27. The BCWMC will develop criteria for the allocation of funding for flood risk reduction projects, which may include the purchase of property prone to flooding.

28. The BCWMC will monitor or coordinate with other entities to monitor water levels on the primary lakes in the watershed. Water levels on Bassett Creek and other waterbodies will be monitored periodically during flooding events.

29. The member cities must implement the BCWMC's development policies, including minimum building elevations of at least 2 feet above the 100-year flood level for new and redeveloped structures, as outlined in the BCWMC's *Requirements for Improvements and Development Proposals* document (BCWMC, 2015, as revised).

30. The BCWMC encourages property owners to implement best management practices to reduce the volume of stormwater runoff beyond the minimum requirements imposed by the city's MS4 permit, NPDES construction stormwater permit and MIDS performance goal adopted by the BCWMC. Examples of stormwater runoff volume reduction methods include:

    - Reducing the amount of planned impervious surface (as areas develop).
    - Reducing the amount of impervious surface (during development).
    - Additional infiltration and/or evapotranspiration.
    - Stormwater reuse.

31. The BCWMC and member cities must require rate control in conformance with the Flood Control Project system design and this Plan.

    The BCWMC requires cities to manage stormwater runoff so that future peak flow rates leaving development and redevelopment sites are equal to or less than existing rates for the 2-year, 10-year, and 100-year events.

32. The BCWMC requires the retention of on-site runoff from development and redevelopment projects consistent with the MPCA's Minimal Impact Design Standards (MIDS) performance goals. These includes the retention of:

    - 1.1 inches of runoff from impervious areas for new development creating more than 1 acre of new impervious area
    - 1.1. inches of runoff from new or fully reconstructed impervious areas for redevelopment creating one or more acres of new or fully redeveloped impervious area
    - 0.55 inches of runoff from new or fully reconstructed impervious areas for linear projects creating one or more acres of new or fully redeveloped impervious area (or 1.1 inches from the net increase in impervious area, whichever is greater)
    - If an applicant is unable to achieve the performance goals due to site restrictions, the MIDS flexible treatment options approach shall be used, following the MIDS design sequence flow chart.

    For all other projects, the BCWMC encourages the use of infiltration, filtration, or other abstraction of runoff from impervious areas for all development and redevelopment projects as a best practice to reduce stormwater runoff.

33. The BCWMC will revise floodplain elevations along the trunk system as necessary to reflect channel improvement, storage site development, or requirements established by appropriate state or federal governmental agencies.

34. The BCWMC will allow only those land uses in the BCWMC-established floodplain that will not be damaged by floodwaters and will not increase flooding. Allowable types of land use that are consistent with the floodplain include recreation areas, parking lots, temporary excavation and storage areas, public utility lines, agriculture, and other open spaces.

35. The BCWMC prohibits the construction of basements in the floodplain; construction of all other infrastructure within the floodplain in subject to BCWMC review and approval.

36. The BCWMC prohibits permanent storage piles, fences and other obstructions in the floodplain that would collect debris or restrict flood flows.

37. Where streets, utilities, and structures currently exist below the 100-year floodplain, the BCWMC encourages the member cities to remove these features from the floodplain as development or redevelopment allows.

38. The BCWMC requires that projects within the floodplain maintain no net loss in floodplain storage and no increase in flood level any point along the trunk system. The BCWMC prohibits expansion of existing non-conforming land uses within the floodplain unless they are fully flood-proofed in accordance with codes and regulations.

39. The BCWMC requires member cities to maintain ordinances that are consistent with BCWMC floodplain standards. Member cities must submit ordinances to the BCWMC for review.

40. The BCWMC will review changes in local water management plans, comprehensive land use plans, and other plans, for their effect on the adopted floodplain and Flood Control Project, when such plans are submitted to BCWMC.

41. The BCWMC will update, as necessary, the existing flood profile to reflect any increases resulting from modifications to a flood storage site or the Flood Control Project system, following the approval of those modifications by the BCWMC, local and state agencies, and after a public hearing on the modification plan has been held.

42. BCWMC will review diversion plans to determine the effect of the proposal on the Bassett Creek watershed and such plans will be subject to BCWMC approval. With respect to diversions, the BCWMC:

    - Prohibits any diversions of surface water within, into, or out of the watershed that may have a substantial adverse effect on stream flow or water levels at any point within the watershed.
    - Requires that plans for intra- or inter-watershed diversions must include an analysis of the effects of the diversion on flooding, water quality and aesthetic quality along the creek.
    - Requires effort be made to ensure that there is no fish migration from one watershed to another.

43. The BCWMC will pursue opportunities to collaborate with state agencies and other entities in the development of action plans (or similar management tools) related to the response of surface water and groundwater resources to long-term changes in precipitation and hydrology.

44. The BCWMC will continue to monitor water quantity and quality in the watershed and will seek opportunities to contribute BCWMC data to other datasets, for the purpose of assessing the response of surface water and groundwater resources to long-term changes in precipitation and hydrology.

Groundwater Management Policies

45. The BCWMC will review all MDNR groundwater appropriate permit applications in the BCWMC excluding applications for temporary appropriations permits.

46. The BCWMC will work with member cities to consider a program to review development or redevelopment projects which include long-term dewatering within 1,000 feet of priority waterbodies.

47. The BCWMC will collaborate with local and state agencies if/when these agencies develop a groundwater action plan in an effort to gain a better understanding of groundwater-surface water interaction and develop management strategies that consider the protection of both resources. The role of the BCWMC may include:

- Collaborate with local and state agencies to identify data gaps and attempt to fill those gaps through collection of groundwater level data and/or surface water flow data.
- Coordinate with appropriate local and state agencies to develop a groundwater budget for the watershed.
- Coordinate with appropriate local and state agencies to develop and utilize tools to assess surface water impacts and groundwater impacts of groundwater use (e.g., refinement of the Metro groundwater model, synchronization of the BCWMC XP-SWMM model with groundwater models).

48. To protect groundwater quality, the BCWMC requires infiltration practices to be implemented in accordance with the following guidelines for determining the feasibility of infiltration:
    - NPDES General Construction Stormwater Permit (2013, as amended)
    - Minimal Impact Design Standards (MIDS) Design Sequence Flow Chart (2013, as amended)
    - Minnesota Department of Health's Evaluating Proposed Stormwater Infiltration Projects in Vulnerable Wellhead Protection Areas (MDH, 2007)

    The BCWMC recommends that infiltration practices be designed with consideration for the following guidance:

    - BCWMC's Requirements for Improvements and Development Proposals (BCWMC, 2015, as amended)
    - Minnesota Pollution Control Agency's *Minnesota Stormwater Manual* (http://stormwater.pca.state.mn.us/index.php/Main_Page)
49. The BCWMC encourages member cities to educate residents regarding the importance of implementing BMPs to protect groundwater quality and quantity.
50. Member cities shall share groundwater elevation data, where available, with the BCWMC.

Erosion and Sediment Control Policies

51. Member cities shall continue managing erosion and sediment control permitting programs and ordinances as required by their NPDES MS4 permit and the NPDES Construction Stormwater General Permit. These programs must address:
    - Permitting and inspection of erosion controls
    - Erosion and sediment control at individual building sites
    - Requirements and procedures for reviewing, approving, and enforcing erosion control plans
52. The BCWMC will review projects and developments to evaluate compliance with BCWMC erosion and sediment control standards.

The types of projects that must be submitted to the BCWMC for review, the BCWMC's review procedure, submittal requirements, guidelines, design criteria, etc. are provided in the BCWMC's document *Requirements for Improvements and Development Proposals* (BCWMC, 2015, as revised).

53. The BCWMC requires preparation of erosion control plans for construction projects meeting the applicable BCWMC threshold. Erosion control plans shall meet the standards given in the NPDES Construction Stormwater General Permit (as amended), and shall show proposed methods of retaining waterborne sediments onsite during the construction period, and shall specify methods and schedules for restoring, covering, or re-vegetating the site after construction.

54. Member cities shall perform regular erosion and sediment control inspections for projects triggering BCWMC review and subject to BCWMC erosion and sediment control standards. The member cities will annually report to the BCWMC regarding compliance with BCWMC standards as part of annual MS4 reporting or as requested by the Commission.

55. The BCWMC requires local water management plans to describe existing and proposed city ordinances, permits, and procedures addressing erosion and sediment control.

56. The BCWMC will work with member cities to evaluate end-of-pipe sediment sources and controls. Following adequate source control, the BCWMC may fund removal of end-of-pipe sediment deltas downstream of intercommunity watersheds, or facilitate collaboration among responsible parties to remove these deltas.

Stream Restoration and Protection Policies

57. The BCWMC will continue to maintain a Channel Maintenance Fund through an annual assessment. This fund will be used to help finance minor stream maintenance, repair, stabilization, and restoration projects and/or portions of larger stream restoration projects.

58. The Channel Maintenance Fund may also be used to finance the BCWMC's share of maintenance projects that have a regional benefit, or to partially fund smaller, localized projects that cities wish to undertake.

59. Major stream and streambank stabilization and restoration projects will be considered and prioritized by the BCWMC for inclusion in its annual CIP. Stabilization and restoration projects may include any or all of the following components:

    - Restoration of a stream or streambank area to the designed flow rate
    - Restoration or stabilization of a stream or streambank area that has either resulted in damage to a structure, or where structural damage is likely
    - Restoration or stabilization of a stream or streambank to reduce erosion, improve water quality, and improve riparian or in-stream habitat
    - Restoration or stabilization of a stream or streambank to address flooding, mitigation of water quality impairment, or minimizing the potential for water quality impairment

60. Recognizing their benefits to biodiversity and more natural appearance, the BCWMC will strive to implement stream and streambank restoration and stabilization projects that use soft armoring techniques (e.g., plants, logs, vegetative mats) as much as possible and wherever feasible.

61. The BCWMC will consider improving natural habitat and navigability, and will consider the needs of pedestrians when planning and implementing near-stream and in-stream projects, and when rehabilitating existing projects.

62. The member cities are responsible for funding maintenance and repairs that are primarily aesthetic improvements.

63. The BCWMC will take into account aesthetic and habitat values of future flood control and stabilization/restoration projects.

64. Member cities shall maintain and enforce buffer requirements adjacent to priority streams for projects that will result in more than 200 yards of cut or fill, or more than 10,000 square feet of land disturbance. Buffer widths adjacent to priority streams must be at least 10 feet or 25 percent of the distance between the ordinary high-water level and the nearest existing structure, whichever is less.

    Allowable land uses, and vegetative criteria for buffers are specified in the BCWMC's *Requirements for Development and Redevelopment* (BCWMC, 2015, as amended). Member cities may allow exemptions for public recreational facilities parallel to the shoreline (e.g., trails) up to 20 feet in width, with that width being added to the required buffer width.

Wetland Management Policies

65. The BCWMC requires member cities to inventory, classify and determine the functions and values of wetlands, either through a comprehensive wetland management plan or as required by the Wetland Conservation Act (WCA).

    Member cities shall maintain a database of wetland functions and values assessment results.

    The BCWMC encourages member cities to complete comprehensive wetland management plans as part of their local water management plan or as an implementation task identified in their local water management plan. Completed comprehensive wetland management plans shall be submitted to the BCWMC for review and comment.

66. The BCWMC requires member cities to develop and implement wetland protection ordinances that consider the results of wetland functions and values assessments, and are based on comprehensive wetland management plans, if available. For wetlands classified as Preserve or Manage 1, member cities shall implement standards for bounce, inundation, and runout control that are similar to BWSR guidance; member cities are encouraged to apply standards for other wetland classifications.

67. The BCWMC adopts the Minnesota Rapid Assessment Method (MnRAM) as the wetland assessment method and the wetland management classification system. Member cities are

encouraged to use MnRAM for all wetland assessment and classifications, but are not required to perform reassessments using MnRAM for wetlands already assessed.

68. Member cities shall maintain and enforce buffer requirements for projects containing more than one acre of new or redeveloped impervious area. Average minimum buffer widths are required according to the MnRAM classification (or similar classification system):

    - An average of 75 feet and minimum of 50 feet from the edge of wetlands classified as Preserve
    - An average of 50 feet and minimum of 30 feet from the edge of wetlands classified as Manage 1
    - An average of 25 feet and minimum of 15 feet from the edge of wetlands classified as Manage 2 or 3.

    Allowable land uses and vegetative criteria for buffers are specified in the BCWMC's Requirements for Development and Redevelopment (BCWMC, 2015, as amended).

    Member cities may allow exemptions for public recreational facilities parallel to the shoreline (e.g., trails) up to 20 feet in width, with that width being added to the required buffer width.

69. The member cities are required to manage wetlands in accordance with the WCA. The BCWMC will assist the member cities with managing wetlands in accordance with the WCA, as requested. The MnDOT is the LGU within its rights-of-way.

70. The BCWMC will serve as the local governmental unit (LGU) responsible for administering the WCA for member cities, as requested (currently Medicine Lake, Robbinsdale, and St. Louis Park).

71. The BCWMC prefers any wetland mitigation to be performed within the same subwatershed as the impacted wetland.

72. The BCWMC requires that member cities annually inspect wetlands classified as Preserve for terrestrial and emergent aquatic invasive vegetation, such as buckthorn and purple loosestrife, and attempt to control or treat invasive species, where feasible.

73. The BCWMC encourages member cities to pursue wetland restoration projects, as opportunities allow.

74. The BCWMC encourages member cities to participate in wetland monitoring programs (e.g., Wetland Health Evaluation Program).

Public Ditch Policies

75. The BCWMC encourages member cities to petition Hennepin County to transfer authority over public ditches in the BCWMC to the member cities (per MN Statute 383B.61). If authority is transferred to the member cities, the BCWMC and cities will manage these drainages similar to other BCWMC waterways, in accordance with the BCWMC's latest adopted Plan. Until authority

over public ditches is transferred, the BCWMC will continue to recognize Hennepin County's jurisdiction over public ditches in the BCWMC.

76. In consideration for the original function of public ditches to provide drainage of agricultural lands, the BCWMC will support the efforts of other entities to pursue legislation abandoning public ditches on land zoned non-agricultural.

77. The BCWMC will manage abandoned or transferred public ditches that are part of the trunk system consistent with the policies of this Plan. Member cities will be responsible for management of abandoned or transferred public ditches that are not on the trunk system, but are currently part of their municipal drainage system.

Recreation, Habitat, and Shoreland Management Policies

78. The BCWMC will consider developing and implementing a shoreland habitat monitoring program for its Policy 1 lakes to monitor biological and physical indicators and to recommend management actions (to cities or for the Commission's consideration) based upon monitoring results. If implemented, monitoring may include assessment of upland and aquatic vegetation buffer zones, erosion, sedimentation, and the presence of non-native invasive species.

79. The BCWMC will support and collaborate with other entities (e.g., agencies, lake association, cities, counties) to manage and prevent the spread of aquatic invasive species; BCWMC service may include point-intercept surveys of aquatic vegetation, feasibility studies, technical analysis, education, exploring funding options, and applying for grants. The BCWMC will not manage increased growths of native aquatic vegetation resulting from improved water quality.

80. The member cities are responsible for shoreland regulation and are required to adopt MDNR-approved shoreland ordinances, in accordance with the MNDR's priority phasing list.

81. The BCWMC will promote the protection of natural and native shoreland areas, including the preservation of lakeshore and streambank vegetation during and after construction projects, and the establishment and maintenance of buffers adjacent to priority waterbodies. The BCWMC will seek opportunities to restore disturbed shorelines and streambanks to their natural state where feasible.

82. The BCWMC encourages cities to develop and maintain water-related recreational features (such as trails adjacent to waterbodies and water access points), with consideration for buffers, use of pervious surfaces, and other best management practices to reduce runoff.

83. The BCWMC will take into account aesthetics, habitat, and recreation benefits during CIP project selection and prioritization, and when considering how a project might address multiple Commission goals (see policy 110).

84. The BCWMC will encourage public and private landowners to maintain, preserve or restore open space and native habitats such as wetlands, uplands, forests, shoreland, streambanks, and prairies for the benefit of wildlife through education and by providing information on grant programs.

85. Member cities shall consider opportunities to maintain, enhance, or provide new open spaces and/or habitat as part of wetland creation or restoration, stormwater facility construction, development, redevelopment, or other appropriate projects.

86. The BCWMC will cooperate with the MDNR and other entities, as requested, to protect rare and endangered species under the State's Endangered Species Statute. The BCWMC will review the Natural Heritage Information System during the design phase of Commission projects.

87. The BCWMC will submit data, as available, and encourages others to submit data regarding occurrences of rare and endangered species and native plant communities to the State's Natural Heritage Information System.

88. The BCWMC will consider implementing a grant or cost-share program to fund the establishment of buffers adjunct to priority waterbodies.

89. Member cities will adopt State buffer and/or shoreland management requirements for public waters in incorporated areas, if and when they are promulgated.

Education and Outreach Policies

90. The BCWMC will develop an education and outreach plan (see Appendix B). The education and outreach plan will identify key messages about watershed management and guidance for distributing that information to specific stakeholder audiences using various, targeted methods. The BCWMC will regularly view its education and public involvement plan and update it, as necessary.

91. The BCWMC will develop and maintain standard BCWMC messaging items to increase awareness of the BCWMC and its role.

92. The BCWMC will evaluate the success of its education and public involvement plan.

93. The BCWMC will recruit volunteers to conduct monitoring and participate in activities sponsored or promoted by the BCWMC and will provide training as needed (e.g., Citizen Assisted Monitoring Program, River Watch, adopt-a-stream, adopt-a-wetland programs).

94. The BCWMC will support cooperative educational and volunteer programs, such as the West Metro Water Alliance, Blue Thumb, River Watch, Metro Blooms, Metro Watershed Partners, Citizen Assisted Monitoring Program, Wetland Health Evaluation Program, etc.

95. The BCWMC will develop and implement a recognition program (certificates, letters of appreciation, events, thank you ads, etc.) for BCWMC volunteers.

96. The BCWMC will update and maintain its website and use it to communicate with and provide information to the public.

97. The BCWMC will seek opportunities to incorporate education and public involvement efforts into all of its proposed projects.

98. The BCWMC will seek opportunities to use a citizen advisory committee to complete tasks meaningful to the Commission.

99. The BCWMC will distribute BCWMC meeting notices and agendas to city officials and key staff. The meeting notice and/or agenda will include a description of the key discussion item(s).

100. The BCWMC will post informational signs at BCWMC projects during construction.

    The BCWMC will consider installing permanent informational signs at BCWMC watershed projects, major BCWMC waterbodies, monitoring sites, demonstration projects, adopt-a-stream/wetland sites, etc.

    The BCWMC will work with cities and other road authorities to install stream identification signs along roads at stream crossings.

101. The BCWMC will regularly hold watershed tours for the Commission and the public.

102. The BCWMC will tailor its communications and educational strategies to present complex and/or technical issues in a manner that is appropriate for the audience.

Administration Policies

103. The BCWMC will fund 100 percent of eligible project costs for those projects listed in the 10-year CIP (Table 5-3). Eligible project costs are listed in Table 5-1. The Commission will determine eligibility of project costs following the completion of a feasibility study for the project. The projects will be funded in accordance with the BCWMC joint powers agreement and (specifically) Minnesota Statutes 103B.251. The BCWMC will follow the process for ordering projects as outlined in its joint powers agreement and summarized in Section 5.2.1.1

104. The Commission will review projects that trigger BCWMC review. The types of projects that must be submitted to the BCWMC for review, the BCWMC's review procedure, submittal requirements, guidelines, design criteria, etc. are provided in the BCWMC's document *Requirements for Improvements and Development Proposals* (BCWMC, 2015, as revised).

105. At the request of the member cities, the BCWMC will review projects that would not otherwise trigger review per the BCWMC's *Requirements for Improvements and Development Proposals* (BCWMC, 2015, as revised).

106. The BCWMC will review local water management plans for compliance with this Plan's goals and policies.

107. The BCWMC will annually evaluate member cities' compliance with the goals and policies of this Plan (see Section 5.1.1.6). The BCWMC will take appropriate administrative or legal action in response to non-compliance.

108. The BCWMC will review applications for MDNR Work in Public Waters Permits.

109. The BCWMC will annually review and update its 10-year CIP. The BCWMC will re-evaluate new or proposed additions to the CIP annually or as new data or opportunities develop, with consideration for the criteria outlined in policy 110.

110. The BCWMC will consider including projects in the CIP that meet one or more of the following "gatekeeper" criteria.

- Project is part of the BCWMC trunk system (see Section 2.8.1, Figure 2-14 and Figure 2-15)
- Project improves or protects water quality in priority waterbody
- Project addresses an approved TMDL or watershed restoration and protection strategy (WRAPS)
- Project addresses flooding concern

The BCWMC will use the following criteria, in addition to those listed above, to aid in the prioritization of projects:

- Project protects or restores previous Commission investments in infrastructure
- Project addresses intercommunity drainage issues
- Project addresses erosion and sedimentation issues
- Project will address multiple Commission goals (e.g., water quality, runoff volume, aesthetics, wildlife habitat, recreation, etc.)
- Subwatershed draining to project includes more than one community
- Addresses significant infrastructure or property damage concerns

The BCWMC will place a higher priority on projects that incorporate multiple benefits, and will seek opportunities to incorporate multiple benefits into BCWMC projects, as opportunities allow.

111. The BCWMC defines the trunk system as the collection of waterbodies and natural or constructed conveyances listed in Table 2-9 of this Plan.

112. The BCWMC may review proposed changes to member city development regulations (e.g., zoning and subdivision ordinances) at its discretion or the request of the member cities.

113. Member cities must inform the BCWMC regarding updates to city ordinances or comprehensive plans that will affect stormwater management. Stormwater management elements of the member cities' comprehensive plans must conform to the BCWMC Plan.

114. The BCWMC will annually assess its progress towards the goals presented in this plan, using quantitative metrics where appropriate. The BCWMC will provide this analysis, or a summary, to BWSR, as as part of its annual reporting.

115. The BCWMC will work with member cities to assess the financial impact of regulatory controls and identify areas where the BCWMC may assist member cities in meeting the requirements of their MS4 permits.

116. The BCWMC will periodically review its capital improvement program (CIP) process and revise the process, as necessary.

117. The BCWMC will assist in calculating or calculate when necessary, the apportionment of costs between adjoining communities for water resource projects with intercommunity participation.

118. The BCWMC will assist member cities in resolving watershed management disputes, as requested. The BCWMC will follow the dispute resolution procedure described in Section 5.1.1.5 of this Plan.

119. The BCWMC will maintain a Technical Advisory Committee (TAC) to promote communication and cooperation between the BCWMC and member cities. Member cities shall appoint a technical advisor to the TAC and encourage the technical advisor to attend BCWMC meetings.

120. The BCWMC will continue to rely on member cities to implement the BCWMC's policies at the time of development and redevelopment. Member cities shall inform developers and other project applicants regarding BCWMC requirements.

121. The BCWMC will continue to rely on member cities to issue permits. Member cities shall permit only those projects that conform to the policies and standards of the BCWMC. The BCWMC will review proposed projects after the member city has provided preliminary approval (indicating compliance with the member city's local water management plan) and submitted a signed BCWMC application form to the BCWMC. Member cities shall not issue construction permits, or other approvals, until the BCWMC has approved the project.

122. For CIP projects that have been ordered by the Commission, the BCWMC requires member cities to acquire and maintain easements, right-of-way, or interest in land necessary to implement and maintain projects upon order of the BCWMC (the cost of land acquisition may be eligible for Commission reimbursement, see Table 5-1).

Summary of Rules

A synopsis of BCWMC rules is presented below.

Floodplain Regulations

The following policies regarding floodplain regulation within the Bassett Creek watershed have been adopted:

1. The floodplain of Bassett Creek is defined as that area lying below the 100-year flood elevations as shown in the BCWMC Watershed Management Plan, or as subsequently revised due to channel improvement, storage site development, or requirements established by appropriate state or federal governmental agencies.

2. No land use of a type which would be damaged by flood waters is permitted within the floodplain.

3. Allowable types of land use which are consistent with the floodplain, such as recreation areas, parking lots, excavations and storage areas, agriculture, and other open space uses, would be allowed only to the extent that they would not increase flooding. Permanent storage piles, fences, and other obstructions, which would collect debris or provide restriction to flood flows are not allowed.

4. Filling will generally not be allowed within the floodplain established in the BCWMC Watershed Management Plan. If any municipality desires to fill within the established floodplain, such filling will require the approval of the BCWMC and require provisions for compensating storage and/or channel improvement so that the flood level shall not be increased at any point along the channel due to the fill.

5. Expansion of existing, non-conforming land uses within the floodplain will be prohibited unless they are fully floodproofed in accordance with existing codes and regulations.

Water Resources Regulations

Water Quality Management

The lakes, rivers, ponds, streams, and wetlands of the Bassett Creek watershed are an important community asset. These resources supply aesthetic and recreational benefits, in addition to providing wildlife habitat and refuge. The BCWMC recognizes a need to ensure adequate water quality in the waterbodies in its jurisdiction, and has taken steps to protect these resources. The Water Quality Management Policy was adopted to protect, preserve, and manage the water resources in the Bassett Creek watershed.

Control of Streambank Erosion and Streambank Degradation

Streambank erosion and streambank degradation control measures must:

1. Be employed whenever the ne sediment transport for a reach of stream is greater than zero or whenever the stream's natural tendency to form meanders directly threatens damage to structures, utilities, or natural amenities in public areas.

2. Include effective energy dissipation devices or stilling basins to prevent streambank or channel erosion at all stormwater outfalls.

3. Specify riprap consisting of natural angular stone suitable graded by weight for the anticipated velocities.

4. Provide riprap to an adequate depth below the channel grade and to a height above the outfall or channel bottom to ensure that the riprap will not be undermined by scour or rendered ineffective by displacement.

5. Specify that riprap be placed over a suitable graded filter material or filter fabric to ensure that soil particles do not migrate through the riprap and reduce its stability.

6. Require that streambank stabilization and streambed degradation control structures be submitted for review by the BCWMC. The review will consider the need for the work, the adequacy of design,

unique or special site conditions, energy dissipation, the potential for adverse effects, contributing factors, preservation of natural processes, or aesthetics.

Water Quality Best Management Practices

The Minnesota Stormwater Manual should be used to determine the currently approved water quality BMPs such as bioretention basins, sand filters, infiltration basins, stormwater ponds, tree trench systems, and grit chambers and their design guidance.

Sediment Control

To protect the water resources of the Bassett Creek watershed from increased sediment and associated water quality problems, the BCWMC has established the following policies to encourage land use planning and development that minimizes sediment yield:

1. Provide specific measures to control erosion based on the grade and length of the slopes onsite.
2. The sedimentation ponds will be cleaned on a regular interval determined by calculating the sediment yield expected from the tributary watershed and comparing it to the capacity of the pond.
3. Preservation and improvement of marsh areas for sediment removal by natural filtration is recommended if the natural intrinsic value of the wetland is not adversely affected.
4. The design of storm sewer, stream channel improvements, and channel crossings must consider temporary erosion and sediment reduction measures to be implemented during construction and permanent measures to eliminate erosion and reduce sediment production during operations.

Minnehaha Creek Watershed District

15320 Minnetonka Blvd.
Minnetonka, MN 55345
Ph: (952) 471-0590
Fax: (952) 471-0682
http://www.minnehahacreek.org

The Minnehaha Creek Watershed District (MCWD) covers approximately 178 square miles and is home to eight major creeks, 129 lakes, and thousands of wetlands. The MCWD includes all or part of 27 cities and two townships in Hennepin County and Carver County. The MCWD "seeks to conserve the natural resources of the Minnehaha Creek watershed principally through analysis of the causes of harmful impacts on the water resource, public information and education, regulation of land use, regulation of the use of waterbodies and their beds, and capital improvement projects." The MCWD's Water Resources Management Plan was adopted in July 2007. It outlines the MCWD's mission, goals and policies, and implementation plan.

Summary of Goals

Water resources management goals developed by the MCWD are included in Table E.2.

Table E.2 – Minnehaha Creek Watershed District Goals

Goal	Description
GOAL 1	Promote abstraction and filtration of surface water where feasible for the purpose of improving water quality and increasing groundwater recharge throughout the watershed.
GOAL 2	Promote activities which maintain, support, and enhance floral, faunal quantity, and ecological integrity of upland and aquatic resources throughout the watershed.
GOAL 3	Conserve, maintain, and improve aesthetic, physical, chemical, and biological composition of surface waters and groundwater within the District.
GOAL 4	Minimize the risks of threats to public health through the development of programs, plans, and policies that improve the quality of surface and groundwater resources.
GOAL 5	Maintain or reduce existing flows from drainage within the watershed to decrease the negative effects of stormwater runoff and bounce from existing and proposed development, as well as provide low flow augmentation to surface waters.
GOAL 6	Preserve the natural appearance of shoreline areas and minimize degradation of surface water quality which can result from dredging operations.
GOAL 7	Maintain the hydraulic capacity of and minimize obstruction to navigation without compromising wildlife habitat in water courses and preserve water quality and navigation appearance in shoreland areas.
GOAL 8	Improve water quality by promoting BMPs requiring their adoption in local plans and their implementation on development sites.
GOAL 9	Enhance public participation and knowledge regarding District activities and provide information and educational material to municipalities, community groups, businesses, schools, developers, contractors, and individuals.
GOAL 10	Maintain public ditch systems within the District as required under Statutory jurisdiction.
GOAL 11	Preserve, create, and restore wetland resource and maximize the benefits and functionality of wetlands to the watershed.
GOAL 12	Protect and maintain existing groundwater flow, promote groundwater recharge, and improve groundwater quality and aquifer protection.
GOAL 13	Reduce the severity and frequency of flooding and high water by preserving and increasing the existing water storage capacity below 100-year flood elevations on all waterbodies within MCWD.
GOAL 14	Promote the recreational use, where appropriate, of surface waters within MCWD by providing recreation opportunities for citizens by promoting the use and enjoyment of water resources with the intent of increasing the livability and quality of life within the watershed.
GOAL 15	Control temporary sources of sediment resulting from land disturbance and identify, minimize, and correct the effects of sedimentation from erosion-prone and sediment source areas.
GOAL 16	Promote effective planning to minimize the impact of development and land use change on water resources, as well as achieve watershed District goals.
GOAL 17	Solicit input from the general public with the intent that policies, projects, and programs will address local community values and goals, as well as protect historic and cultural values regarding water resources; strive to manage expectations; base decision on an educated public; and, foster an educated and informed public within the watershed.

Source: MCWD

Summary of Rules

MCWD rules seek to:

- Protect public health and welfare and the natural resources by reasonable regulation of the modification or alteration of lands and waters on the MCWD.
- Reduce the severity and frequency of flooding and high water.

- Preserve floodplains and wetlands.
- Improve the chemical and physical quality of surface water.
- Reduce sedimentation.
- Preserve hydraulic and navigational capacity of waterbodies.
- Preserve natural shoreland features.
- Minimize public expectations to avoid or correct such problems in the future.

A synopsis of the MCWD rules is presented below.

Illicit Discharge Detection and Elimination Rule

The MCWD's Illicit Discharge Detection and Elimination Rule states that the District will regulate illicit connections and discharges of pollutants into its MS4 system and watercourses in the watershed.

Any new direct connection to or replacement of and existing connection to the District's MS4 will require obtaining a permit from the District. All illicit connections and illicit discharges into the District's MS4 system or District watercourses are prohibited.

Floodplain Alteration Rule

The MCWD's Floodplain Alteration Rule states that it is the MCWD Board of Managers' policy to:

- Preserve existing water storage capacity below the 100-year high water elevations on all waterbodies in the watershed to minimize the frequency and severity of high water.
- Minimize development below 100-year high water elevations that will unduly restrict flood flows or aggravate known high water problems.
- Mitigate historical losses in floodplain volume and promote the conservation and restoration of floodplain habitat where feasible.
- Promote uniform and consistent application of floodplain regulation throughout the watershed.
- Promote the natural functions and benefits of floodplains.

The MCWD Board of Managers will conduct the floodplain management program and review all projects proposed within the 100-year floodplain. Floodplain alteration criteria will guide the Board of Managers' review of developments and redevelopments within the floodplain. Local Stormwater Management Programs (SWMPs) must include floodplain management strategies. The Board of Managers will review these floodplain management strategies for conformity with this rule and will transfer permitting authority for floodplain alterations if local floodplain ordinances conform to MCWD's Floodplain Alteration Rule.

Wetland Protection Rule

The MCWD's Wetland Protection Rule states that it is the policy of the District to:

- Achieve no net loss in the quantity, quality, and biological diversity of Minnesota's existing wetlands.
- Avoid or minimize direct or indirect impacts from activities that destroy or diminish the quantity, quality, and biological diversity of wetlands and rectify the impact of any such activity by repairing, rehabilitating, or restoring the affected wetland environment.
- Reduce or eliminate the impact of such activity over time by preservation and maintenance operation during the life of the activity.
- Compensate for the impact on the wetlands by restoring a wetland or replacing or providing substitute wetland resources or environments.
- Promote competent administration of the WCA within the watershed.

The United States Army Corps of Engineers (USACE) potentially has jurisdiction over all wetlands in Minnesota. The MNDNR, through a USACE/MNDNR general permit, currently has authority to preserve protected waters and wetlands. The wetlands under the MNDNR's jurisdiction include most types 3, 4, and 5 wetlands as defined in the U.S. Fish and Wildlife Circular No. 39. The MNDNR requires a permit for changes to a protected water or wetland. BWSR provides administrative guidance over implementation of the WCA of 1991.

The MCWD serves as the LGU for implementing the WCA where LGU authority has not been obtained by a municipality. MCWD Wetland Protection Rule applies to types 1, 2, 3, 4, 5, 6, 7, and 8 wetlands. It also includes requirements for wetland buffers, restrictions for excavation in wetlands, and for locating replacement wetlands. Local SWMPs must incorporate the requirements of the Wetland Protection Rule or continue to allow the MCWD to regulate wetland protection. In addition, cities shall assess functions and values by utilizing one of several methodologies listed in the WCA Rules. Cities issuing permits for work in and around wetlands will inform the permittee that these activities may also need MNDNR and USACE permits prior to approval of the local permit.

Stormwater Management Rule

It is the policy of the District to:

- Promote abstraction of precipitation and stormwater runoff where feasible for the purposes of improving water quality, increasing groundwater recharge, reducing flooding, and promoting the health of native and designed plant communities and landscapes.
- Preserve, maintain, and improve the aesthetic, physical, chemical, and biological composition of surface waters and groundwater within the District.
- Limit or reduce stormwater runoff from drainage within the watershed to decrease the negative effects of land-disturbing activities on surface water quality and flooding.
- Protect and maintain existing groundwater flow, promote groundwater recharge, and improve groundwater quality and aquifer protection.

- Promote the preservation and use of native vegetation for stormwater runoff abstraction and pollutant load reduction.
- Promote non-degradation of water quality from new development and improvement in water quality from redevelopment.
- Promote the management of stormwater onsite for the purposes of providing local groundwater recharge and maintaining natural hydrology.

The District's Stormwater Management Rule covers developments of land for residential, commercial, industrial, institutional, or public roadway uses. It also covers redevelopment and additions to existing development. It directs permit applicants to apply for a permit and prepare a local stormwater management plan for the individual project. It also directs them to prepare an erosion control plan for construction and land development activities. The MCWD Board of Managers will transfer permit and review authority to communities that have approved stormwater management plans. An approved stormwater management plan will conform to the Stormwater Management Rule and will implement equal or equivalent design criteria for stormwater quantity and quality and require equal or equivalent exhibits. The MCWD Board of Managers will consider any variance requested from these local stormwater management plans.

Erosion Control Rule

The MCWD Board of Managers requires preparation and implementation of erosion control plans for land-disturbing activities to limit erosion from wind and water, reduce slow volumes and velocities of stormwater moving offsite, reduce sedimentation into waterbodies, and protect soil stability during and after site disturbance. Sediment and erosion control should reflect the following principles:

- Minimize, in area and duration, exposed soil and unstable soil conditions.
- Minimize disturbance of natural soil cover and vegetation.
- Protect receiving waterbodies, wetlands, and storm sewer inlets.
- Retain sediments from disturbed properties onsite.
- Minimize unintentional offsite sediment transport on trucks and equipment.
- Minimize work in and adjacent to waterbodies and wetlands.
- Maintain stable slopes.
- Avoid steep slopes and the need for high cuts and fills.
- Minimize disturbance to the surrounding soils, root systems and trunks of trees, and vegetation adjacent to site activity that are intended to be left standing.
- Prevent and/or mitigate the compaction of site soils.

The MCWD Board of Managers requires cities to adopt the MPCA BMPs and put these into their local SWMP. These BMPs will meet the MCWD Board of Managers' Erosion and Sedimentation Control policies. MCWD approval of individual local SWMPs will require cities to take responsibility for enforcing erosion and sedimentation control plans for all development and redevelopment sites through their normal permitting procedures. This includes erosion control provisions for small sites associated with building permits, driveway permits, and grading permits.

Local SWMPs must also require documentation that the project has received a NPDES Stormwater Permit from the MPCA (if required by the MPCA). The MCWD Board of Managers policy requires landowners proposing to develop land to prepare an erosion and sediment control plan for all construction activities that remove or disturb existing protective cover. The developer must have city approval of this plan before starting any construction. The SWMP must address sediment containment. The local SWMP must also require establishing permanent vegetative cover as soon as construction is complete. The erosion and sediment control plan must outline the direction of all site runoff and the location of erosion control measures. Structural methods for erosion control may include, but are not limited to, silt fences, hay bale barriers, diversion dikes, and sedimentation basins. The local SWMP shall also require installation of structural measures in accordance with the manufacturers' specifications and accepted MPCA guidelines. Non-structural methods include, but are not limited to, natural plant barriers, phased development practices, and grading practices that minimize slopes. Local SWMPs must require employing these methods in accordance with accepted engineering standards and in accordance with the MPCA BMPs.

The erosion control plan must temporarily and permanently replace plant cover. These practices include, but are not limited to, seeding, mulching, and sodding. Local SWMPs must require proper care of all structural and non-structural erosion control measures that must remain in place until the establishment of permanent plant cover. The MCWD Board of Managers recommends that LGUs obtain a surety to make sure that the developer adequately carries out the plan.

Shoreline and Streambank Improvements Stabilization Rule

The MCWD Board of Managers adopted shoreline stabilization rules to:

- Preserve and enhance the natural appearance and function of shorelines and streambanks.
- Preserve and enhance wildlife, fisheries, and recreational resources of surface waters.
- Ensure that the surface water quality and ecological integrity of the riparian environment is not compromised because of stabilization practices.
- Assure that improvement of shoreline and streambank areas to prevent erosion complies with accepted engineering principles in conformity with MNDNR construction guidelines.
- Encourage and foster the use of bioengineering, lakescaping, and conservation of natural vegetation as preferred means of stabilizing shorelines and streambanks.
- Discourage the use of beds and banks of waterbodies for the placement of roads, highways, and utilities.

The MCWD Board of Managers encourages cities to adopt and carry out ordinances to protect shoreland. These shoreland ordinances shall address the control of shoreland development as identified in the 1989 MNDNR *Statewide Standards for Management of Shoreland Areas*. The cities have the responsibility to administer and enforce these shoreline management regulations. The MCWD Shoreline and Streambank Stabilization Rule applies to shoreline and streambank improvements. The MCWD Board of Managers may delegate permitting authority for shoreline improvements to the cities if the Board of Managers decides that member cities have either made this rule part of their local shoreline ordinance or their ordinance does the same thing.

Stream and Lake Crossings Rule

The MCWD Stream and Lake Crossings Rule discourages the use of lake beds and beds of waterbodies for the placement of roads, highways, and utilities. The Rule further lists criteria, which stream and lake crossing projects must meet. Local SWMPs will be reviewed for conformity to the Rule.

Mississippi Watershed Management Organization

2522 Marshall Street Northeast
Minneapolis, Minnesota 55418
Ph: (651) 287-0948
Fax: (651) 287-1308
http://www.mwmo.org

Boundaries of the MWMO include the Mississippi River as it runs through the City of Minneapolis, as well as the land that drains to the river. The MWMO contains portions of the City of Lauderdale, the City of Minneapolis, the City of Saint Anthony, and the City of Saint Paul. The final member of the MWMO is the MPRB. The MWMO provides for the long-term management of its water and associated land resources through the development and implementation of projects, programs, and policies that respect ecosystem principles and reflect changing community values. The MWMO assists and cooperates with member cities, other units of government, non-profit agencies, and a variety of groups in managing its water resources to achieve this vision.

The MWMO adopted its Water Resources Management Plan in 2011 with plan amendments adopted in 2012, 2013, and 2015. The MWMO Plan presents the organization's missions, its goals and policies, and its priorities for implementation.

The primary purpose of the MWMO Plan is to provide for the wise, long-term management of the water and associated natural resources within the watershed through implementation measures that realize multiple objectives, respect ecosystem principles, and reflect community values.

Summary of Goals

Water resources management goals developed by the MWMO are included in Table E.3.

Table E.3 – Mississippi Watershed Management Organization Goals

Goal	Description
GOAL 1	Implement water quality initiatives to protect, maintain, or improve the water quality of the Mississippi River and other water resources within the MWMO.
GOAL 2	Implement water rate and volume initiatives to protect downstream resources from the impacts of high stormwater runoff volumes, limit the frequency at which flood damage occurs, and reduce the severity and frequency of drought-like conditions.
GOAL 3	Implement monitoring and data assessment initiatives to assemble the best scientific data to inform water resource decision making and to identify successful implementation of stormwater management practices based on water quality and quantity trends.
GOAL 4	Implement communication and outreach initiatives to increase citizen awareness of water resource issues and communicate the value of resource stewardship so that citizens action positively impacts MWMO water and natural resources.
GOAL 5	Implement ecosystem health initiative to protect, create, and enhance vegetated areas, native plant communities, habitat, open space, and public infrastructure.
GOAL 6	Implement regulations and enforcement initiatives to promote consistency across jurisdictions in the standards, compliance and enforcement of regulations for the protection and improvement of water and natural resources.
GOAL 7	Implement urban stormwater management initiative to promote unique and effective stormwater solutions to address the highly-developed urban condition of the watershed.
GOAL 8	Implement emergency preparedness and response initiatives to prepare the MWMO and member organizations to protect water and natural resources in the event of an emergency that threatens the health and function of these resources, and assist them in alleviating damages to resources from emergencies.
GOAL 9	Implement emerging issues initiatives that will both develop awareness of and address changing conditions to protect water and natural resources.
GOAL 10	Implement financial responsibilities and strategy initiative that will fund the protection and improvement of the quality and quantity of water and natural resources through effective, transparent, and responsible utilization and leveraging of funds.

Source: MWMO

Summary of Rules

The MWMO does not issue permits or provide approval letters for construction projects. Instead, it relies on the existing permitting and enforcement bodies of its member cities. The MWMO Board reserves the right to review and comment on plans that affect the quality and quantity of water within and across its watershed and subwatershed boundaries. Local governments are responsible for:

- Maintaining existing and proposed storm drain conveyance systems, including stormwater detention ponds, sewers, and inlet and outlet drainage structures.
- Issuing building and grading permits.
- Performing inspections to ensure compliance during construction.

The MWMO maintains oversight responsibility to monitor local SWMP implementation. If member cities do not follow their approved SWMPs, the MWMO will enforce its standards and rules.

Erosion and Sediment Control

The member communities of the MWMO shall adopt and implement erosion and sediment control standards or ordinances to reduce erosion and sedimentation. Member cities shall also follow the BMPs

described in the MPCA document, *Protecting Water Quality in Urban Areas*, or other such documents created by member cities to achieve no adverse impact to receiving waterbodies. Construction activities, including redevelopment, utility installation, and road construction, are required to obtain a NPDES Construction Permit from the MPCA in addition to local permitting requirements.

Shoreline and Floodplain

The MWMO requires its member cities to have on file both a MNDNR approved Floodplain Ordinance and a MNDNR approved Shoreline Ordinance. Where no ordinance is applicable< MWMO requires there be no encroachment on floodways that reduces capacities or expedites flood flows. It is also MWMO policy to allow in the flood zone only those structures that have been protected from high water, either through floodproofing or by other construction techniques recognized and accepted by the MWMO Board.

Land Use

Although specific zoning and land use planning remains with the individual cities, the MWMO urges its member cities to regulate any activities that may cause contamination of surface and groundwater through restrictive permitting, zoning, and licensing.

Stormwater and Drainage Design Performance

The MWMO requires all its member cities to develop stormwater management ordinances that address the following requirements:

- Reduce runoff through coordinated efforts of state and local agencies.
- Update development and enforcement standards for major new construction and redevelopment projects.
- Promote increased stormwater retention in new construction and redevelopment projects.

Shingle Creek Watershed Management Commission

3235 Fernbrook Lane
Plymouth, MN 55447
Ph: (763) 553-1144
Fax: (763) 553-9326
http://www.shinglecreek.org/

The Shingle Creek/West Mississippi Watershed covers approximately 67 square miles in east-central Hennepin County. There are ten cities in this watershed, and they jointly manage the water resources in this area through the Shingle Creek and West Mississippi Watershed Management Commissions. The Commissions work jointly for those communities that are members of both the SCWMC and the West Mississippi Watershed Management Commission. The goal of the Commissions is to enhance the water quality of the water resources within their watersheds through public education, analysis of the causes of harmful impacts, regulation of the use of waterbodies, regulation of land use, and capital improvement projects.

The Commissions adopted their First Generation Management Plan in 1990, their Second Generation Plan in 2004, and their Third Generation Plan in 2013.

The SCWMC Plan includes: an updated land and water resources inventory; goals and policies in eight specific areas; an assessment of problems and identification of corrective actions; an implementation program; and, a process for amending the Plan. It describes how the Shingle Creek and West Mississippi Watershed Management Commissions will address activities in the two watersheds in the ten-year period.

Summary of Goals

Water resources management goals developed by SCWMC are included in Table E.4.

Table E.4 – Shingle Creek Watershed Management Commission Goals

Goal	Description
GOAL 1	Maintain the existing 100-year flood profile throughout the watersheds.
GOAL 2	Determine ecological low flows for Shingle Creek and Bass Creek.
GOAL 3	As lake water quality improves, and lakes are removed from the State's Impaired Waters List, implement management strategies to protect lake water quality. It is anticipated that Schmidt Lake, Lower Twin Lake, and Ryan Lake will be removed in 2014.
GOAL 4	Implement phosphorus and sediment load reduction actions sufficient to achieve de-listing from the Impaired Waters List for Bass Lake, Eagle Lake, Crystal Lake, and the Middle Twin Lakes.
GOAL 5	Improve water clarity in the balance of the lakes by 10 percent over the average of the previous ten years.
GOAL 6	Improve at least 30 percent of the length of Shingle Creek to meet Corridor Study and TMDL design standards.
GOAL 7	Maintain non-degradation of all waterbodies compared to 1985 conditions.
GOAL 8	Infiltrate stormwater runoff from new impervious surface.
GOAL 9	Identify opportunities for and implement projects to infiltrate runoff from existing impervious surface.
GOAL 10	Work with the appropriate state agencies to incorporate groundwater assessment into the sustainable water budget analysis for each watershed.
GOAL 11	Maintain the existing functions and values of wetlands identified in the Commission's Water Quality Plan as high priority.
GOAL 12	Informed by the sustainable water budget study, improve functions and values of wetlands.
GOAL 13	Continue current Hennepin County jurisdiction over County Ditch #13.
GOAL 14	Identify and operate within a sustainable funding level that is affordable to member cities.
GOAL 15	Foster implementation of TMDL and other implementation projects by sharing in their cost and proactively seeking grant funds.
GOAL 16	Operate a public education outreach program that meets the NPDES Phase II education requirements for the member cities.
GOAL 17	Operate a monitoring program sufficient to characterize water quantity, water quality, and biotic integrity in the watersheds and to evaluate progress toward meeting TMDL goals.
GOAL 18	Maintain rules and standards for development and redevelopment that are consistent with local and regional TMDLs, federal guidelines, source water and wellhead protection requirements, sustainable water yields, non-degradation, and ecosystem management goals.
GOAL 19	Serve as a technical resource for member cities.

Source: SCWMC

Summary of Rules

SCWMC rules and standards protect the public health, welfare, and natural resources of the watershed by regulating the improvement or alteration of land and waters in the watershed to:

- Reduce the severity and frequency of high water.
- Preserve floodplain and wetland storage capacity.
- Improve the chemical and physical quality of surface waters.
- Reduce sedimentation.
- Preserve the hydraulic and navigational capacities of waterbodies.
- Promote and preserve natural infiltration areas.
- Preserve natural shoreline features.

In addition to protecting natural resources, these rules and standards are intended to minimize future public expenditures on problems caused by the improvement or land and water alterations. A synopsis of SCWMC rules is presented below.

General Standards

- All land-disturbing activities, whether requiring a project review under SCWMC rules or otherwise, shall be undertaken in conformance with BMPs and in compliance with the standards and criteria in the SCWMC rules.
- SCWMC project reviews are required of: any single-family, detached housing project 15 acres or larger in size; projects in any other land use such as commercial, industrial, or institutional 5 acres or larger in size; and, any land-disturbing activity requested by a member city to be reviewed regardless of project size. Projects smaller in size are reviewed by municipalities.
- No personal shall conduct land-disturbing activities without protecting adjacent property and waterbodies from erosion, sedimentation, flooding, or other damage.
- Development shall be planned and conducted to minimize the extent of disturbed area, runoff velocities, and erosion potential, and to reduce and delay runoff volumes. Disturbed areas shall be stabilized and protected as soon as possible and facilities or methods used to retain sediment onsite.
- When possible, existing natural watercourses and vegetated soil surfaces shall be used to convey, store, filter, and retain runoff before discharge into public waters or a stormwater conveyance system.
- When possible, runoff from roof gutter systems shall discharge onto lawns or other pervious surfaces to promote infiltration.

- Use of fertilizers and pesticides in the shoreland protection zone shall be done to minimize runoff into public waters using earth material, vegetation, or both. No phosphorus fertilizer shall be used unless a soil nutrient analysis shows a need for phosphorus or in the establishment of new turf.
- When development density, topographic features, and soil and vegetation conditions are not sufficient to adequately handle runoff using natural features and vegetation, various types of constructed facilities such as diversions, settling basins, skimming devices, dikes, waterways, and ponds may be used. The SCWMC encourages designs using surface drainage, vegetation, and infiltration rather than buried pies and man-made materials and facilities.
- Whenever the SCWMC determines that any land-disturbing activity has become a hazard to any person, endangers the property of another, adversely affects water quality of any waterbody, increases flooding, or otherwise violated SCWMC rules, the SCWMC shall notify the member city where the problem occurs and the member city shall require the owner of the land upon which the land-disturbing activity is located, or other person or agent in control of such land, to repair or eliminate such condition within the time period specified therein. The owner of the land upon which a land disturbing activity is located shall be responsible for the cleanup and any damages from sediment that has eroded from such land. The SCWMC may require the owner to submit a project review application under SCWMC rules before undertaking any repairs or restoration.

Stormwater Management

No person or political subdivision shall commence a land-disturbing activity or the development or redevelopment of land for the following types of projects without first submitting to and obtaining approval of a project review from the SCWMC or member city that incorporates a stormwater management plan for this activity, development, or redevelopment:

- Plans of any land development or site development of 1 acre or larger for single-family detached housing use and 0.5 acres or larger for all other land uses.
- Plans of any land development or individual site development adjacent to or within a lake, wetland, or a natural or altered watercourse, as listed in the final inventory of Protected Waters and Wetlands for Hennepin County, as prepared by the MNDNR.
- Plans for any land development or site development within the 100-year floodplain, as defined by the Flood Insurance Study for the member city.
- Plans of any land development or site development regardless of size, if such review is requested by a member city.
- Single-family developments of more than 15 acres that drain to more than one watershed, for that portion of the site draining into Shingle Creek/West Mississippi Watershed.
- Linear projects that create one acre or more of new impervious surface.

Erosion and Sediment Control

No person or political subdivision shall commence a land-disturbing activity or the development or redevelopment of land for: any single-family detached housing project 15 acres or larger in size; projects in any other land use such as commercial, industrial, or institutional 5 acres or larger in size; linear projects that create one acre or more of new impervious surface; or, any land-disturbing activity requested by a member city to be reviewed regardless of project size without first submitting to and obtaining approval of a project review from the SCWMC that incorporates an erosion and sediment control plan for the activity, development, or redevelopment.

Floodplain Alteration

No person or political subdivision shall alter or fill land below the 100-year critical flood elevation of any public waters, public waters wetland, or other wetland without first obtaining an approved project review from the SCWMC.

Wetland Alteration

No person or political subdivision shall drain, fill, excavate, or otherwise alter a wetland without first obtaining the approval of a wetland replacement plan from the LGU with jurisdiction over the activity.

Bridge and Culvert Crossings

No person or political subdivision shall construct or improve a road or utility crossing across Shingle Creek or any watercourse with a tributary area more than 100 acres without first submitting to the SCWMC and receiving approval of a project review.

Buffer Strips

No person or political subdivision shall commence a land-disturbing activity or the development or redevelopment of land for: any single-family detached housing project 15 acres or larger in size; projects in any other land use such as commercial, industrial, or institutional 5 acres or larger in size; any land-disturbing activity requested by a member city to be reviewed regardless of project size; or, on land that contains or is adjacent to a watercourse or wetland without first submitting to and obtaining approval of a project review from the SCWMC that incorporates a vegetated buffer strip between the development or redevelopment and the watercourse or wetland.

Appendix E – Monitoring and Assessment Reports: Minneapolis Water Resources

Minneapolis
City of Lakes

The following tables contain an inventory of water quality reports and studies for City of Minneapolis (City) water resources. The information is organized according to stream or lake name. Titles and time of publication of reports to each stream or lake are listed long with the organization responsible for their authorship and a brief description. Lakes and streams in the City that are not contained in this inventory have no monitoring data or assessment studies. Stormwater or Stormwater Management Practices (SMP) studies are contained within the inventory of that study's tributary water resource. All information has been collected by public organizations, including: the City; the Minneapolis Park and Recreation Board (MPRB); Federal, state, and regional governments; and, non-profit organizations. Privately collected data and studies are not included in this inventory. The primary focus of this inventory is to present data that has been published and assessed. This inventory does not include data that has been collected but has not been assessed and summarized into a publication. A full range of monitoring data is available through a waterbody search on the MPCA Environmental Data webpage and the Metropolitan Council's Key Water Information Catalogue.

The organizations responsible for these publications include:

- Bassett Creek Watershed Management Commission (BCWMC)
- Minneapolis Park and Recreation Board (MPRB)
- Minneapolis Public Works (MPW)
- Minnehaha Creek Watershed District (MCWD)
- Minnesota Department of Natural Resources (MNDNR)
- Minnesota Department of Transportation (MnDOT)
- Minnesota Pollution Control Agency (MPCA)
- Mississippi Watershed Management Organization (MWMO)
- Rice Creek Watershed District (RCWD)
- Shingle Creek Watershed Management Commission (SCWMC)
- United States Army Corps of Engineers (USACE)
- United States Environmental Protection Agency (EPA)
- United States Geological Survey (USGS)
- Volunteer Stream Monitoring Partnership (VSMP)

Bassett Creek

Report Name/Date	Agency Responsible	Type of Study	Description
Bassett Stormwater Monitoring Study (1992)	BCWMC	Monitoring and Assessment Report	
A Biotic Index Evaluation of Bassett Creek and Plymouth Creek (1995, 2000, 2012, 2015)	BCWMC	Monitoring and Assessment Report	Summary of macroinvertebrate monitoring. Study analyzed the water quality using biotic indices.
Watershed Outlet Monitoring (1998-Ongoing)	MPRB, Metropolitan Council, MCWD, BCWMC	Monitoring Activity	Flow monitoring and water quality sampling.
2003 and 2004 Water Quality Study of Wirth Lake (MPRB) and Bassett Creek (2003, 2004)	BCWMC	Studies and Reports	
Upper Mississippi River Bacteria TMDL and Protection Plan (2004)	BCWMC, MPCA, EPA	TMDL Study	Main stem of Bassett Creek TMDL analysis included in the Upper Mississippi plan.
Bassett Creek E. coli Bacteria Monitoring (2010)	BCWMC, Barr Engineering	Monitoring and Assessment Memorandum	Water samples were collected to analyze Bassett Creek for E. coli.
Comprehensive Water Quality Assessment of Select Metropolitan Area Streams (2014)	Metropolitan Council	Monitoring and Assessment Report	Water quality assessment of monitored streams. Provides average annual concentrations of total suspended solids, total phosphorus, nitrate, and chloride from 2003-2012.
Upper Mississippi River Bacteria TMDL Implementation Plan (2016)	BCWMC, MPCA, EPA	TMDL Implementation Plan	Set goals for reduction in bacteria load to meet waste load allocations.
Macroinvertebrate Surveys (Ongoing)	River Watch, VSMP, BCWMC, MCWD, SCWMC	Survey and Assessment	Completed by trained volunteers. Also includes Minnehaha Creek and Shingle Creek.
Water Quality Monitoring Report (2015, 2016)	MDA	Monitoring	Annual pesticide monitoring of groundwater and surface water at select locations in Minnesota. Bassett Creek sampled from 2006 through 2016 at Irving Avenue North.

Brownie Lake

Report Name/Date	Agency Responsible	Type of Study	Description
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels
Water Quality Report (2015)	MCWD	Report	Total phosphorus in the Minnehaha Creek Subwatershed increased due to heavy precipitation.

Cedar Lake

Report Name/Date	Agency Responsible	Type of Study	Description
Green Report (1993)	Water Quality Management Citizen Advisory Committee	Report	Evaluated Chain of Lakes and recommended preservation action.
Constructed Wetlands Monitoring for Pollutant Removal and Performance Assessment (1999-2001)	MPRB, Metropolitan Council	Monitoring Activity	▪ Cedar Meadows ▪ SENA wetland ▪ Lake Harriet subsurface flow wetland
Chain of Lakes Alum-Macrophyte Interaction (2002)	MPRB	Studies and Reports	Study conducted to investigate and document the efficiency of alum treatment in Lake Calhoun/Bde Maka Ska, Lake Harriet, and Lake of the Isles
Water Resources Reports (Annual)	MRPB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels
Water Quality Monitoring Report (2015, 2016)	MDA	Monitoring	Annual pesticide monitoring of groundwater and surface water at select locations in Minnesota. Cedar Lake monitored in 2008.

Crystal Lake

Report Name/Date	Agency Responsible	Type of Study	Description
TMDL Study (2009)	SCWMC, MPCA	TMDL Study	Listed for excess phosphorus concentration.
TMDL Implementation Plan (2009)	MPCA	TMDL Implementation Plan	Introduces an implementation plan to reduce average phosphorus loading by 72 percent.
Citizen Assisted Lake Monitoring Program (Ongoing)	SCWMC, Metropolitan Council	Monitoring and Assessment	Monitoring conducted bi-weekly by citizen volunteers.
Crystal Lake Nutrient TMDL Five Year Review (2017)	SCWMC	Report	Review of completed implementation actions and progress toward meeting TMDL load reductions and other goals.
Annual Water Quality Report (Ongoing)	SCWMC	Monitoring and Assessment	Water quality, fish, and aquatic vegetation monitoring conducted periodically by Commission technical staff.

Diamond Lake

Report Name/Date	Agency Responsible	Type of Study	Description
Diamond Lake Management Plan (2009)	MPRB, Friends of Diamond Lake	Assessment	Includes history of Diamond Lake, monitoring information, and recommended actions to improve habitat and water quality.
Diamond Lake Watershed Monitoring and Modeling Project (2009)	MnDOT	Monitoring and Assessment Report	Evaluation of pollutant loading and its effect on water quality in Diamond Lake. Measured metals in stormwater runoff and looked at treatment efficiency of Lake Mead Stormwater Pond.
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels

Grass Lake

Report Name/Date	Agency Responsible	Type of Study	Description
MPRB Sampling Program (2002)	MPRB	Survey and Assessment	Water samples were collected to analyze water quality.
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels

Lake Calhoun/Bde Maka Ska

Report Name/Date	Agency Responsible	Type of Study	Description
Green Report (1993)	Water Quality Management Citizen Advisory Committee	Report	Evaluated Chain of Lakes and recommended preservation actions.
Calhoun Wetland Pond Performance Report (1999)	MCWD	Monitoring and Assessment Report	Monitored flow in Lake Calhoun/Bde Maka Ska and three tributary ponds to document pollutant removal.

Report Name/Date	Agency Responsible	Type of Study	Description
TMDL (2007-Ongoing)	MPCA	TMDL Study	Statewide TMDL approved for mercury in fish tissue.
Chain of Lakes Alum-Macrophyte Interaction Assessment (2002)	MPRB	Studies and Reports	Study conducted to investigate and document the efficiency of alum treatment in Lake Calhoun/Bde Maka Ska, Lake Harriet, Cedar Lake, and Lake of the Isles
Water Resources Report (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels
PFOS Monitoring (2014-2016)	MPCA	Monitoring	PFOS impairment addressed through regulatory action rather than a TMDL study.

Lake Harriet

Report Name/Date	Agency Responsible	Type of Study	Description
Pesticide Study: Lake Harriet Watershed Site 1 (1992-1995)	MPRB	Studies and Reports	Water and street sweeping samples were taken and analyzed for pesticides.
Green Report (1993)	Water Quality Management Citizen Advisory Committee	Report	Evaluated Chain of Lakes and recommended preservation actions.
Constructed Wetlands Monitoring for Pollutant Removal and Performance Assessment (1999-2001)	MPRB, Metropolitan Council	Monitoring Activity	▪ Cedar Meadows ▪ SENA wetland ▪ Lake Harriet subsurface flow wetland
Chain of Lakes Alum-Macrophyte Interaction Assessment (2002)	MPRB	Studies and Reports	Study conducted to investigate and document the efficiency of alum treatment in Lake Calhoun/Bde Maka Ska, Lake Harriet, Cedar Lake, and Lake of the Isles.
Water Resources Reports (Annual)	MPRB	Monitoring Repot	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels

Report Name/Date	Agency Responsible	Type of Study	Description
Water Quality Monitoring Report (2015, 2016)	MDA	Monitoring	Annual pesticide monitoring of groundwater and surface water at select locations in Minnesota. Lake Harriet monitored in 208 and 2010.

Lake Hiawatha

Report Name/Date	Agency Responsible	Type of Study	Description
Report and Recommendations for the Management of Lake Nokomis and Lake Hiawatha (1998)	Blue Water Commission	Assessment and Report	Contains concerns and recommended solutions regarding the water quality of Lake Nokomis and Lake Hiawatha. It found that the lakes were eutrophic.
Lake Hiawatha and Minnehaha Creek Fish Survey (2009)	MCWD	Survey	Conducted at four sites along the 22-mile Minnehaha Creek corridor. Found that black bullheads, carp, dogfish, and white suckers were the most common species. Low-oxygen tolerant species dominated, likely having adverse effects on water quality.
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels
Minnehaha Creek E. Coli Bacteria/Lake Hiawatha Nutrients TMDL (2013)	EPA	TMDL Plan	Part of the Minnehaha Creek *E. coli* Bacteria Study.

Lake of the Isles

Report Name/Date	Agency Responsible	Type of Study	Description
Green Report (1993)	Water Quality Management Citizen Advisory Committee	Report	Evaluated Chain of Lakes and recommended preservation actions
Chain of Lakes Alum-Macrophyte Interaction Assessment (2002)	MPRB	Studies and Reports	Study conducted to investigate and document the efficiency of alum treatment in Lake Calhoun/Bde Maka Ska, Lake Harriet, Cedar Lake, and Lake of the Isles.
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton

Report Name/Date	Agency Responsible	Type of Study	Description
			▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels

Lake Nokomis

Report Name/Date	Agency Responsible	Type of Study	Description
Report and Recommendations for the Management of Lake Nokomis and Lake Hiawatha (1998)	Blue Water Commission	Assessment and Report	Contains concerns and recommended solutions regarding the water quality of Lake Nokomis and Lake Hiawatha. It found that the lakes were eutrophic.
Minnehaha Creek Watershed Lakes (2011)	MCWD, MPCA, EPA	TMDL Study	Excess nutrient TMDL study, currently in implementation. Lake Nokomis was part of the overall Minnehaha Creek Watershed Lakes analysis.
Biomanipulation Study (2010-2013)	MCWD	Study and Improvement	Management of lake fish population. Succeeded in increasing the walleye population, reducing the black bullhead and blue gill populations, and observing an increase of the population of native aquatic plants.
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels
Phosphorus Reduction Plan (2016)	MCWD	TMDL Implementation Plan	Focuses on redevelopment and retrofits on private property to reduce nutrient loading.
Water Quality Monitoring Report (2015, 2016)	MDA	Monitoring	Annual pesticide monitoring of groundwater and surface water at select locations in Minnesota. Lake Nokomis monitored in 20017 and 2012.

Loring Lake

Report Name/Date	Agency Responsible	Type of Study	Description
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level

Report Name/Date	Agency Responsible	Type of Study	Description
			▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels

Minnehaha Creek

Report Name/Date	Agency Responsible	Type of Study	Description
Macroinvertebrate Surveys (Ongoing)	River Watch, VSMP, BCWMC, MCWD, SCWMC	Survey and Assessment	Completed by trained volunteers. Also includes Bassett Creek and Shingle Creek. Monitoring goal is to provide conditions necessary to support a healthy macroinvertebrate community.
Monitoring of Flows and Water Levels at Hiawatha Avenue (Ongoing)	MCWD, USGS	Monitoring	Real time data available at the USGS National Water Information System: Web Interface station 05289200.
Watershed Outlet Monitoring (1998-2013)	MPRB, Metropolitan Council, MCWD, BCWMC	Monitoring Activity	Flow monitoring and water quality sampling. Also completed at Bassett Creek.
Minnehaha Creek Monitoring Information (2001)	Metropolitan Council	Monitoring and Assessment Report	Monitoring of stream flow and macroinvertebrate populations. Water samples also analyzed.
Constructed Wetlands Monitoring for Pollutant Removal and Performance Assessment (1999-2001)	MPRB, Metropolitan Council	Monitoring Activity	▪ Cedar Meadows ▪ SENA wetland ▪ Lake Harriet subsurface flow wetland
Hydrologic/Hydraulic and Pollutant Loading Study (2003)	MCWD	Study	Documentation and quantification of the watershed's hydrologic and hydraulic properties. Identifies existing water management issues resulting from current and past land uses, defines the impact of future land use changes, and recommends how MCWD can address these changes.
Minnehaha Creek Visioning Partnership Final Report (2005)	MCWD, USACE	Report	Recommendations for future management of the Creek. Erosion control and support of aquatic life were the highest priorities for improvement.
Lake Hiawatha and Minnehaha Creek Fish Survey (2009)	MCWD	Survey	Conducted at four sites along the 22-mile Minnehaha Creek corridor. Found that black bullheads, carp, dogfish, and white suckers were the most common species. Low-oxygen tolerant species dominated, likely having adverse effects on water quality.
Comprehensive Water Quality Assessment of Select	Metropolitan Council	Monitoring and Assessment Report	Water quality assessment of monitored streams. Provides information on pollutants, trend

Report Name/Date	Agency Responsible	Type of Study	Description
Metropolitan Area Streams (2014)			analysis, and macroinvertebrate assessment.
Minnehaha Creek E. Coli Bacteria/Lake Hiawatha Nutrients TMDL (2013)	EPA	TMDL Plan	Described E. coli exceedance and strategies to manage the bacteria.
Minnehaha Creek Base Flow Study	MCWD, MWMO, University of Minnesota	Monitoring	Study of the hydrology in the Minnehaha Creek watershed. Seeks an understanding of what portion of the Creek's water is sourced from Lake Minnetonka, stormwater, and groundwater and to track changes over time. Aims to prevent dry period by increasing base flow.
Zebra Mussel Monitoring (Ongoing)	MCWD	Monitoring	Tracking the presence of zebra mussels.
Ecosystem Evaluation Program (E-Grade, Under Development)	MCWD	Monitoring and Assessment	Evaluated watershed ecosystems to determine the overall health of the system.
Water Quality Monitoring Report (2015, 2016)	MDA	Monitoring	Annual pesticide monitoring of groundwater and surface water at select locations in Minnesota. Minnehaha Creek sampled from 2006 through 2016 at 32nd Avenue South.

Mississippi River

Report Name/Date	Agency Responsible	Type of Study	Description
Mississippi Watershed Management Organization Monitoring Program (Ongoing)	MWMO	Monitoring Activity	Monitoring at eight locations along the Mississippi River, five stormwater outfalls, and Loring Pond. Monitors for fecal coliform, and E. coli at all points. Also monitors various physical and chemical parameters at the stormwater outfalls.
Upper Mississippi (1994-Ongoing)	USGS	Monitoring and Assessment Report	Monitoring to describe the status of, and trends in, the quality of the nation's streams and rivers.
Environmental Pool Plans-Mississippi River Pools 1-10 (2004)	USACE	Monitoring and Assessment Reports	Highlighted the areas of habitats and specific habitat features that should be preserved along the River.
Upper Mississippi River Bacteria TMDL and Protection Plan (2004)	MPCA, EPA	TMDL Study	Summarized the impaired reaches of the Mississippi River and the plan for protecting these areas.
Upper Mississippi River Bacteria TMDL Implementation Plan (2016)	MPCA, EPA	TMDL Implementation Plan	Sets goals for reduction in bacteria load to meet waste load allocations.
Aquatic Life Water Quality Standards Draft Technical Support Document for Total Suspended Solids (2011)	MPCA	Monitoring and Assessment Reports	Assessed the turbidity and suspended solids water quality standards along the Mississippi River.
Mississippi River Pools 1 through 8: Developing River,	MPCA	Monitoring and Assessment Report	Assessed each pool of the Mississippi River to refine the eutrophication status for each pool

Report Name/Date	Agency Responsible	Type of Study	Description
Pool, and Lake Pepin Eutrophication Criteria (2012)			and to establish water quality criteria.
Lock and Dam #1 Sample Analysis (Ongoing)	Metropolitan Council	Monitoring and Assessment	Samples are collected at Lock and Dam #1 and analyzed on a weekly, bi-weekly, or monthly basis based on the parameter being analyzed.
Macroinvertebrate Monitoring (1996-Ongoing)	SCWMC	Monitoring and Assessment Reports	Macroinvertebrate study that assessed the health of Shingle Creek. The study was conducted to understand the effects of changes in the urban environment on both Shingle Creek and the Mississippi River.
Mississippi River – Twin Cities Watershed Monitoring and Assessment Report (2013)	MPCA	Monitoring and Assessment	Demonstrates that the watershed is exhibiting signs of pollution including nutrients, bacteria, and suspended solids.
South Metro Mississippi River Total Suspended Solids Total Maximum Daily Load (October 2015)	MPCA	TMDL Study	Concludes that municipalities upstream of Lock and Dam #1 are not required to implement additional actions to reduce the load of total suspended solids related to stormwater discharges.

Powderhorn Lake

Report Name/Date	Agency Responsible	Type of Study	Description
Powderhorn Park Restoration Project (Diagnostic Study and Implementation Plan) (1999)	MPRB, MPW	Survey and Assessment	Assessment of lake and development of a work plan that led to many of the Powderhorn Lake Improvements.
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels

Ryan Lake

Report Name/Date	Agency Responsible	Type of Study	Description
Ryan Lake TMDL Study (2007)	SCWMC, MPCA, EPA	Survey and Assessment	Monitoring information for Ryan Lake. Created an implementation plan with the goal of reducing phosphorus loading.
Water Resources Report (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results of monitoring data, including:

Report Name/Date	Agency Responsible	Type of Study	Description
			▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels
Twin and Ryan Lakes Nutrient TMDL Five Year Review (2014)	SCWMC	Report	Annual Water Quality Report (ongoing).
Annual Water Quality Report (Ongoing)	SCWMC	Monitoring and Assessment	Water quality, fish, and aquatic vegetation monitoring conducted periodically by Commission technical staff.

Shingle Creek

Report Name/Date	Agency Responsible	Type of Study	Description
Shingle Creek Water Quality Data (1995)	USGS	Studies and Reports	Trace elements were analyzed in streambed sediment and fish tissue as a part of the National Water Quality Assessment Program.
Shingle Creek TMDL (1996)	USGS	Monitoring and Assessment Reports	USGS collected chemical and biological samples in Shingle Creek as part of the National Water Quality Assessment Program.
Shingle Creek Flow and Water Quality Data (1996-Ongoing)	USGS, MNDNR	Studies and Reports	Real time data available at USGS Water Resources web interface for site USGS 05288105.
Stream Monitoring Program (1996-Ongoing)	SCWMC	Monitoring and Assessment Reports	Samples are collected from March to November and analyzed for total phosphorus, dissolved phosphorus, volatile suspended solids, chemical oxygen demand, and chloride.
Macroinvertebrate Monitoring (1996-Ongoing)	SCWMC	Monitoring and Assessment Reports	Macroinvertebrate study to assess the health of Shingle Creek. The study is important to understand the effects of changes in the urban environment on both Shingle Creek and the Mississippi River.
Rapid Bioassessment Sampling (1996, updated 1997)	SCWMC	Monitoring and Assessment Reports	Biological sampling and habitat assessment was conducted to analyze invertebrate community abundance and diversity.
Shingle Creek Channel Profile (1998)	SCWMC	Monitoring and Assessment Reports	A profile survey and an inspection of Shingle Creek was performed, noting erosion, blockages, bank failures, and the need for repairs.
Shingle Creek Natural Area Management Plan (2002)	MPRB	Monitoring and Assessment Reports	An ecological inventory, stream analysis, and trails and interpretive opportunities assessment. Potential areas for recreation and

Report Name/Date	Agency Responsible	Type of Study	Description
			management strategies were identified and recommendations made for stream and trail improvements.
Upper Mississippi River Bacterial TMDL and Protection Plan (2014)	MPCA	TMDL Report	Study included monitoring station on Shingle Creek at 45th Avenue North.
Shingle Creek Chloride (2005)	SCWMC	Survey and Assessment	Spatial extent, persistence, and severity of chloride exceedances; identification and quantification of the sources of chloride in Shingle Creek including point and non-point sources; allocation of Shingle Creek's assimilative capacity to both point and non-point sources; and, development of safety margins protective of State water quality standards.
Shingle Creek Chloride TMDL Report (2007)	SCWMC, EPA, Hennepin County, MnDOT	TMDL Report	Report of the results of the Shingle Creek chloride TMDL study. Recommendations for reducing chloride loads into Shingle Creek.
Shingle Creek Chloride TMDL Report (2007)	SCWMC, MPCA, Hennepin County, MnDOT	TMDL Implementation Plan	Recommendations for reducing chloride loads into Shingle Creek.
Shingle Creek and Bass Creek Biota and Dissolved Oxygen TMDL (2011)	SCWMC, MPCA	TMDL Study	Identified low oxygen levels in Shingle Creek as the likely cause of biotic integrity of both streams. Recommendations on how to increase dissolved oxygen levels.
Shingle Creek and Bass Creek Biota and Dissolved Oxygen Implementation Plan (2012)	SCWMC, MPCA	TMDL Implementation Plan	Recommendations on how to achieve the goals of the TMDL study are explored in depth.
Upper Mississippi River Bacterial TMDL Implementation Plan (2016)	SCWMC, MPCA	TMDL Implementation Plan	Recommendations for reaching the TMDL goals.
Macroinvertebrate Surveys (Ongoing)	Hennepin County, SCWMC	Survey and Assessment	Completed by trained volunteers.
Water Quality Monitoring Report (2015, 2016)	MDA	Monitoring	Annual pesticide monitoring of groundwater and surface water at select locations in Minnesota. Shingle Creek sampled in 2010 at 45th Avenue North.

Silver Lake

Report Name/Date	Agency Responsible	Type of Study	Description
Excess Nutrients TMDL (2010, updated 2012)	RCWD, MPCA, EPA	TMDL Report	Identified phosphorus as the nutrient of particular concern. An implementation strategy was created to reduce both this watershed load and internal load of phosphorus in Silver Lake.

Report Name/Date	Agency Responsible	Type of Study	Description
Excess Nutrients TMDL Implementation Plan (2011)	RCWD, MPCA, EPA	TMDL Implementation Plan	Recommendations for reaching nutrient loading goals.

Spring Lake

Report Name/Date	Agency Responsible	Type of Study	Description
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results on monitoring data, including: ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Fish stocking ▪ Aquatic plant survey (2012 report) ▪ Winter ice cover ▪ Beach monitoring ▪ Chlorophyll-a ▪ Total phosphorus ▪ Secchi depth

Wirth Lake

Report Name/Date	Agency Responsible	Type of Study	Description
Wirth Lake Watershed and Lake Management Plan (1996)	BCWMC	Management Plan	Establishes guidelines for meeting water quality goals set for Wirth Lake. The focus is on reducing phosphorus loading to the lake.
2003 and 2004 Water Quality Study of Wirth Lake (MPRB) and Bassett Creek (2003 and 2004)	BCWMC	Studies and Reports	
Excess Nutrients TMDL (2010)	BCWMC, MPCA, EPA	TMDL Study	Listed as an impaired waterbody in 2002 for excess phosphorus. De-listed in 2014. The study was conducted to improve water quality. Phosphorus was determined to be the primary nutrient affecting water quality.
Excess Nutrients TMDL Implementation Plan (2010)	BCWMC, MPCA, EPA	TMDL Implementation Plan	Identified sources of phosphorus and suggested ways to reduce phosphorus loading.
Water Resources Reports (Annual)	MPRB	Monitoring Report	Yearly reports summarizing results on monitoring data, including: ▪ Physical, biological, and chemical parameters ▪ Lake level ▪ Phytoplankton and zooplankton ▪ Trophic state index ▪ Winter ice cover ▪ Aquatic plants ▪ Fish ▪ Zebra mussels

Citywide

Report Name/Date	Agency Responsible	Type of Study	Description
Surface Water Quality Monitoring in the City of Minneapolis	MPW, MPRB	Report	Overview of surface water monitoring efforts and resulting publications over time in the City.
Study of Lake Water Quality of the 145 Metropolitan Lakes (1980-Ongoing)	Metropolitan Council	Monitoring and Assessment Report	Summarizes the results of the Citizen Assisted Monitoring Program. Samples are collected from mid-April through mid-October and analyzed for a total phosphorus, total Kjeldahl nitrogen, and chlorophyll-a.
Citizens Lake Monitoring Program (1996-Ongoing)	MPCA	Monitoring and Assessment Report	Volunteer monitoring of lake water quality.
Flood Report (1997)	MPRB	Studies and Reports	Recommendations of the Public Works, Sewer Design Division for flood mitigation in 39 discrete problem areas in the City.
Citizen Stream – Monitoring Program (1998-2003)	MPCA	Monitoring and Assessment Report	Volunteers completed transparency readings and recreational suitability rankings.
Stormwater BMP Monitoring (2002-Ongoing)	MPRB, MPW	Monitoring Activity	Inlet and outlet pipe discharge monitoring for total phosphorus, total Kjeldahl nitrogen, total dissolved phosphorus, total dissolved solids, total suspended solids, and other.
Aquatic Resource Assessment (2003)	Metropolitan Council	Monitoring and Assessment Reports	Report consisted of a GIS-based assessment to evaluate selected physical, biological, and cultural indicators for surface water resources in the Twin Cities metropolitan area.
Water Resources Reports (Annual)	MPRB	Monitoring Report	Four stormwater sites in the City were monitored in order to characterize the pollutant load of runoff from small areas representing various types of land use. The monitoring is performed as a requirement of an NPDES MS4 permit.
Summary of NPDES Monitoring (2003-2004)	MPRB	Studies and Reports	Five sites in the City and St. Paul were monitored for runoff and water quality between March and November as part of the NPDES Phase I requirements.
2003 and 2004 Grit Chamber Monitoring (2003, 2004)	MPRB	Studies and Reports	Monitored 96 grit chambers and concluded that the concentrations leaving the chamber were higher than those coming in, a conclusion indicating that more frequent cleaning of the chamber may be required.
Weather Summary – Annual Report (2003, 2004)	MPRB	Studies and Reports	Data was recorded from three tipping buckets, rain gages in the City.

Report Name/Date	Agency Responsible	Type of Study	Description
Results Minneapolis, Healthy Lakes, Rivers and Streams (2006)	Minneapolis	Report	Report on progress towards long-term water quality goals.
Wetland Health Evaluation (Annual)	Hennepin County	Monitoring Activities	Annual monitoring of various wetlands in Hennepin County. List of wetlands may change each year.

SCWMC

Report Name/Date	Agency Responsible	Type of Study	Description
Regional Pond Investigation	SCWMC	Report	Identified subwatersheds with little or no water treatment facilities.

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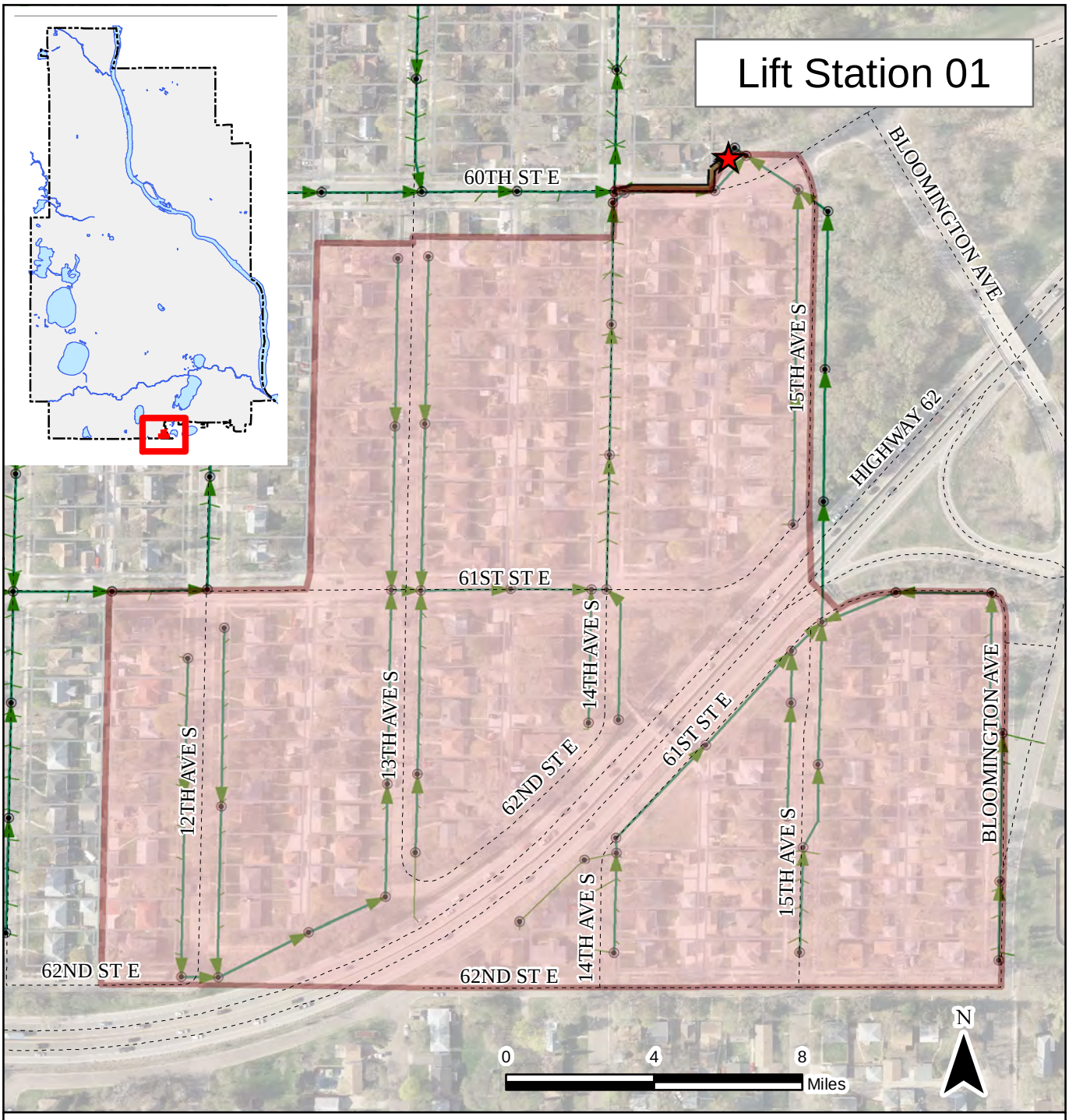


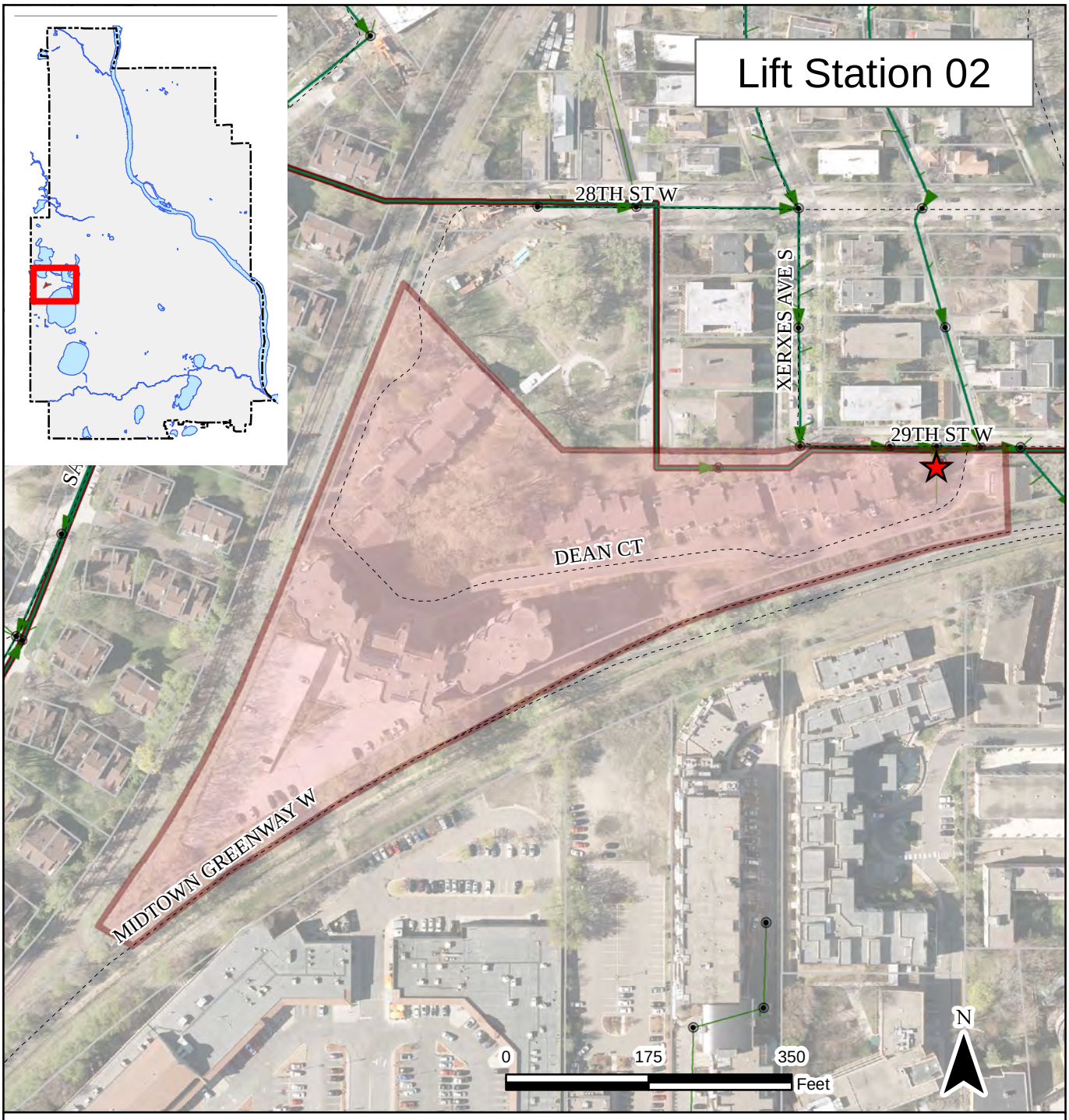
Lift Station	Existing Design Flow (gpm)		
	Based on 2016 Water Use	Based on SAC Units	Combination of SAC & Water Use*
01	46	105	105

* Primarily SAC values. When no SAC values determined, then 2016 water use used.

Sanitary Lift Station 01

Lift Station 01 Service Area

Lift Station	Location	Pump #	Manufacturer Description	H.P.	Pump Capacity (gpm)	Power Source
01	1454 E 60th St	1	Flygt 3101-432	5	450	240 Volt 3 Phase
01	1454 E 60th St	2	Flygt 3101-432	5	450	240 Volt 3 Phase



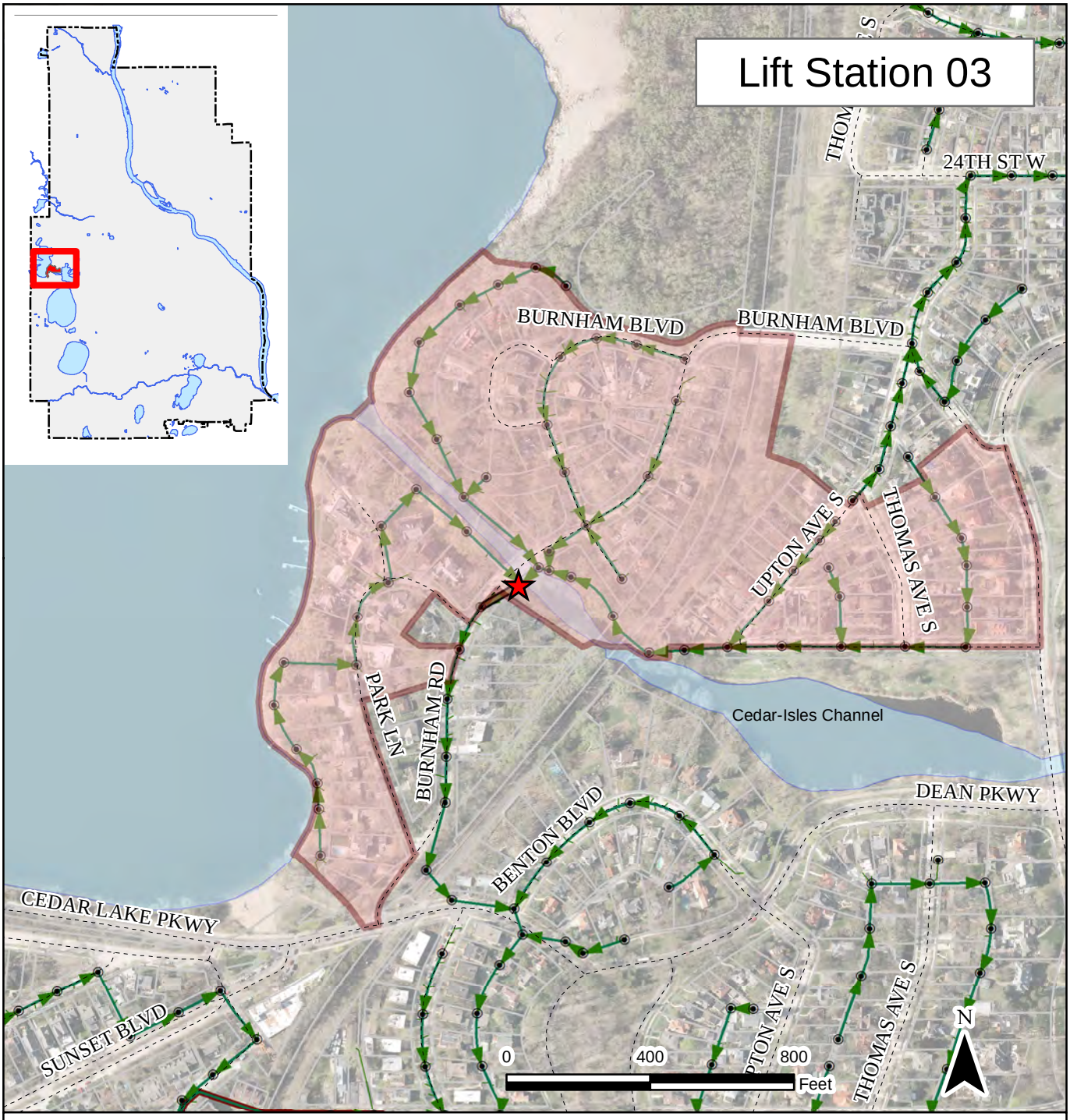
Lift Station	Existing Design Flow (gpm)		
	Based on 2016 Water Use	Based on SAC Units	Combination of SAC & Water Use*
02	34	109	109

* Primarily SAC values. When no SAC values determined, then 2016 water use used.

Sanitary Lift Station 02

Lift Station 02 Service Area

Lift Station	Location	Pump #	Manufacturer Description	H.P.	Pump Capacity (gpm)	Power Source
02	3123 W 29th St (Inside Private Enterance)	1	Flygt 3126	9.4	400	240 Volt 3 Phase
02	3123 W 29th St (Inside Private Enterance)	2	Flygt 3126	9.4	400	240 Volt 3 Phase



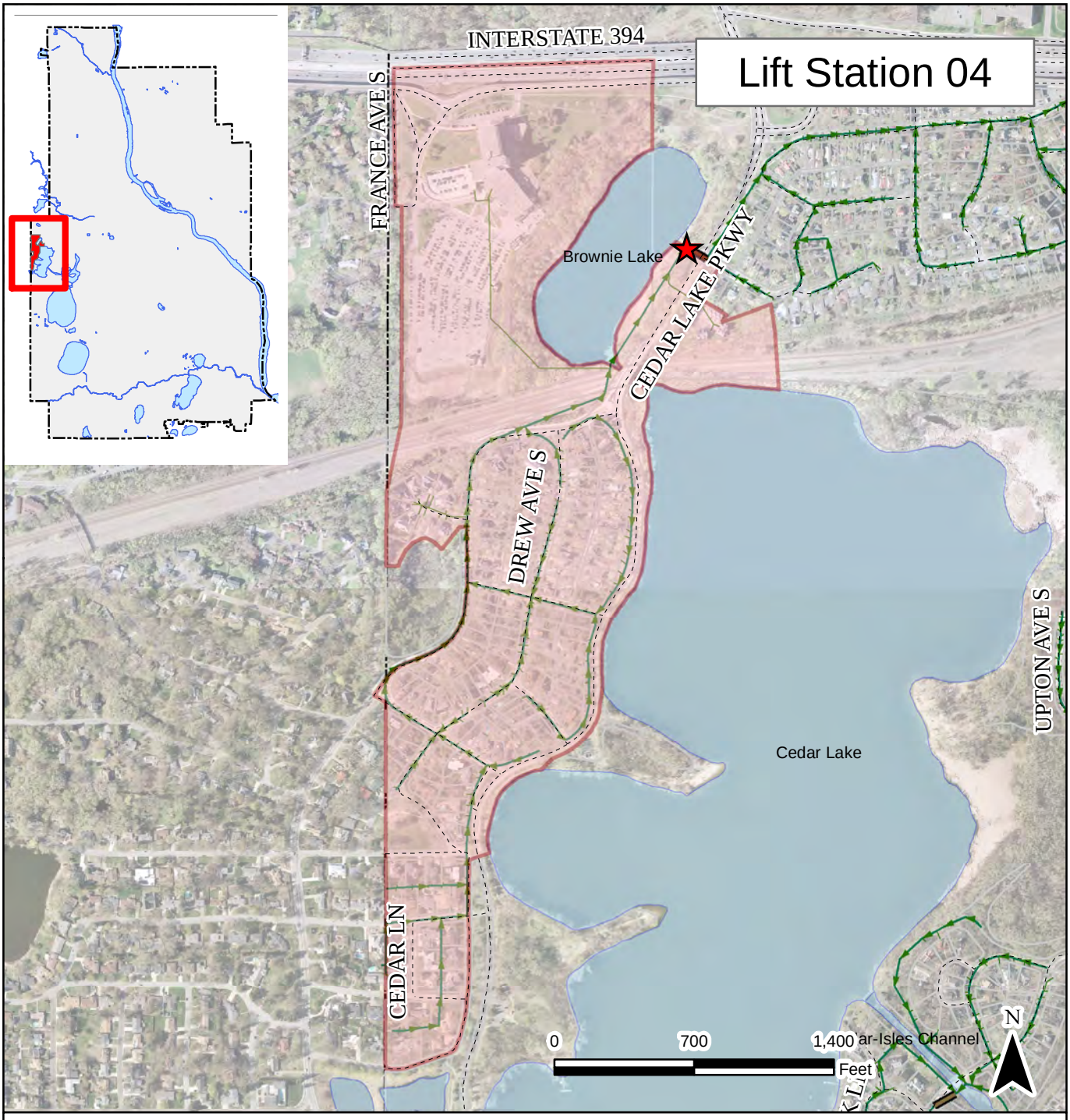
Lift Station	Existing Design Flow (gpm)		
	Based on 2016 Water Use	Based on SAC Units	Combination of SAC & Water Use*
03	34	71	71

* Primarily SAC values. When no SAC values determined, then 2016 water use used.

Sanitary Lift Station 03

Lift Station 03 Service Area

Lift Station	Location	Pump #	Manufacturer Description	H.P.	Pump Capacity (gpm)	Power Source
03	2561 Burnham Rd(Below Bridge)	1	Flygt 3126-432	9.4	550	240 Volt 3 Phase
03	2561 Burnham Rd(Below Bridge)	2	Flygt 3126-432	9.4	550	240 Volt 3 Phase



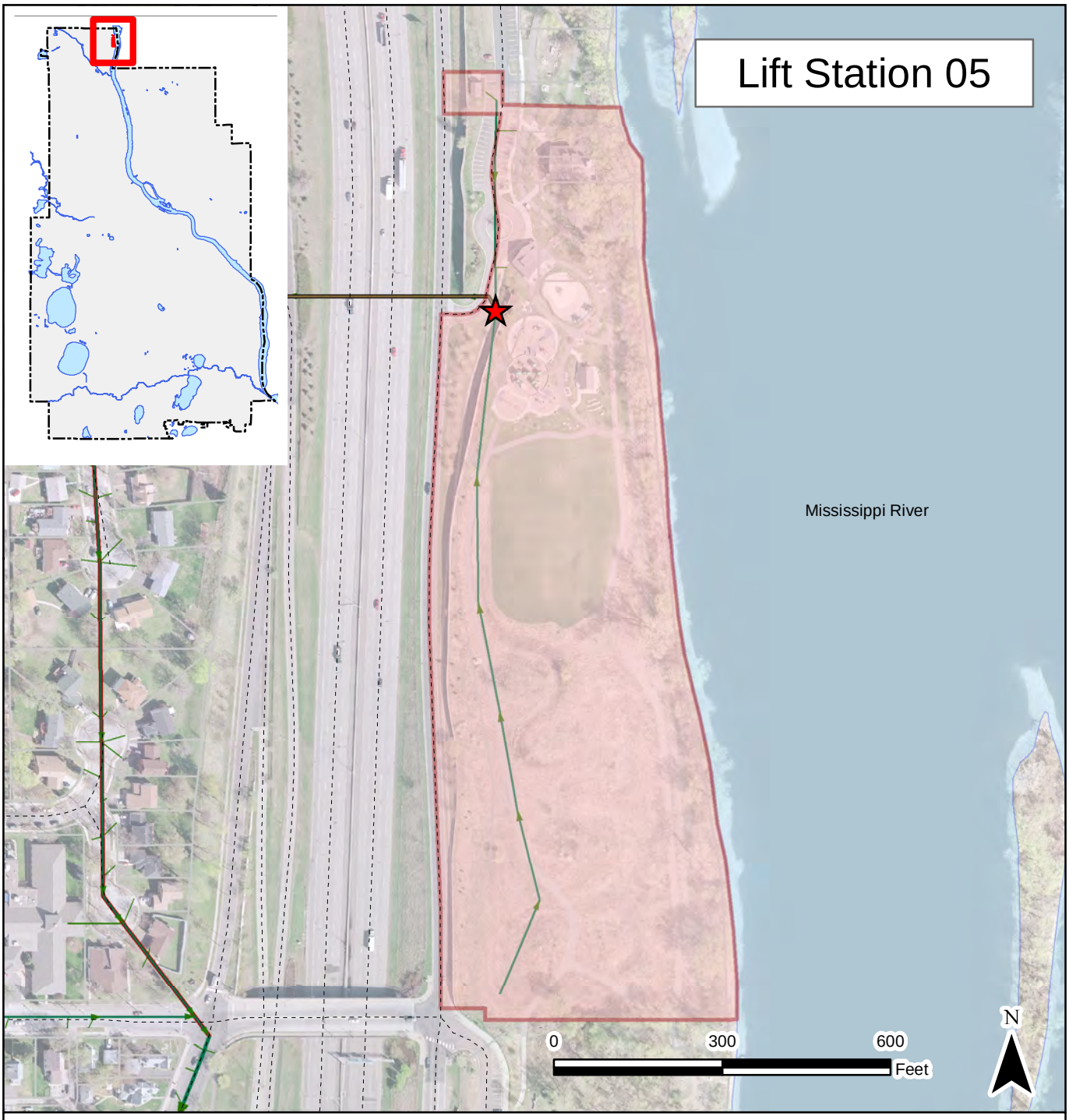
Lift Station	Existing Design Flow (gpm)		
	Based on 2016 Water Use	Based on SAC Units	Combination of SAC & Water Use*
04	92	138**	172

* Primarily SAC values. When no SAC values determined, then 2016 water use used.

Sanitary Lift Station 04

Lift Station 04 Service Area

Lift Station	Location	Pump #	Manufacturer Description	H.P.	Pump Capacity (gpm)	Power Source
04	Brownie Lake (1509 Cedar Lake Pkwy)	1	Flygt 3200	35	600	480 Volt 3 Phase
04	Brownie Lake (1509 Cedar Lake Pkwy)	2	Flygt 3200	35	600	480 Volt 3 Phase



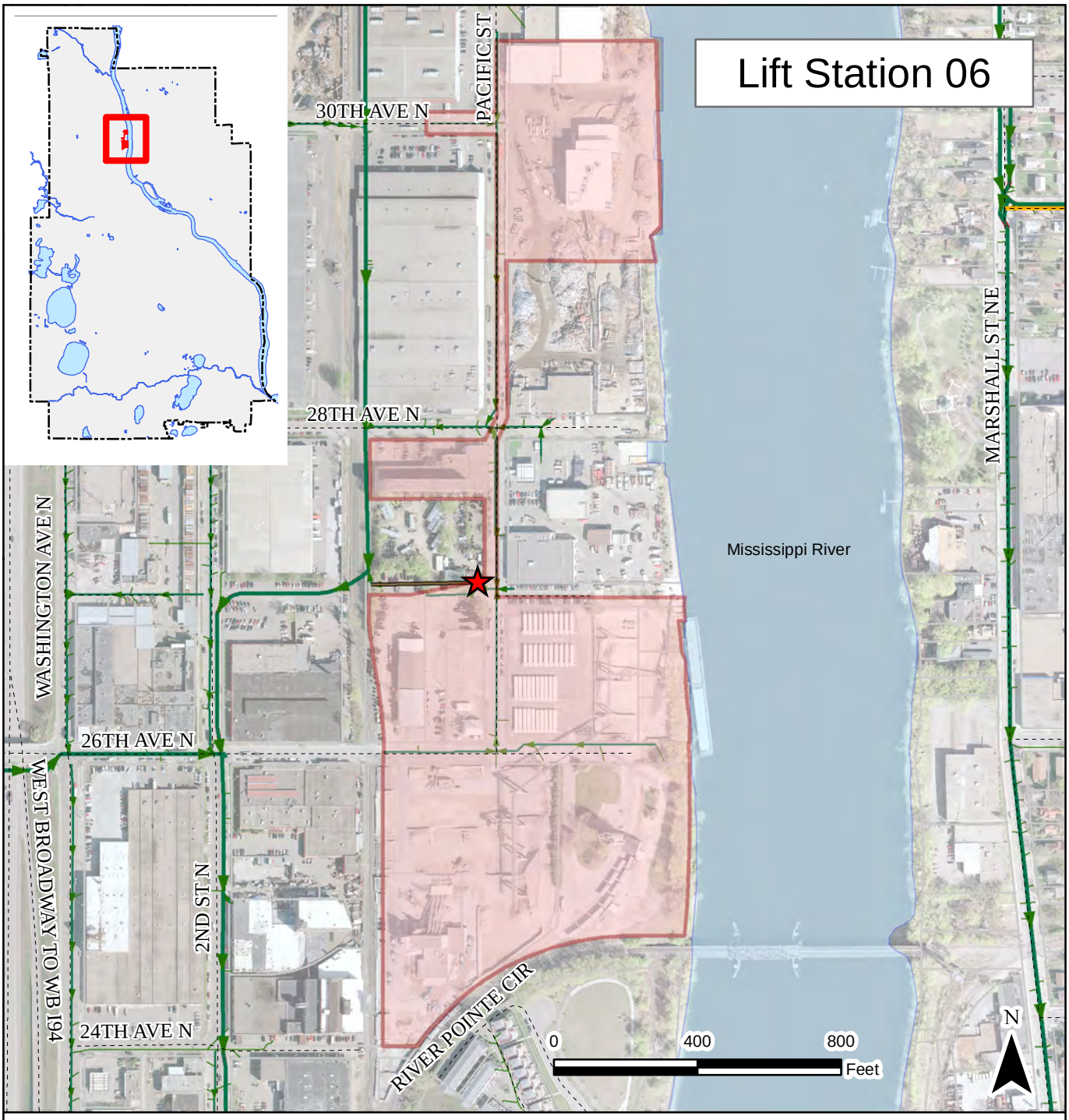
Lift Station	Existing Design Flow (gpm)		
	Based on 2016 Water Use	Based on SAC Units	Combination of SAC & Water Use*
05	4	4	4

* Primarily SAC values. When no SAC values determined, then 2016 water use used.

Sanitary Lift Station 05

Lift Station 05 Service Area

Lift Station	Location	Pump #	Manufacturer Description	H.P.	Pump Capacity (gpm)	Power Source
05	Mississippi Regional Park (5114 Mississippi Drive N)	1	Flygt 3126-280	10	350	240 Volt 3 Phase



Lift Station	Existing Design Flow (gpm)		
	Based on 2016 Water Use	Based on SAC Units	Combination of SAC & Water Use*
06	32	***	32

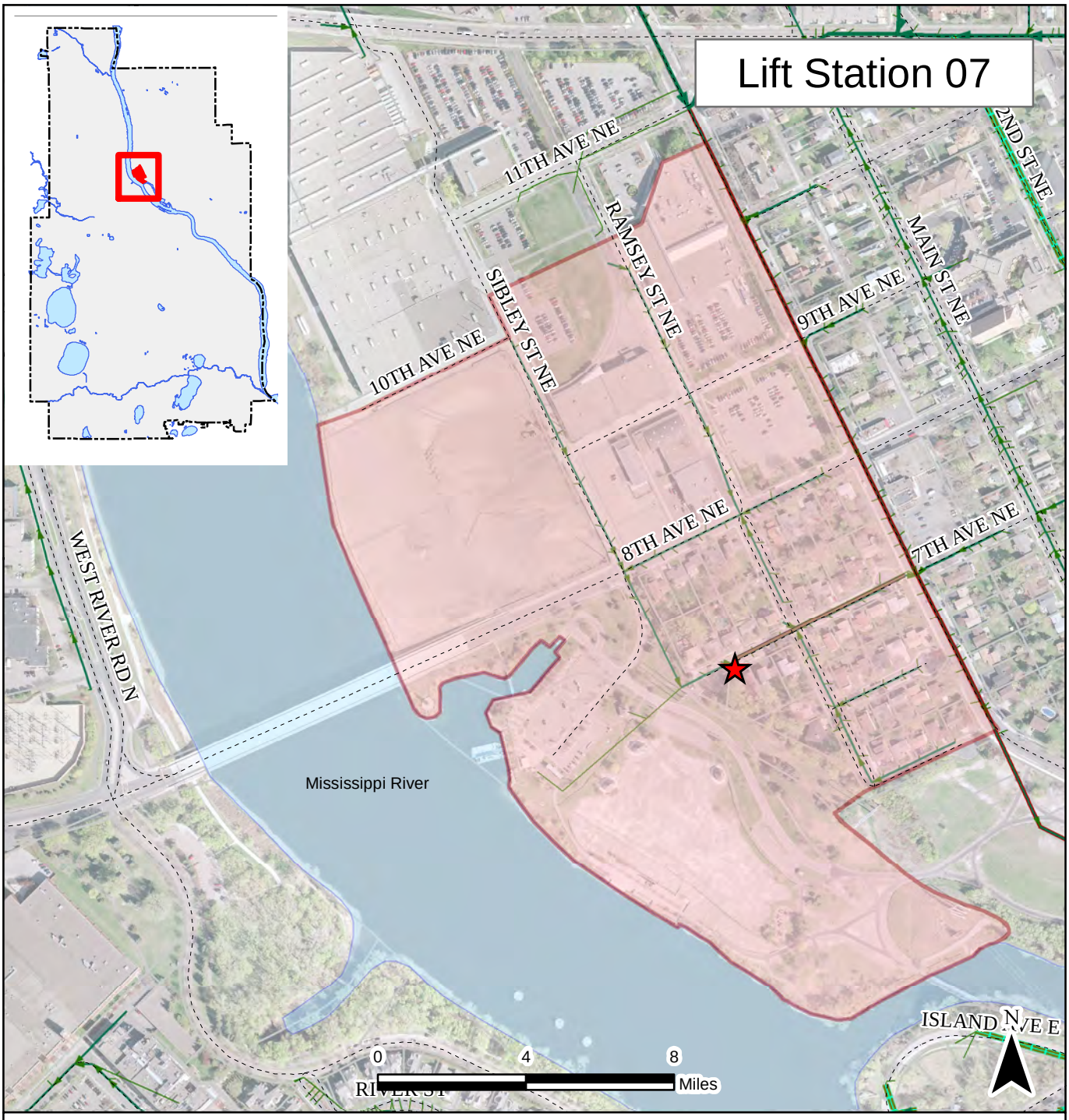
* Primarily SAC values. When no SAC values determined, then 2016 water use used.

*** No SAC units can be determined for all properties.

Sanitary Lift Station 06

Lift Station 06 Service Area

Lift Station	Location	Pump #	Manufacturer Description	H.P.	Pump Capacity (gpm)	Power Source
06	2701 Pacific St (NW corner)	1	Deming	5	350	240 Volt 3 Phase
06	2701 Pacific St (NW corner)	2	Deming	5	350	240 Volt 3 Phase



Lift Station	Existing Design Flow (gpm)		
	Based on 2016 Water Use	Based on SAC Units	Combination of SAC & Water Use*
07	41	36**	54

* Primarily SAC values. When no SAC values determined, then 2016 water use used.

** No SAC unites can be determined for some property(ies).

Sanitary Lift Station 07

Lift Station 07 Service Area

Lift Station	Location	Pump #	Manufacturer Description	H.P.	Pump Capacity (gpm)	Power Source
07	Boom Island (38 - 7th Ave NE)	1	Smith & Loveless	10	500	240 Volt 3 Phase
07	Boom Island (38 - 7th Ave NE)	2	Smith & Loveless	10	500	240 Volt 3 Phase

Lift Station	Existing Design Flow (gpm)		
	Based on 2016 Water Use	Based on SAC Units	Combination of SAC & Water Use*
08	4	***	4

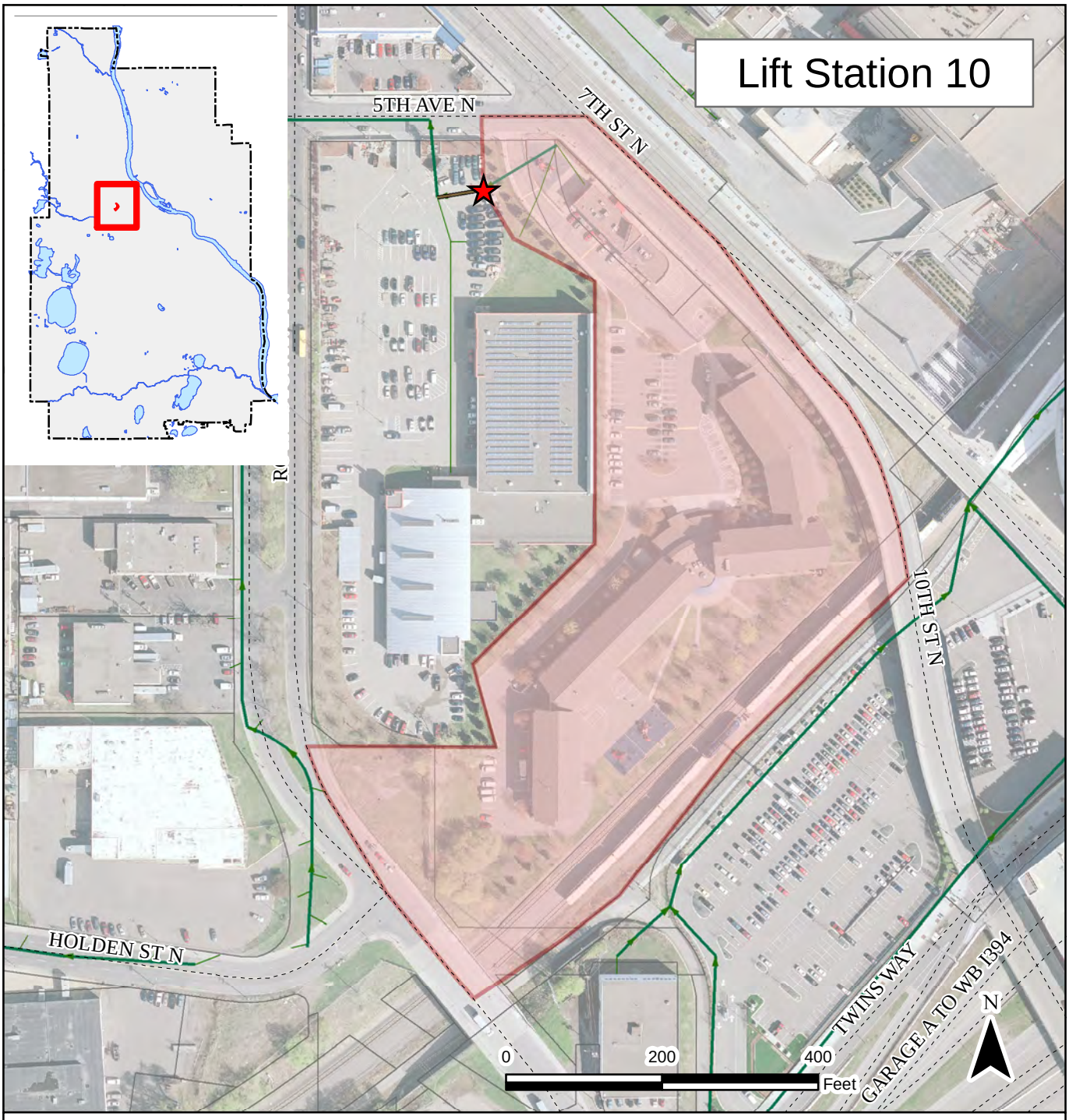
* Primarily SAC values. When no SAC values determined, then 2016 water use used.

*** No SAC units can be determined for all properties.

Sanitary Lift Station 08

Lift Station 08 Service Area

Lift Station	Location	Pump #	Manufacturer Description	H.P.	Pump Capacity (gpm)	Power Source
08	1001 Winter St NE	1	Deming	5	500	240 Volt 3 Phase
08	1001 Winter St NE	2	Deming	5	500	240 Volt 3 Phase



Lift Station	Existing Design Flow (gpm)		
	Based on 2016 Water Use	Based on SAC Units	Combination of SAC & Water Use*
10	53	129	129

* Primarily SAC values. When no SAC values determined, then 2016 water use used.

Sanitary Lift Station 10

Lift Station 10 Service Area

Lift Station	Location	Pump #	Manufacturer Description	H.P.	Pump Capacity (gpm)	Power Source
10	Mary's Place (661-5th Ave N)	1	Flygt 3102.181	5	500	240 Volt 3 Phase
10	Mary's Place (661-5th Ave N)	2	Flygt 3102.181	5	500	240 Volt 3 Phase

Appendix G – Sanitary Service Areas

Sanitary Service Area

7026

2010 CENSUS	HOUSEHOLDS
4,908	2,905

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
22,572,896.92	636	518.20

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	6,688,724.38	29.6%	2	0.3%
Industrial and Utility	0.00	0.0%	0	0.0%
Institutional	353,827.89	1.6%	2	0.3%
Major Highway	97,469.81	0.4%	1	0.2%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	293.81	0.0%	0	0.0%
Mixed Use Residential	541,143.54	2.4%	7	1.1%
Multifamily	2,406,366.24	10.7%	64	9.7%
Office	432,090.09	1.9%	3	0.5%
Open Water	133,097.29	0.6%	0	0.0%
Park, Recreational, Preserve	4,841,590.06	21.4%	23	3.5%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	1,058,605.50	4.7%	14	2.1%
Single Family Attached	825,004.14	3.7%	109	16.6%
Single Family Detached	4,944,860.70	21.9%	423	64.3%
Undeveloped	249,823.48	1.1%	10	1.5%
	22,572,896.92	100.0%	658	100.0%

Sanitary Service Area

8255

2010 CENSUS	HOUSEHOLDS
28,823	12,761

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
105,708,971.85	7,987	2,426.74

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	12,303.42	0.0%	0	0.0%
Industrial and Utility	14,118,177.12	13.4%	183	2.4%
Institutional	5,571,847.92	5.3%	68	0.9%
Major Highway	4,236,936.29	4.0%	1	0.0%
Mixed Use Commercial	300,205.43	0.3%	2	0.0%
Mixed Use Industrial	933,688.93	0.9%	18	0.2%
Mixed Use Residential	997,323.15	0.9%	72	1.0%
Multifamily	8,457,937.64	8.0%	403	5.4%
Office	378,903.22	0.4%	10	0.1%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	6,051,437.45	5.7%	31	0.4%
Railway	3,096,990.43	2.9%	41	0.5%
Retail and Other Commercial	6,242,992.38	5.9%	228	3.0%
Single Family Attached	14,633,849.58	13.8%	1,731	23.0%
Single Family Detached	37,993,319.37	2.5%	4,622	61.5%
Undeveloped	2,683,319.37	2.5%	106	1.4%
	105,708,971.85	100.0%	7,516	100.0%

Sanitary Service Area

8754

2010 CENSUS	HOUSEHOLDS
221	101

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
2,899,864.42	287	66.57

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	178,880.01	6.2%	3	1.0%
Institutional	133.57	0.0%	0	0.0%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	37,540.27	1.3%	3	1.0%
Multifamily	72,854.28	2.5%	3	1.0%
Office	27,776.41	1.0%	2	0.7%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	0.00	0.0%	0	0.0%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	108,935.58	3.8%	9	3.0%
Single Family Attached	545,553.33	18.8%	73	24.3%
Single Family Detached	1,671,264.31	57.6%	205	68.1%
Undeveloped	256,926.67	8.9%	3	1.0%
	2,899,864.42	100.0%	301	100.0%

Sanitary Service Area

MN-300

2010 CENSUS	HOUSEHOLDS
22,023	8,825

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
139,776,347.84	4,927	3,208.82

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	1,891,342.81	1.4%	0	0.0%
Industrial and Utility	26,414,024.15	18.9%	186	4.0%
Institutional	19,114,233.82	13.7%	66	1.4%
Major Highway	6,608,402.98	4.7%	2	0.0%
Mixed Use Commercial	152,486.57	0.1%	2	0.0%
Mixed Use Industrial	946,644.26	0.7%	11	0.2%
Mixed Use Residential	1,653,924.32	1.2%	66	1.4%
Multifamily	9,876,984.39	7.1%	210	4.5%
Office	268,791.41	0.2%	10	0.2%
Open Water	591,158.35	0.4%	0	0.0%
Park, Recreational, Preserve	10,983,561.96	7.9%	88	1.9%
Railway	11,127,297.47	8.0%	48	1.0%
Retail and Other Commercial	7,617,964.19	5.5%	195	4.2%
Single Family Attached	14,672,060.05	10.5%	1,371	29.6%
Single Family Detached	23,704,482.17	17.0%	2,296	49.6%
Undeveloped	4,152,988.92	3.0%	78	1.7%
	139,776,347.84	100.0%	4,629	100.0%

Sanitary Service Area

MN-301

2010 CENSUS	HOUSEHOLDS
3,282	1,206

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
22,682,810.19	772	520.73

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	10,290,773.12	45.4%	55	7.3%
Institutional	147,434.15	0.6%	3	0.4%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	1,323,247.71	5.8%	4	0.5%
Mixed Use Residential	70,498.99	0.3%	4	0.5%
Multifamily	1,065,878.93	4.7%	10	1.3%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	0.00	0.0%	0	0.0%
Railway	3,902,277.07	17.2%	11	1.5%
Retail and Other Commercial	206,802.48	0.9%	7	0.9%
Single Family Attached	1,155,852.39	5.1%	142	18.9%
Single Family Detached	4,039,370.57	17.8%	508	67.6%
Undeveloped	480,674.78	2.1%	7	0.9%
	22,682,810.19	100.0%	751	100.0%

Sanitary Service Area

MN-302A

2010 CENSUS	HOUSEHOLDS
567	107

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
4,487,914.00	188	103.03

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	0.00	0.0%	0	0.0%
Institutional	4,074,755.35	90.8%	29	52.7%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	47,233.69	1.1%	3	5.5%
Multifamily	229,318.48	5.1%	18	32.7%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	0.00	0.0%	0	0.0%
Railway	79,433.03	1.8%	0	0.0%
Retail and Other Commercial	54,331.47	1.2%	4	7.3%
Single Family Attached	2,841.97	0.1%	1	1.8%
Single Family Detached	0.00	0.0%	0	0.0%
Undeveloped	0.00	0.0%	0	0.0%
	4,487.914.00	100.0%	55	100.0%

Sanitary Service Area

MN-302N

2010 CENSUS	HOUSEHOLDS
2,883	1,172

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
34,325,505.18	1,095	971.90

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	156,190.93	0.5%	0	0.0%
Industrial and Utility	17,053,492.87	49.7%	135	12.9%
Institutional	0.00	0.0%	0	0.0%
Major Highway	2,245,503.66	6.5%	14	1.3%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	173,914.35	0.5%	1	0.1%
Mixed Use Residential	27,378.24	0.1%	1	0.1%
Multifamily	646,590.23	1.9%	26	2.5%
Office	1,973,294.04	5.7%	20	1.9%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	33,621.99	0.1%	0	0.00%
Railway	607,319.49	1.8%	5	0.5%
Retail and Other Commercial	2,392,924.94	7.0%	36	3.4%
Single Family Attached	631,794.76	1.8%	70	6.7%
Single Family Detached	6,993,182.12	20.4%	723	69.3%
Undeveloped	1,390,297.55	4.1%	13	1.2%
	34,325,505.18	100%	1,044	100.0%

Sanitary Service Area

302S

2010 CENSUS	HOUSEHOLDS
4,656	891

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
10,794,067.70	571	357.02

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	4,203,239.29	38.9%	47	14.3%
Institutional	0.00	0.0%	0	0.0%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	322,825.51	3.0%	5	1.5%
Multifamily	1,125,879.26	10.4%	35	10.6%
Office	30,107.23	0.3%	1	0.3%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	240,870.97	2.2%	1	0.3%
Railway	1,024,622.48	9.5%	5	1.5%
Retail and Other Commercial	2,111,633.97	19.6%	65	19.8%
Single Family Attached	402,350.71	3.7%	52	15.8%
Single Family Detached	614,302.81	5.7%	64	19.5%
Undeveloped	718,235.47	6.7%	20	6.1%
	10,794,067.70	100.0%	329	100.0%

Sanitary Service Area

MN-303

2010 CENSUS	HOUSEHOLDS
3,841	1,654

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
26,777,110.21	1,519	615.07

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	3,486,042.46	13.0%	2	0.1%
Industrial and Utility	2,417,369.71	9.0%	10	0.7%
Institutional	389,169.55	1.5%	4	0.3%
Major Highway	1,289,725.13	4.8%	2	0.1%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	43,559.48	0.2%	3	0.2%
Multifamily	224,624.79	0.8%	9	0.6%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	943,512.50	3.5%	7	0.5%
Railway	2,283,384.02	8.5%	2	0.1%
Retail and Other Commercial	207,377.77	0.8%	8	0.5%
Single Family Attached	319,756.45	1.2%	35	2.3%
Single Family Detached	13,765,108.27	51.4%	1,438	94.2%
Undeveloped	1,407,480.08	5.3%	6	0.4%
	26,777,110.21	100.0%	1,526	100.0%

Sanitary Service Area

MN-305

2010 CENSUS	HOUSEHOLDS
35	15

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
145,259.57	8	3.38

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	0.00	0.0%	0	0.0%
Institutional	15,889.41	10.9%	0	0.0%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	0.00	0.0%	0	0.0%
Multifamily	0.00	0.0%	0	0.0%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	0.00	0.0%	0	0.0%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	112,549.53	77.5%	6	67.0%
Single Family Attached	0.00	0.0%	0	0.0%
Single Family Detached	16,856.64	11.6%	3	33.0%
Undeveloped	0.00	0.0%	0	0.0%
	145,295.57	100.0%	9	100.0%

Sanitary Service Area

MN-306

2010 CENSUS	HOUSEHOLDS
584	239

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
9,404,470.93	391	215.95

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	3,285,422.54	34.9%	3	0.8%
Industrial and Utility	1,412,575.55	15.0%	7	1.8%
Institutional	0.00	0.0%	0	0.0%
Major Highway	61,646.83	0.7%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	0.00	0.0%	0	0.0%
Multifamily	0.00	0.0%	0	0.0%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	38,630.05	0.4%	1	0.3%
Railway	24,136.80	0.3%	0	0.0%
Retail and Other Commercial	105,370.89	1.1%	8	2.0%
Single Family Attached	450,109.98	4.8%	37	9.3%
Single Family Detached	3,488,805.27	37.1%	331	83.2%
Undeveloped	537,773.02	5.7%	11	2.8%
	9,404,470.93	100.0%	398	100.0%

Sanitary Service Area

MN-310

2010 CENSUS	HOUSEHOLDS
63,005	26,865

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
190,345,010.59	13,550	4,372.77

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	17,090,206.74	9.0%	268	2.6%
Institutional	19,856,445.48	10.4%	365	3.6%
Major Highway	17,925,304.69	9.4%	20	0.2%
Mixed Use Commercial	3,558,398.61	1.9%	86	0.8%
Mixed Use Industrial	2,159,358.77	1.1%	29	0.3%
Mixed Use Residential	3,245,279.36	1.7%	137	1.3%
Multifamily	17,035,948.90	9.0%	748	7.4%
Office	4,519,572.32	2.4%	97	1.0%
Open Water	231,218.65	0.1%	0	0.0%
Park, Recreational, Preserve	16,383,947.42	8.6%	116	1.1%
Railway	2,524,069.12	1.36%	47	0.5%
Retail and Other Commercial	23,108,717.89	12.1%	773	7.6%
Single Family Attached	12,274,871.86	6.4%	1,441	14.2%
Single Family Detached	45,646,941.64	24.0%	5,650	55.6%
Undeveloped	4,784,729.12	2.5%	379	3.7%
	190,345,010.59	100.0%	10,156	100.0%

Sanitary Service Area

MN-311

2010 CENSUS	HOUSEHOLDS
1,983	711

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
10,542,547.60	517	242.19

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	1,275,482.08	12.1%	13	2.6%
Institutional	95,454,57	0.9%	1	0.2%
Major Highway	2,170,052.59	20.6%	1	0.2%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	0.00	0.0%	0	0.0%
Multifamily	7,144.89	0.1%	0	0.0%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	2,298,166.05	21.8%	29	5.7%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	366,945.79	3.5%	18	3.6%
Single Family Attached	209,500.18	2.0%	22	4.3%
Single Family Detached	3,750,557.48	35.6%	412	81.4%
Undeveloped	369,243.97	3.5%	10	20.0%
	10,542,547.60	100.0%	506	100.0%

Sanitary Service Area

MN-312

2010 CENSUS	HOUSEHOLDS
3,445	1,262

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
18,477,240.99	1,907	424.90

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	434,235.15	2.4%	3	0.%
Institutional	1,326,094.15	7.2%	9	0.5%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	0.00	0.0%	0	0.0%
Multifamily	298,879.56	1.6%	11	0.6%
Office	0.00	0.0%	0	0.%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	2,708,509.92	14.7%	27	1.5%
Railway	63,330.74	0.3%	0	0.0%
Retail and Other Commercial	210,859.34	1.1%	10	0.6%
Single Family Attached	832,888.37	4.5%	139	7.8%
Single Family Detached	11,879,814.73	64.3%	1,481	82.8%
Undeveloped	722,629.03	3.9%	109	6.1%
	18,477,240.99	100.0%	1,789	100.0%

Sanitary Service Area

MN-313

2010 CENSUS	HOUSEHOLDS
1,073	371

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
4,859,680.28	435	111.84

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	0.00	0.0%	0	0.0%
Institutional	0.00	0.0%	0	0.%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	0.00	0.0%	0	0.0%
Multifamily	6,198.51	0.1%	0	0.0%
Office	789.11	0.0%	0	0.0%
Open Water	208,176.70	4.3%	2	0.5%
Park, Recreational, Preserve	957,665.18	19.7%	5	0.5%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	1,557.57	0.0%	0	0.0%
Single Family Attached	140,538.11	2.9%	13	3.0%
Single Family Detached	3,538,219.32	72.8%	415	95.2%
Undeveloped	6,535.78	0.1%	1	0.2%
	4,859,680.28	100.0%	436	100.0%

Sanitary Service Area

MN-314

2010 CENSUS	HOUSEHOLDS
902	312

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
4,102,846.36	357	94.19

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	21,256.03	0.5%	0	0.0%
Institutional	204,714.40	5.0%	2	0.6%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	0.00	0.0%	0	0.0%
Multifamily	15,259.91	0.4%	2	0.6%
Office	816.85	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	589,591.03	14.4%	2	0.6%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	15,548.65	0.4%	1	0.3%
Single Family Attached	97,725.83	2.4%	7	2.0%
Single Family Detached	3,156,455.65	76.9%	330	95.9%
Undeveloped	1,478.02	0.0%	0	0.0%
	4,102,846.36	100.0%	344	100.0%

Sanitary Service Area

MN-315

2010 CENSUS	HOUSEHOLDS
4,155	1,767

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
25,642,459.86	1,553	589.27

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	4,854,135.99	18.9%	19	1.2%
Institutional	1,131,480.84	4.4%	19	1.2%
Major Highway	39,608,83	0.2%	1	0.1%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	108,119.12	0.4%	11	0.7%
Multifamily	460,247.68	1.8%	20	1.3%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	3,438,808.94	13.4%	10	0.6%
Railway	2,169,862.07	8.5%	6	0.4%
Retail and Other Commercial	342,201.45	1.3%	18	1.1%
Single Family Attached	572,936.11	2.2%	56	3.5%
Single Family Detached	11,587,490.71	45.2%	1,418	89.2%
Undeveloped	946,568.13	3.7%	22	1.4%
	25,642,459.86	100.0%	1,589	100.0%

Sanitary Service Area

MN-316

2010 CENSUS	HOUSEHOLDS
7,677	2,950

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
32,461,024.64	3,096	753.50

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	0.00	0.0%	0	0.0%
Institutional	7,509,166.25	23.1%	19	0.6%
Major Highway	50,823.63	0.2%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	125,926.86	0.4%	11	0.4%
Multifamily	225,284.46	0.7%	19	0.6%
Office	23,980.79	0.1%	2	0.1%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	378,721.85	1.2%	2	0.1%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	361,941.89	1.1%	21	0.7%
Single Family Attached	1,604,025.93	4.9%	170	5.5%
Single Family Detached	22,027,362.13	67.9%	2,855	91.6%
Undeveloped	153,790.84	0.5%	17	0.5%
	32,461,024.64	100.0%	3,116	100.0%

Sanitary Service Area

MN-320

2010 CENSUS	HOUSEHOLDS
36,464	16,035

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
149,118,262.89	10,413	3,442.74

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	14,523,685.21	9.7%	205	2.5%
Institutional	12,834,094.77	8.6%	284	3.5%
Major Highway	10,949,985.49	7.3%	10	0.1%
Mixed Use Commercial	267,696.02	0.2%	6	0.1%
Mixed Use Industrial	206,192.33	0.1%	4	0.0%
Mixed Use Residential	1,039,631.30	0.7%	51	0.6%
Multifamily	10,431,980.08	7.0%	389	4.8%
Office	1,888,655.71	1.3%	25	0.3%
Open Water	562,940.36	0.4%	1	0.0%
Park, Recreational, Preserve	20,553,006.56	13.8%	105	1.3%
Railway	1,962,043.42	1.3%	10	0.1%
Retail and Other Commercial	8,546,096.84	5.7%	277	3.4%
Single Family Attached	12,501,514.13	8.4%	1,363	16.8%
Single Family Detached	46,956,547.75	31.5%	5,044	62.2%
Undeveloped	5,894,192.92	4.0%	337	4.2%
	149,118,262.89	100.0%	8,111	100.0%

Sanitary Service Area

MN-330

2010 CENSUS	HOUSEHOLDS
41,202	19,160

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
108,896,201.07	9,262	2,499.93

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	8,377,148.74	7.7%	157	2.1%
Institutional	7,310,052.05	6.7%	117	1.6%
Major Highway	2,396,215.75	2.2%	2	0.0%
Mixed Use Commercial	436,976.18	.04%	10	0.1%
Mixed Use Industrial	446,241.34	0.4%	9	0.1%
Mixed Use Residential	1,839,943.26	1.7%	125	1.7%
Multifamily	13,723,550.16	12.6%	825	11.1%
Office	2,190,420.06	2.0%	23	0.3%
Open Water	269,219.76	0.2%	0	0.0%
Park, Recreational, Preserve	11,651,604.89	10.7%	95	1.3%
Railway	187,510.42	0.2%	3	0.0%
Retail and Other Commercial	9,627,990.31	8.8%	472	6.3%
Single Family Attached	16,407,603.53	15.1%	1,894	25.4%
Single Family Detached	32,261,027.83	29.6%	3,597	48.3%
Undeveloped	1,770,696.78	1.6%	122	1.6%
	108,896,201.07	100.0%	7,451	100.0%

Sanitary Service Area

MN-340

2010 CENSUS	HOUSEHOLDS
15,070	6,894

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
95,979,763.29	5,770	2,203.4

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	775,798.94	1.0%	4	0.1%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	2,045,310.80	2.7%	28	0.5%
Institutional	8,685,849.20	11.4%	47	0.9%
Major Highway	1,253,666.45	1.7%	3	0.1%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	184,052.89	0.2%	15	0.3%
Multifamily	2,225,018.98	29%	106	1.9%
Office	0.00	0.0%	0	0.0%
Open Water	125,316.60	0.2%	0	0.0%
Park, Recreational, Preserve	13,473,971.81	17.8%	32	0.6%
Railway	589,577.12	0.8%	1	0.0%
Retail and Other Commercial	3,739,990.60	4.9%	178	3.3%
Single Family Attached	4,176,686.17	5.5%	463	8.5%
Single Family Detached	38,257,888.21	50.4%	4,552	83.5%
Undeveloped	363,700.51	0.5%	25	0.5%
	75,896,828.27	100.0%	5,454	100.0%

Sanitary connections and Sewer Service Area information include the area of outside of the city but land use and population are only for the area within city limit.

Sanitary Service Area

MN-341

2010 CENSUS	HOUSEHOLDS
66,124	27,903

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
207,114,253.48	20,237	4,754.71

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	457,063.54	0.2%	0	0.0%
Industrial and Utility	4,306,641.46	2.1%	107	0.6%
Institutional	18,226,689.02	8.8%	166	0.9%
Major Highway	3,801,585.50	1.8%	6	0.0%
Mixed Use Commercial	183,230.17	0.1$	4	0.0%
Mixed Use Industrial	36,238.58	0.0%	2	0.0%
Mixed Use Residential	2,049,864.98	1.0%	130	0.7%
Multifamily	12,533,747.65	6.1%	897	4.7%
Office	258,152.17	0.1%	8	0.0%
Open Water	1,072,183.55	0.5%	1	0.0%
Park, Recreational, Preserve	14,478,460.56	7.0%	62	0.3%
Railway	1,354,507.41	0.7%	10	0.1%
Retail and Other Commercial	9,335,697.71	4.5%	545	2.8%
Single Family Attached	22,363,165.89	10.8%	2,690	14.0%
Single Family Detached	115,010,591.88	55.5%	14,414	75.3%
Undeveloped	1,646,433.40	0.8%	108	0.6%
	207,114,253.48	100.0%	19,150	100.0%

Sanitary Service Area

MN-342

2010 CENSUS	HOUSEHOLDS
472	206

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
2,033,220.50	200	46.68

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	0.00	0.0%	0	0.0%
Institutional	181,189.85	8.9%	1	0.4%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	0.00	0.0%	0	0.0%
Multifamily	0.00	0.0%	0	0.0%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	0.00	0.0%	0	0.0%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	0.00	0.0%	0	0.0%
Single Family Attached	178,643.84	8.8%	25	10.8%
Single Family Detached	1,665,708.38	81.9%	204	88.3%
Undeveloped	7,678.43	0.4%	1	0.4%
	2,033,220.50	100.0%	231	100.0%

Sanitary Service Area

MN-343

2010 CENSUS	HOUSEHOLDS
2,424	1,097

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
10,004,997.50	1,000	229.68

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	0.00	0.0%	0	0.0%
Institutional	465,707.13	4.7%	5	0.5%
Major Highway	0.00	0.0%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	29,167.19	0.3%	3	0.3%
Multifamily	486,215.62	4.9%	25	2.6%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	576,763.91	5.8%	2	0.2%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	570,439.73	5.7%	25	2.6%
Single Family Attached	815,364.17	8.1%	89	9.4%
Single Family Detached	7,029,332.43	70.3%	796	84.1%
Undeveloped	32,007.30	0.3%	2	0.2%
	10,004,997.50	100.0%	947	100.0%

Sanitary Service Area

MN-344

2010 CENSUS	HOUSEHOLDS
49,952	20,854

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
223,757,215.63	19,100	5,136.78

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	15,607.26	0.0%	0	0.0%
Golf Course	6,941,923.69	3.1%	6	0.0%
Industrial and Utility	2,683,539.09	1.2%	42	0.2%
Institutional	12,238,610.43	5.5%	115	0.6%
Major Highway	6,808,710.00	3.1%	1	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	60,584.83	0.0%	1	0.0%
Mixed Use Residential	500,532.69	0.2%	29	0.2%
Multifamily	3,166,757.94	1.4%	137	0.7%
Office	84,633.57	0.0%	5	0.0%
Open Water	428,333.34	0.2%	0	0.0%
Park, Recreational, Preserve	23,285,138.74	10.5%	75	0.4%
Railway	330,364.81	0.1%	4	0.0%
Retail and Other Commercial	5,837,668.62	2.6%	250	1.3%
Single Family Attached	10,944,267.59	4.9%	1,221	6.5%
Single Family Detached	147,653,262.84	66.4%	16,881	89.5%
Undeveloped	1,293,811.60	0.6%	99	0.5%
	222,273,747.05	100.0%	18,866	100.0%

Sanitary connections and Sewer Service Area information include the area outside of the city but land use and population are only for the area within city limit.

Sanitary Service Area

MN-345

2010 CENSUS	HOUSEHOLDS
7,554	3,231

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
32,419,107.93	3,248	744.26

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	0.00	0.0%	0	0.0%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	0.00	0.0%	0	0.0%
Institutional	400,435.67	1.2%	3	0.1%
Major Highway	256,295.95	0.8%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	22,591.47	0.1%	2	0.1%
Multifamily	117,730.53	0.4%	5	0.2%
Office	0.00	0.0%	0	0.0%
Open Water	0.00	0.0%	0	0.0%
Park, Recreational, Preserve	2,225,843.23	6.9%	17	0.5%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	674,873.83	2.1%	16	0.5%
Single Family Attached	1,615,868.75	5.0%	174	5.4%
Single Family Detached	27,052,938.21	83.4%	3,016	93.2%
Undeveloped	52,530.28	0.2%	3	0.1%
	32,419,107.93	100.0%	3,236	100.0%

Sanitary Service Area

MN-346

2010 CENSUS	HOUSEHOLDS
9,252	4,046

AREA

(Includes public right of ways)

SQUARE FEET	SANITARY CONNECTIONS	ACRES
42,648,160.47	4,076	979.07

LAND USE

TYPE	AREA – SQUARE FEET	PERCENT OF AREAS	NUMBER OF PARCELS	PERCENT OF PARCELS
Airport	392,483.32	1.0%	2	0.1%
Golf Course	0.00	0.0%	0	0.0%
Industrial and Utility	0.00	0.0%	0	0.0%
Institutional	1,389,380.29	3.5%	12	0.3%
Major Highway	1,668,106.47	4.2%	0	0.0%
Mixed Use Commercial	0.00	0.0%	0	0.0%
Mixed Use Industrial	0.00	0.0%	0	0.0%
Mixed Use Residential	0.00	0.0%	0	0.0%
Multifamily	1,129,1100.72	2.8%	46	1.2%
Office	0.00	0.0%	0	0.0%
Open Water	2,030.38	0.0%	0	0.0%
Park, Recreational, Preserve	3,989,895.29	9.9%	7	0.2%
Railway	0.00	0.0%	0	0.0%
Retail and Other Commercial	364,908.06	0.9%	19	0.5%
Single Family Attached	886,044.18	2.2%	99	2.5%
Single Family Detached	30,269,609.30	75.5%	3,786	95.3%
Undeveloped	8,156.30	0.0%	1	0.0%
	40,099,724.31	100.0%	3,972	100.0%

Sanitary connections and Sewer Service Area information include the area of outside of the city but land use and population are only for the area within city limit.

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Appendix H – City of Minneapolis Sewage Flow Projections and Trunk Sewer Capacity Analysis by Interceptor Service Area

Minneapolis
City of Lakes

Instructions and Methodology

Sewage flow in the City of Minneapolis (City) is not metered at the source, rather billing is based on water consumption; billing data provides the most accurate and accessible source of sewage flow estimates available. Base year sewage flow estimates (2010) for the City were derived from customer billings for water service from the City Utility Billing Department. The data is grouped into Residential, Multiple Dwelling, Commercial, Industrial, Government, and Wholesaled water to other municipalities. As the sewer projection is for the City, all except Wholesaled water to other municipalities were used for projection. Residential and Multiple Dwelling were tied up as one and matched with population projection for residential sewer flow projection while Commercial, Industrial, and Government were grouped and matched with employment projection to estimate their sewer flow projections.

In the case of Residential sewer flow projection, it is based on 2010 winter season (December, January, February) usage of Residential and Multiple Dwelling to remove outflow to stormwater by irrigation. The usage of water in these three months was multiplied by four to estimate sewer outflow for the year.

If Sewer Service Areas include outside areas of the City of Minneapolis, those parcels were excluded as they are not part of the City. Hence, the projection estimates only the City part of the sewersheds. Also, this projection was calculated under an assumption that there is no change in water use per capita.

Process Overview

Base Data

- 2010 annual water usage by land use (Source: City of Minneapolis Utility Billing Department).
- Existing land use (Source: City of Minneapolis).
- Population and employment projections by Transportation Analysis Zone (TAZ) for the City of Minneapolis area; base year 2010, and projections for 2020, 2030, and 2040, with polygon shape file (Base Data Source: Metropolitan Council, Minnesota Geospatial Commons. Revised Population Forecast Source: City of Minneapolis Community Planning and Economic Development).
- Demographic projections of the City by Sanitary Sewer Service Areas; base year 2010, and projections for 2020, 2030, and 2040, derived from TAZ projections made by Metropolitan Council (Source: City of Minneapolis Public Works).
- Polygon shape file of Interceptor Service Areas of Minneapolis (Source: City of Minneapolis Public Works).

Major Steps

- Citywide sewage flow total was calculated based on annual water usage of non-residential usage and winter usage of residential usage (December, January, and February) to remove outflow to stormwater by irrigations and then multiplied by four to estimate usage for the year.

- Citywide sewage flow total was apportioned to each Interceptor Service Area based on population and employment proportion of the Interceptor Service Areas; employment was used for non-residential use and population was used for residential use.
- Existing land use was generalized into residential and non-residential uses.
- Citywide sewage flow total was apportioned to each Interceptor Service Area based on percentage of residential and non-residential land use. For example, if an Interceptor Service Area contains 5 percent of the City's residential land uses, then 5 percent of the 2010 residential water usage was apportioned for that area.
- For each Interceptor Service Area, the 2020 projected changes in population and employment were multiplied by the 2010 per capita water usage and added to the 2010 sewer flow. This process was repeated for each Interceptor Service Area using projected changes in population and employment in 2030 and 2040.

Demographic Projection for the City of Minneapolis by Interceptor Service Area (2010 ~ 2040)

The following table provides figures for population, number of households, and employment for each Interceptor Service Area of Minneapolis. These figures were derived from projections of change in population and employment by Transportation Analysis Zone, which were created by the Metropolitan Council, and updated by the City of Minneapolis Community Planning and Economic Development. For the purpose of this report, Transportation Analysis Zones were modified by various spatial analysis me[1]

[1] Transportation Analysis Zones (Official TAZ System w/3,030 Zones) with Current Forecasts, Metropolitan Council, Minnesota Geospatial Commons, https://gisdata.mn.gov/dataset/us-mn-state-metc-trans-anlys-zones-official-current. Revised forecasts created by City of Minneapolis Community Planning and Economic Development, *MPLS_2040_TAZ*, October 10, 2018.

Demographic Projection of the City of Minneapolis by Interceptor Service Area, 2010 through 2040

Interceptor Service Area	Population (2010)	Households (2010)	Employment (2010)	Population (2020)	Households (2020)	Employment (2020)	Population (2030)	Households (2030)	Employment (2030)	Population (2040)	Households (2040)	Employment (2040)
7026	4,908	2,905	2,487	6,225	3,168	3,160	7,916	4,008	3,199	10,041	5,034	3,238
8255	28,823	12,761	15,794	35,705	14,989	18,858	37,310	15,314	19,104	38,924	15,712	19,347
8754	221	101	282	268	117	333	274	119	337	278	120	341
MN-300	22,023	8,825	20,053	27,884	12,173	21,839	29,535	12,702	22,334	31,280	13,349	22,831
MN-301	3,282	1,206	3,176	3,079	1,233	3,665	3,205	1,249	3,711	3,331	1,269	3,756
MN-302A	567	107	308	504	234	644	538	247	652	575	264	660
MN-302N	2,883	1,172	11,108	3,026	1,241	12,778	3,120	1,260	12,938	3,218	1,285	13,096
MN-302S	4,656	891	9,980	5,643	2,507	11,557	5,954	2,806	11,701	6,382	3,172	11,846
MN-303	3,841	1,654	617	4,410	1,718	721	4,640	1,797	786	4,889	1,892	851
MN-305	35	15	4	40	15	4	41	16	4	41	16	4
MN-306	584	239	608	618	243	721	629	247	730	634	250	738
MN-310	63,005	26,865	143,000	74,850	35,290	166,234	80,541	37,563	176,866	86,597	40,347	187,495
MN-311	1,983	711	276	2,147	767	281	2,192	776	284	2,235	786	288
MN-312	3,445	1,262	434	3,787	1,316	524	3,864	1,331	531	3,924	1,349	537
MN-313	1,073	371	0	1,147	371	0	1,168	376	0	1,175	381	0
MN-314	902	312	48	964	312	123	981	316	125	987	320	126
MN-315	4,155	1,767	699	4,910	1,865	933	5,035	1,886	944	5,137	1,912	955
MN-316	7,677	2,950	424	8,991	3,145	601	9,117	3,180	610	9,172	3,223	616
MN-320	36,464	16,035	22,126	42,760	19,230	25,347	46,512	20,911	26,329	50,654	22,963	27,313
MN-330	41,202	19,160	25,800	44,620	22,266	34,087	48,861	23,778	34,539	53,379	25,626	34,988
MN-340	15,070	6,894	3,875	18,413	7,561	4,647	19,569	7,923	4,725	20,739	8,362	4,805
MN-341	66,124	27,903	11,224	70,584	31,084	14,783	73,119	31,976	15,028	75,141	33,068	15,273
MN-342	472	206	40	459	213	76	459	216	77	459	220	78
MN-343	2,424	1,097	412	2,563	1,152	546	2,550	1,174	552	2,542	1,201	559
MN-344	49,952	20,854	7,862	53,523	21,700	8,630	54,074	22,023	8,771	54,368	22,422	8,917
MN-345	7,554	3,231	674	8,100	3,347	754	8,101	3,434	763	8,089	3,540	772
MN-346	9,252	4,046	413	10,505	4,249	551	10,697	4,303	558	10,806	4,366	566
Total	**382,578**	**163,540**	**281,724**	**435,992**	**191,508**	**332,395**	**460,002**	**200,926**	**346,198**	**484,997**	**212,447**	**360,000**

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Capacity and Design Flows for Existing Trunk Sewer for 2010, 2020, 2030, and 2040 by Interceptor Service Area

Trunk Sewers

Trunk sewers were identified for each interceptor service area. In some cases, the Metropolitan Council interceptors serve as trunk sewers and these are noted in the tables presented in the maps for each interceptor service area. If an interceptor service area has more than one trunk sewer, then it was divided into trunk sewer areas based on the number of trunk sewers present. If it has only one trunk sewer, then the interceptor service area will be the same as the trunk sewer service area.

Average Wastewater Flows (Base Flows)

Average wastewater base flows were estimated based on 2010 annual water usage of non-residential customers and winter usage of residential customers (December, January, and February) multiplied by 4 and projections made through 2040 based on TAZ projections as described in Appendix G. Citywide sewage flow total was apportioned to each interceptor service area based on population and employment proportion of the interceptor service area; employment was used for non-residential use and population was used for residential use. If the interceptor service area has divisions based on trunk sewer areas, a portion of the sewer flow for the interceptor will be apportioned further to each trunk sewer service area based on population and employment proportion of the trunk sewer service area. Annual average base flow volume was computed by adding both the residential and non-residential flows.

If sewer service areas include outside areas of Minneapolis, those areas were excluded as they are not part of Minneapolis. Hence, the flow is estimated only for the Minneapolis part of the service area.

Where Metropolitan Council interceptors serve as a trunk sewer, the flows are incremental as there is flow already in the system generated by other service areas.

Design Flows

Design flow was calculated for each trunk sewer for base flow year 2010 and projections for 2020, 2030, and 2040 by converting the annual base flow volume into million gallons per day (mgd) and multiplying it by a factor of 4 to account for peak flow and inflow and infiltration (I/I).

Existing Pipe Capacity

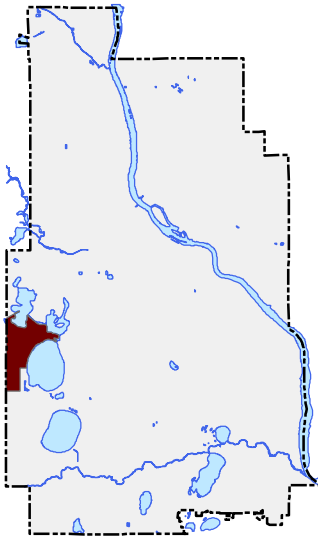
Pipe capacity of each trunk sewer was calculated based on Manning equation at full depth. Manning's Roughness Coefficient was assumed to be 0.013 for all pipes. Pipe capacity was not calculated for Metropolitan Council interceptors where they serve as a trunk sewer.

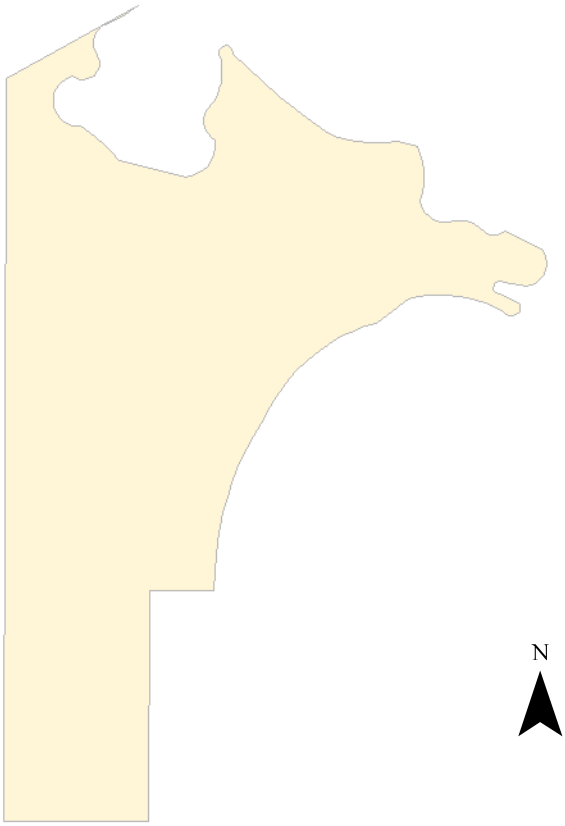
Base Data

- 2010 annual water usage by land use (Source: City of Minneapolis Utility Billing).
- Existing land use (Source: City of Minneapolis).

- Population and employment projections by Transportation Analysis Zone for Minneapolis Area; base year 2010 and projections of 2020, 2030, and 2040 with polygon shapefile (Base Data Source: Metropolitan Council. Revised Population Forecast Source: City of Minneapolis Community Planning and Economic Development).
- Demographic projections of the City of Minneapolis by Sanitary Sewer Service Areas; base year 2010 and projections of 2020, 2030, and 2040 derived from Transportation Analysis Zone projections made by Metropolitan Council (Source: City of Minneapolis Public Works).
- Polygon shapefile of Interceptor Service Areas of Minneapolis (Source: City of Minneapolis Public Works).
- Trunk sewer pipe properties like diameter, length, and inverts (Source: City of Minneapolis GIS database).

Interceptor Service Area 7026



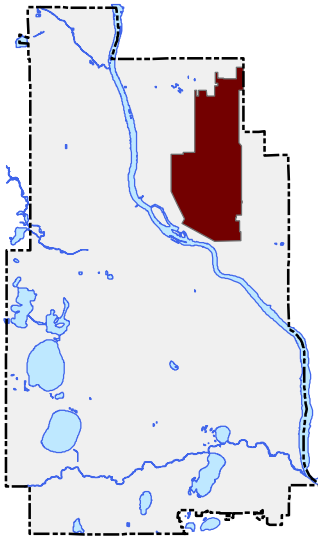


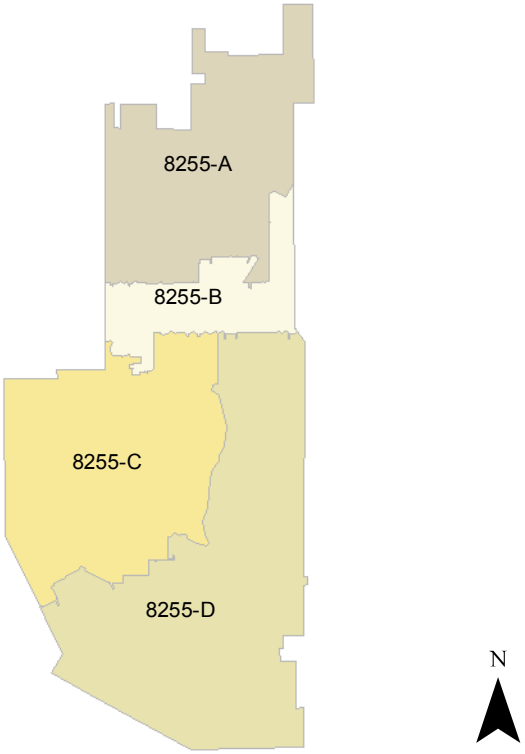
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
7026	2.564	2.980	16.22%	3.338	12.02%	3.786	13.43%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
7026	Midtown Greenway W and E Lake Calhoun Pkwy	30	X

Interceptor Service Area 8255



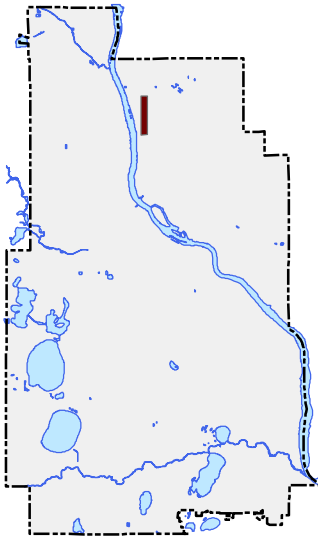


Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
8255-A	2.176	2.503	15.00%	2.542	1.56%	2.578	1.41%
8255-B	0.877	1.044	19.08%	1.069	2.37%	1.095	2.44%
8255-C	2.680	3.096	15.52%	3.182	2.75%	3.267	2.68%
8255-D	4.378	5.545	26.67%	5.781	4.25%	6.019	4.13%
Total	10.111	12.189		12.573		12.959	

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-MCES interceptors serve as trunk sewer for all areas and hence the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties				Trunk Full Pipe Capacity, MGD	MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	Slope (%)	n value		
8255-A	Central Ave NE and Lowry Ave NE	30	0.24%	0.013	12.98	
8255-B	Central Ave NE and 22nd Ave NE	18	0.25%	0.013	3.39	
8255-C	5th St NE and 3rd Ave NE	48	0.28%	0.013	49.19	
8255-D	University Ave SE and 13th Ave SE	120				X

Interceptor Service Area 8754



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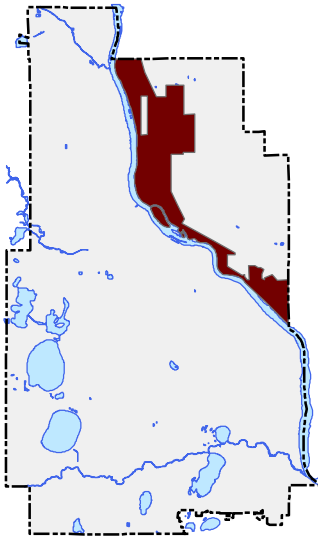
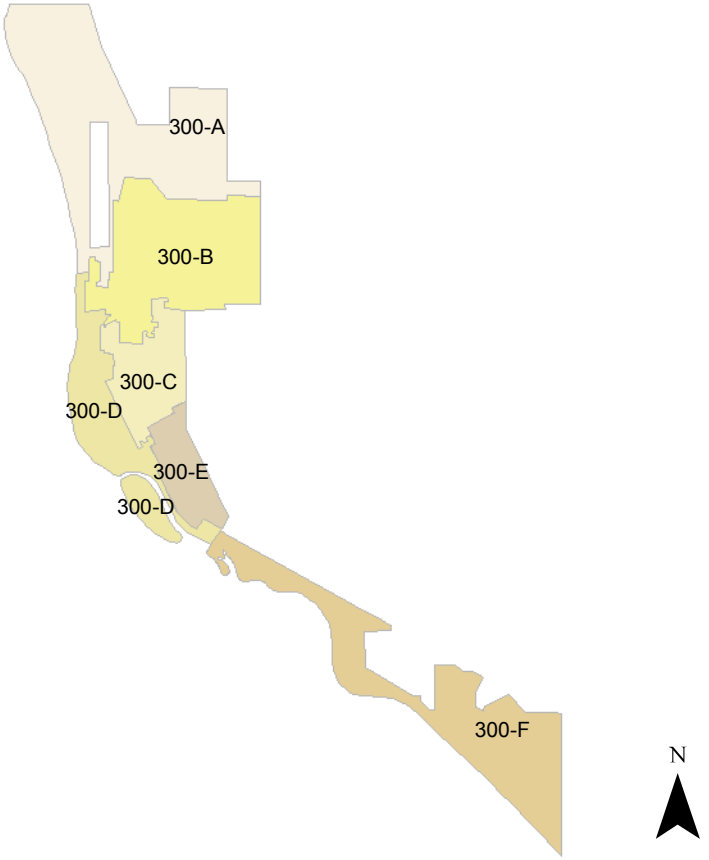
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
8754	0.265	0.285	7.69%	0.287	0.74%	0.289	0.61%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
8754	22nd Ave NE and Grand St NE	96	X

Interceptor Service Area MN-300



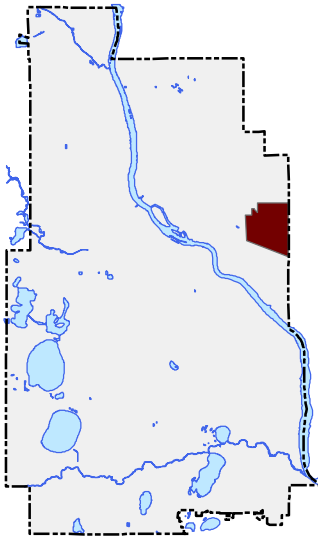


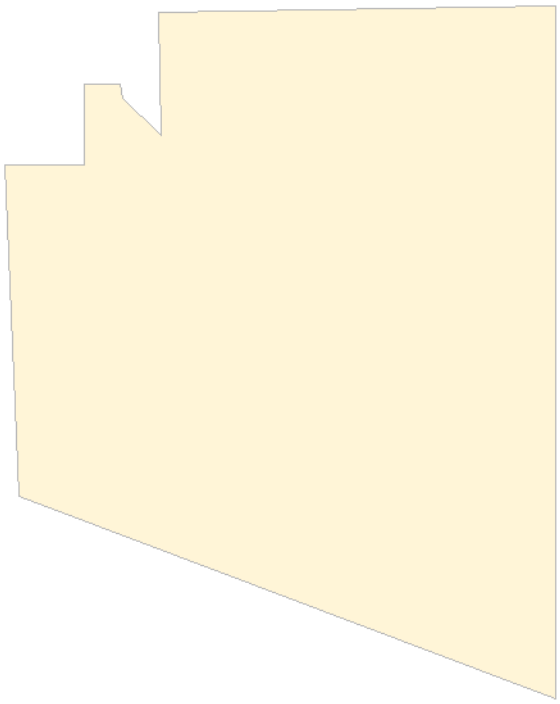
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-300-A	2.728	2.905	6.50%	3.013	3.72%	3.132	3.94%
MN-300-B	2.361	2.587	9.56%	2.666	3.08%	2.746	2.99%
MN-300-C	0.888	1.105	24.49%	1.130	2.24%	1.152	1.98%
MN-300-D	1.118	1.387	24.02%	1.426	2.80%	1.463	2.62%
MN-300-E	0.613	1.061	73.12%	1.139	7.37%	1.225	7.49%
MN-300-F	1.982	2.239	12.94%	2.357	5.27%	2.480	5.24%
Total	9.690	11.284		11.731		12.198	

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-MCES interceptors serve as trunk sewer for all areas and hence the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties				Trunk Full Pipe Capacity, MGD	MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	Slope (%)	n value		
MN-300-A	23rd Ave NE and Marshall St NE	65				X
MN-300-B	22nd Ave NE and Marshall St NE	24	0.25%	0.013	10.23	
MN-300-C	11th Ave NE and Main St NE	42	1.30%	0.013	74.13	
MN-300-D	2nd St SE and 2nd Ave SE	54 x 72 Horseshoe				X
MN-300-E	3rd Ave NE and Main St NE	48	0.40%	0.013	58.71	
MN-300-F	Emerald St and East River Terr	72				X

Interceptor Service Area MN-301





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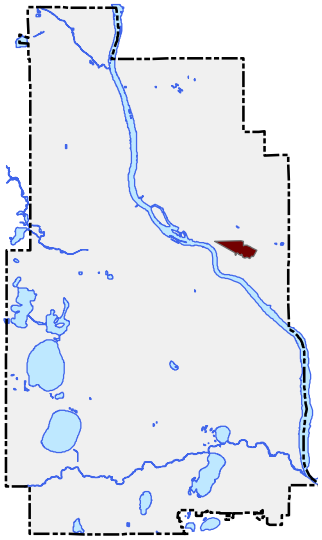
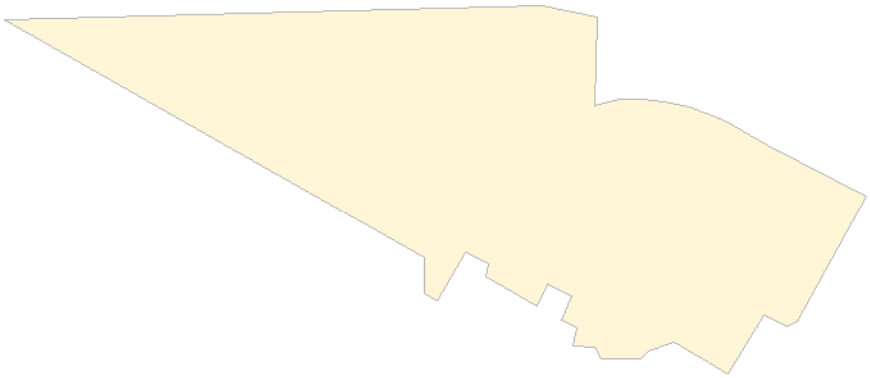
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-301	2.725	2.787	2.29%	2.823	1.28%	2.859	1.27%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-301	Elm St SE and 19th Ave SE	66	X

Interceptor Service Area MN-302A





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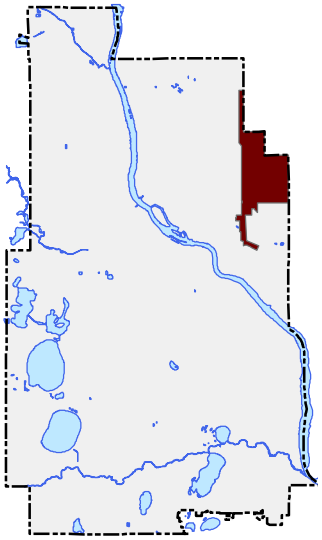
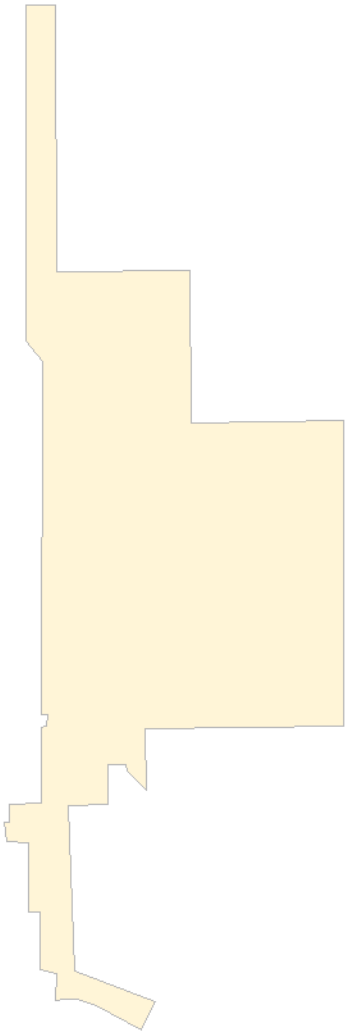
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-302A	0.486	0.544	12.04%	0.553	1.64%	0.562	1.68%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-302A	Oak St SE and University Ave SE	42	X

Interceptor Service Area MN-302N



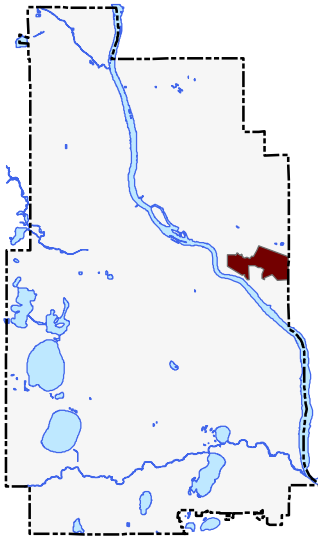


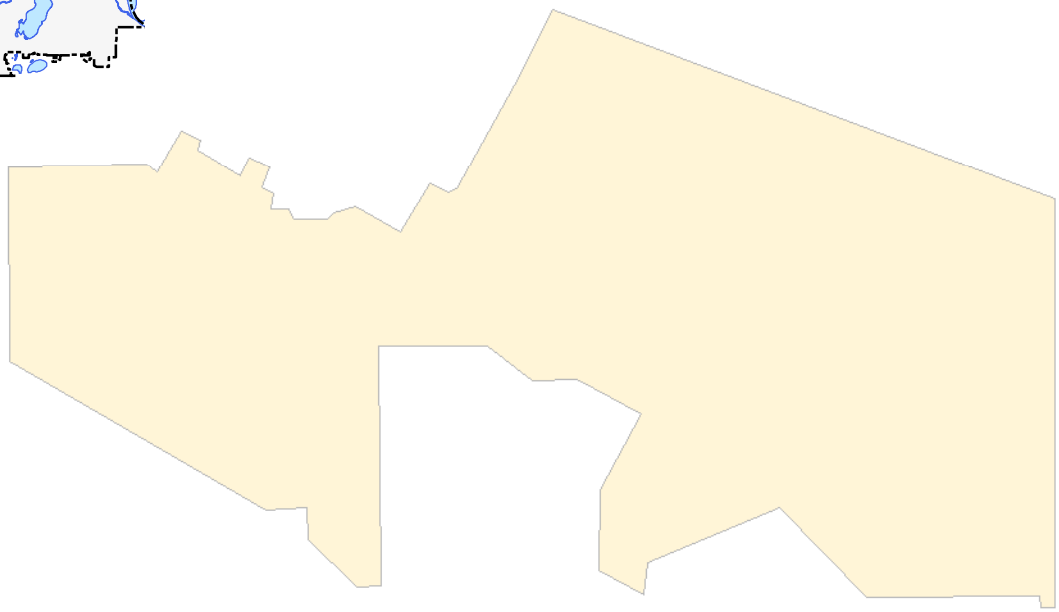
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-302N	5.895	6.281	6.54%	6.334	0.85%	6.388	0.85%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-302N	Dinkytown Greenway SE and 6th St SE	96	X

Interceptor Service Area MN-302S





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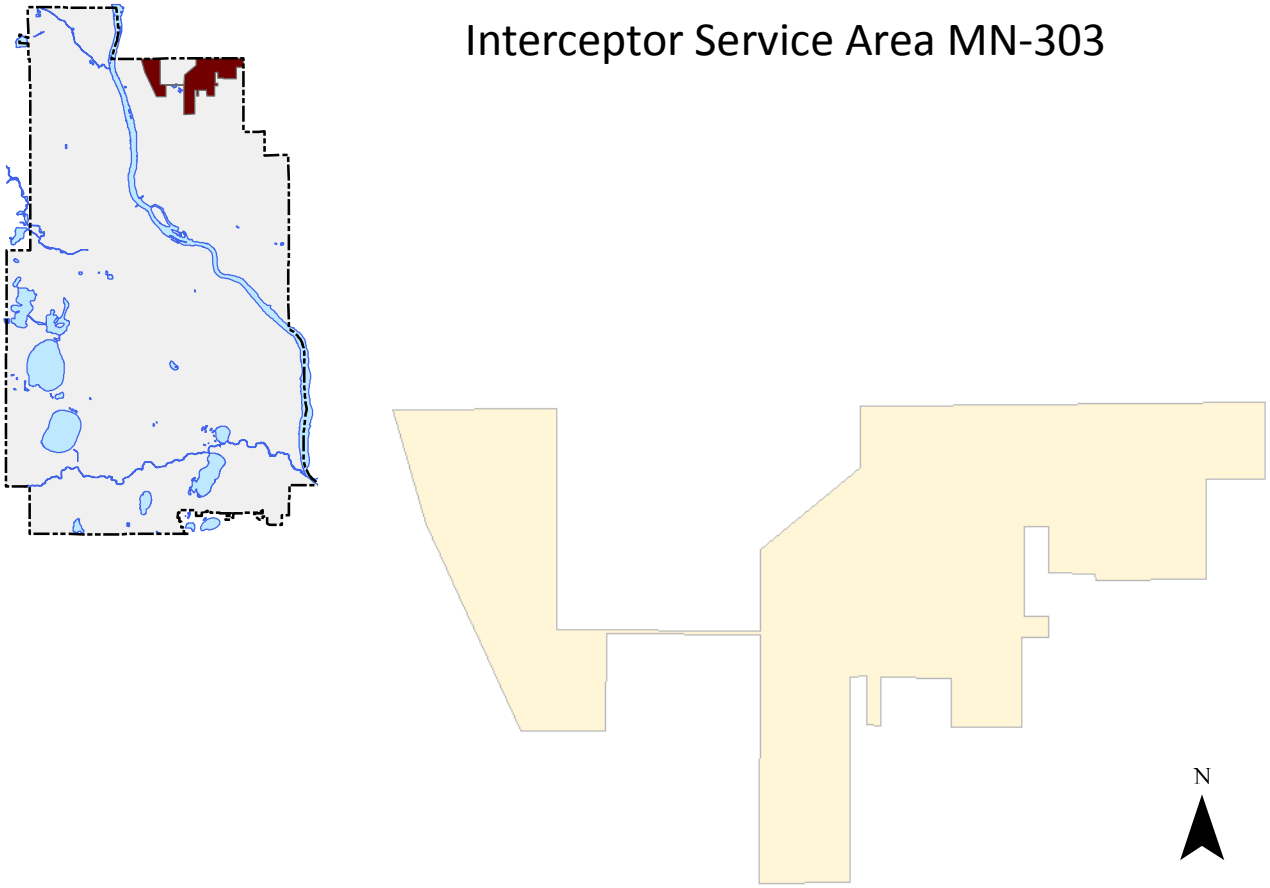
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-302S	1.847	2.388	29.26%	2.483	3.98%	2.602	4.81%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-302S	Oak St SE and East River Pkwy	42	X

Interceptor Service Area MN-303

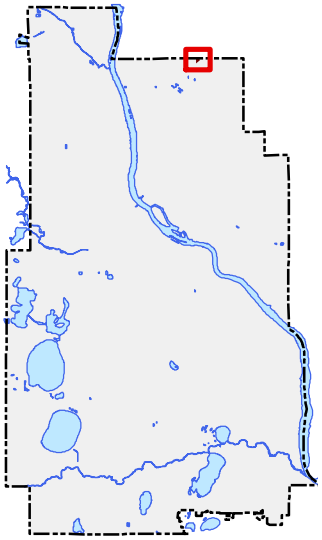


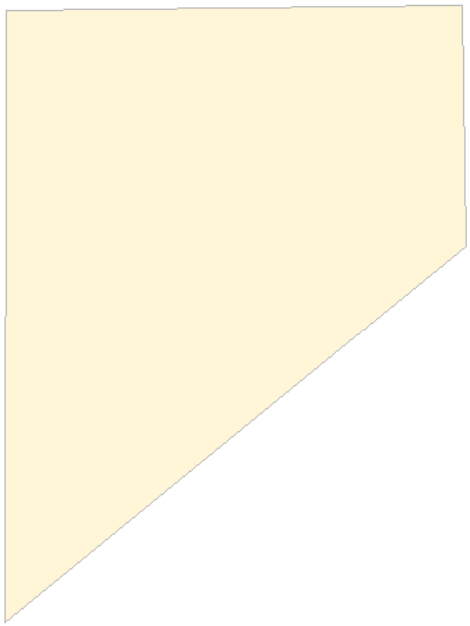
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-303	2.190	2.330	6.38%	2.392	2.63%	2.457	2.74%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-303	University Ave NE between 32nd Ave NE and 30th Ave NE	36	X

Interceptor Service Area MN-305





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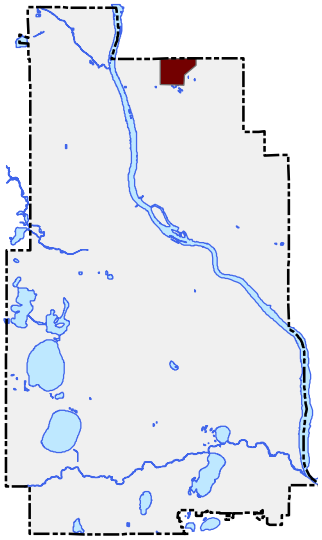
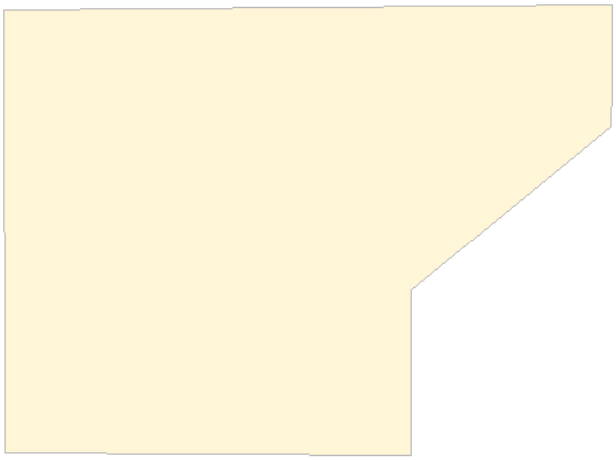
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-305	0.007	0.008	13.99%	0.008	2.03%	0.008	1.94%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-305	Tyler St NE & 36th Ave NE	16	X

Interceptor Service Area MN-306





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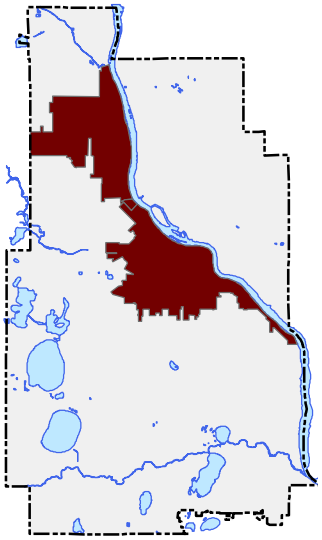
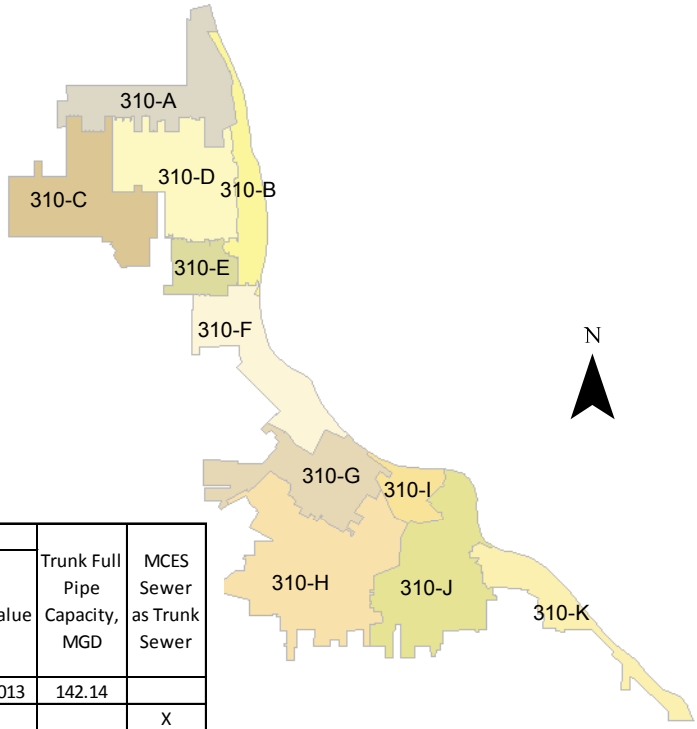
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-306	1.175	1.207	2.65%	1.211	0.34%	1.214	0.25%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-306	Saint Anthony Pkwy and 5th St NE	48	X

Interceptor Service Area MN-310



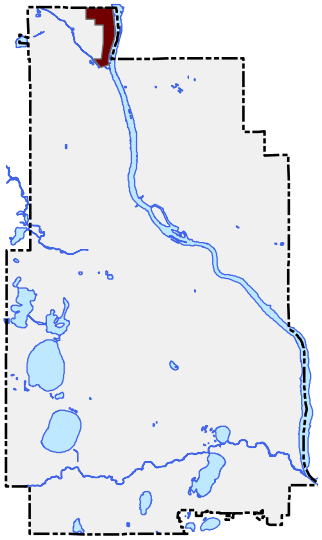


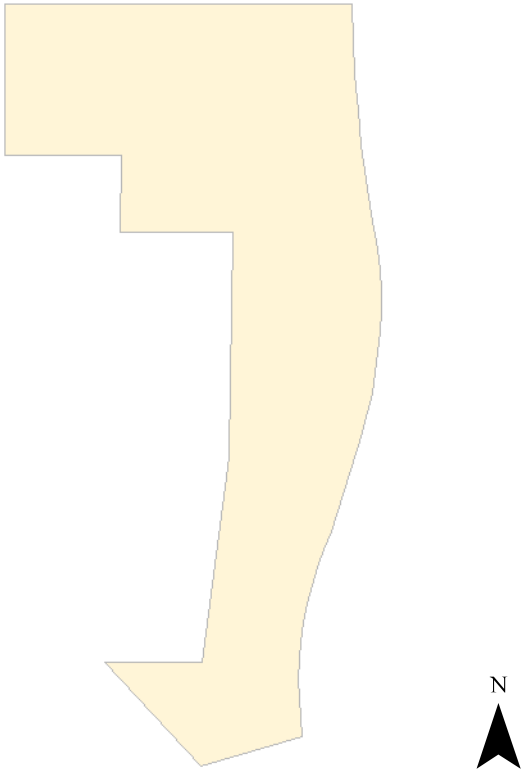
Interceptor Service Area	Trunk Pipe Properties				Trunk Full Pipe Capacity, MGD	MCES Sewer as Trunk Sewer
	Location	Diameter/ Equivalent Diameter, inch	Slope (%)	n value		
MN-310-A	Port of MPLS Dr & 1st St N	52	1.53%	0.013	142.14	
MN-310-B	21st Ave N and 2nd St N	54				X
MN-310-C	Fremont Ave N & 26th Ave N	60	0.32%	0.013	95.21	
MN-310-D	26th Ave N & 2nd St N	78	25.9%	0.013	117.36	
MN-310-E	21st Ave N & 2nd St N	48	0.43%	0.013	60.87	
MN-310-F	Marquette Ave & Washington Ave S	40	0.19%	0.013	24.88	
MN-310-G	Chicago Ave & Washington Ave S	90				X
MN-310-H	11th Ave S & 4th St S	60	1.13%	0.013	178.91	
MN-310-I	2 1/2 St S & 19th Ave S	96				X
MN-310-J	Locust St & 23rd Ave S	102 x 102 Horseshoe				X
MN-310-K	On riverfront near W River Pkwy S and 26th St E	120				X

Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-310-A	1.320	1.475	11.73%	1.487	0.82%	1.487	0.04%
MN-310-B	1.581	1.665	5.32%	1.670	0.31%	1.676	0.34%
MN-310-C	2.033	2.231	9.76%	2.207	-1.10%	2.164	-1.93%
MN-310-D	1.870	1.978	5.75%	1.990	0.65%	1.990	-0.02%
MN-310-E	0.549	0.535	-2.60%	0.554	3.70%	0.572	3.25%
MN-310-F	1.654	2.661	60.89%	2.873	7.96%	3.091	7.62%
MN-310-G	1.764	6.586	273.36%	8.458	28.43%	10.406	23.03%
MN-310-H	3.129	3.152	0.73%	4.063	28.93%	4.992	22.86%
MN-310-I	0.506	1.195	136.23%	1.313	9.89%	1.450	10.42%
MN-310-J	1.876	2.181	16.22%	2.446	12.16%	2.714	10.97%
MN-310-K	0.726	0.754	3.84%	0.794	5.26%	0.831	4.68%
Total	17.008	24.411		27.855		31.374	

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-MCES interceptors serve as trunk sewer for all areas and hence the flows are incremental.

Interceptor Service Area MN-311



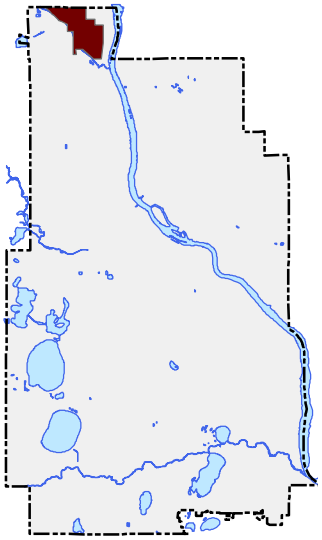


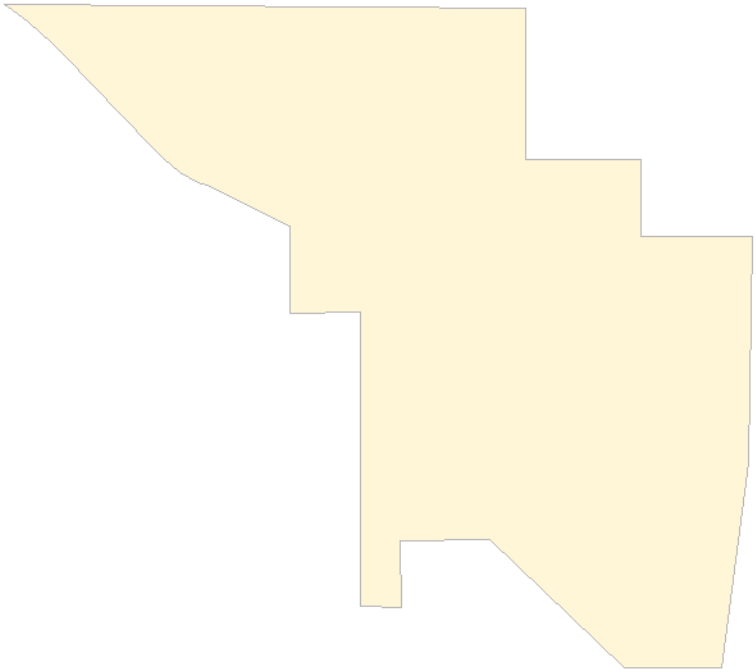
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-311	0.655	0.690	5.34%	0.700	1.45%	0.709	1.37%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-311	Lyndale Ave N north of Webber Pkwy at Shingle Creek	48	X

Interceptor Service Area MN-312



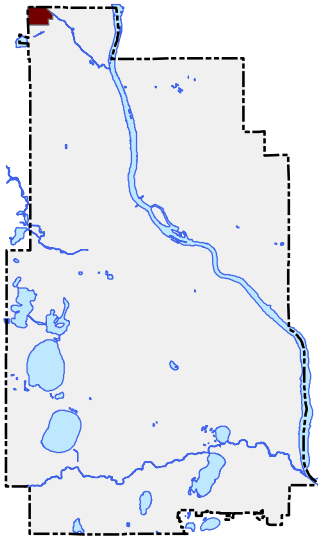


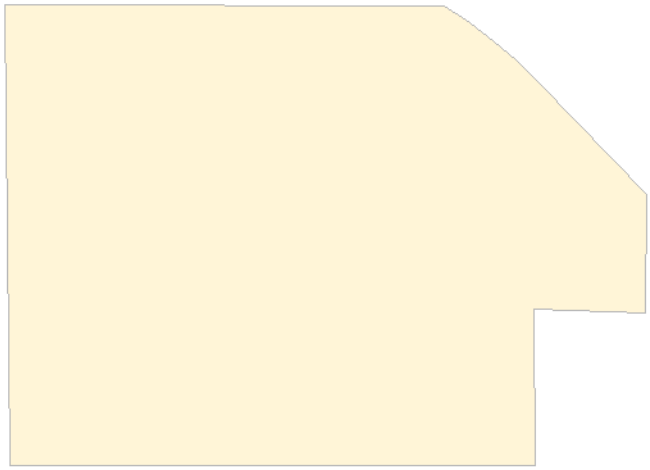
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-312	1.513	1.603	5.95%	1.620	1.08%	1.634	0.85%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-312	Lyndale Ave N and 47th Ave N	72	X

Interceptor Service Area MN-313





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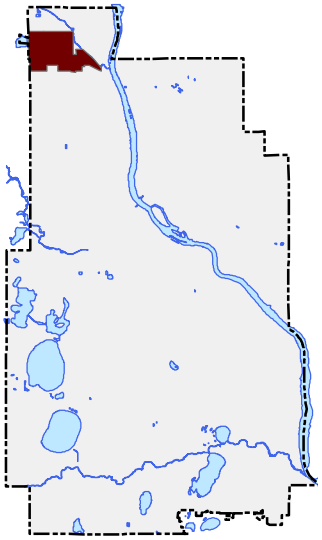
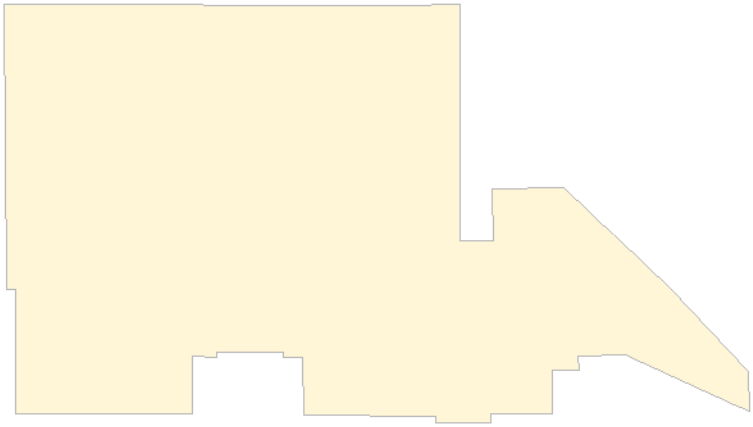
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-313	0.341	0.356	4.45%	0.360	1.24%	0.362	0.39%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-313	Penn Ave N and 52nd Ave N	24	X

Interceptor Service Area MN-315





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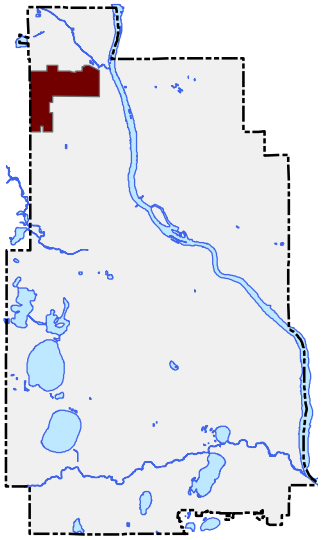
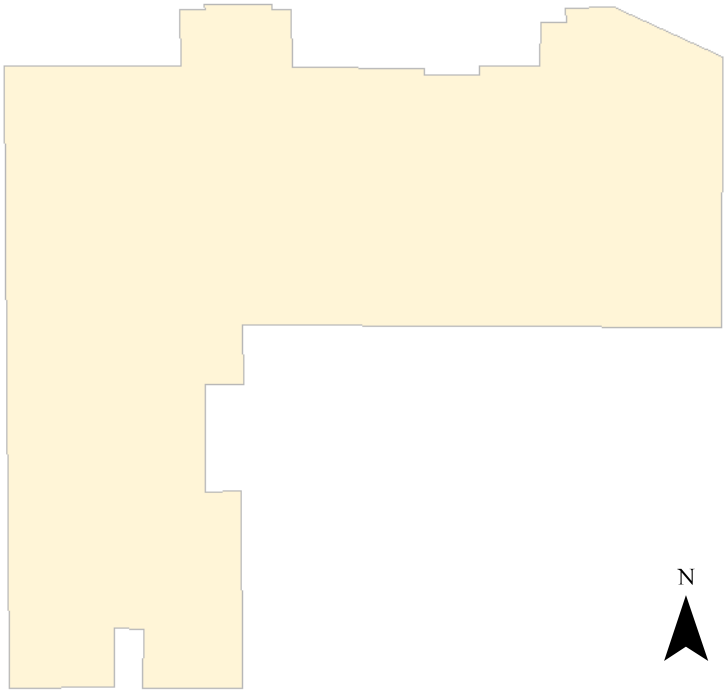
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-315	2.325	2.531	8.87%	2.559	1.12%	2.583	0.91%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-315	Webber Pkwy and Lyndale Ave N	54	X

Interceptor Service Area MN-316



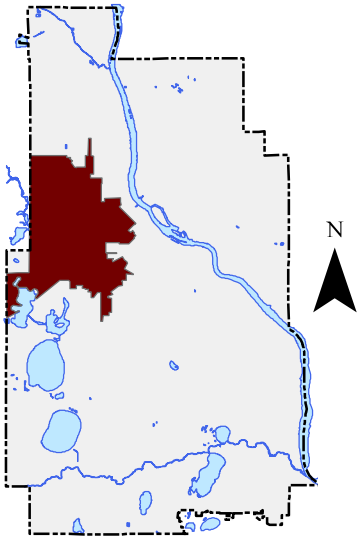


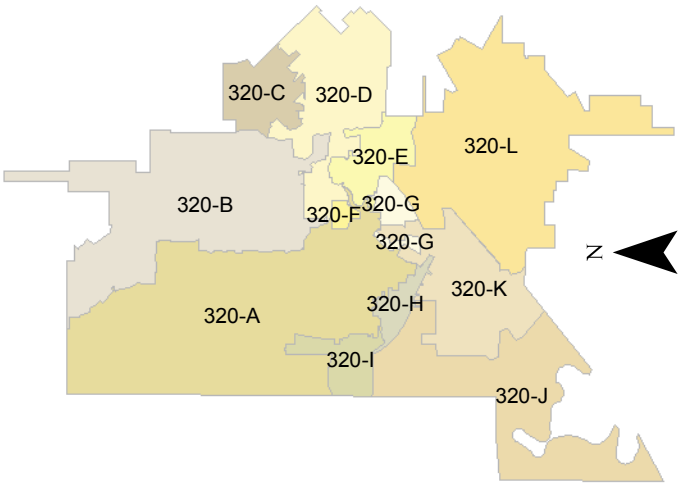
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-316	3.826	4.136	8.09%	4.164	0.68%	4.176	0.30%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-316	42nd Ave N and Lundale Ave N	72	X

Interceptor Service Area MN-320



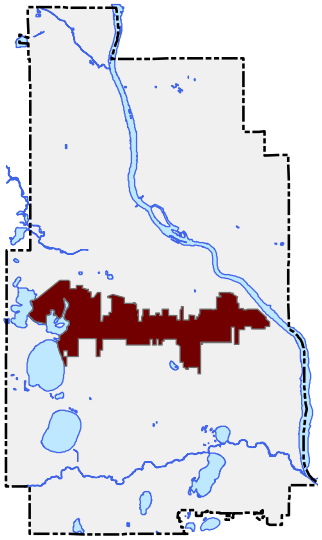


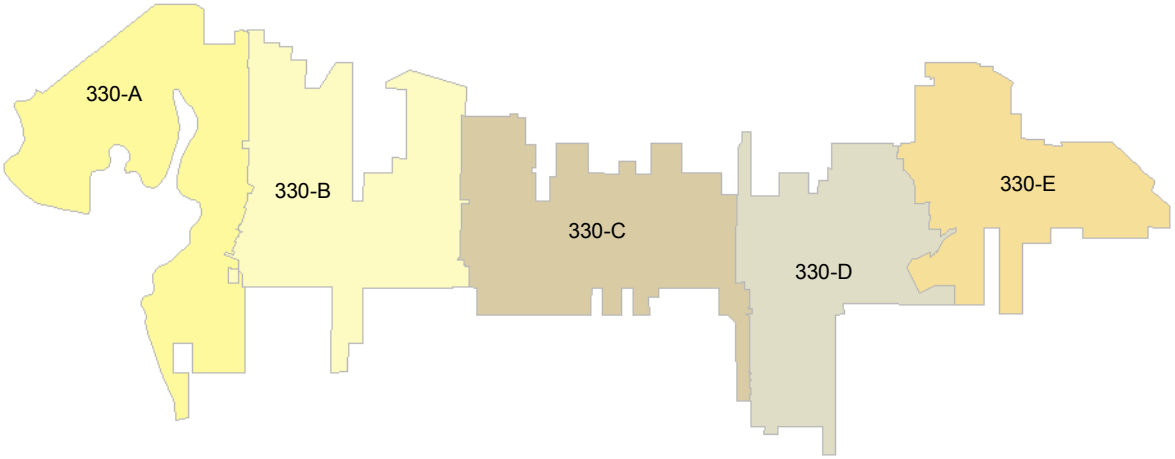
Interceptor Service Area	Trunk Pipe Properties				Trunk Full Pipe Capacity, MGD	MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	Slope (%)	n value		
MN-320-A	W Chestnut Ave & Morgan Ave N	51	0.79%	0.013	96.98	
MN-320-B	Sumner Ct & Aldrich Ave N	54	3.20%	0.013	227.32	
MN-320-C	8th Ave N & 5th St N	48	2.14%	0.013	135.79	
MN-320-D	2nd Ave N & 5th St N	102 x 72 oval				X
MN-320-E	6th Ave N between Bryant Ave N & Girard Terr	86				X
MN-320-F	Humboldt Ave N & 4th Ave N	15	0.12%	0.013	1.45	
MN-320-G	Van White Memorial Blvd & 2nd Ave N	86				X
MN-320-H	Morgan Ave N & Chestnut Ave W	42				X
MN-320-I	Thomas Ave N & Inglewood Ave	18	0.18%	0.013	1.77	
MN-320-J	Russell Ave S & W Chestnut Ave	18	0.05%	0.013	1.52	
MN-320-K	Currie Ave W & Irving Ave N	86				X
MN-320-L	Between 2nd Ave N & Colfax Ave N (int) & I394	72	0.33%	0.013	157.22	

Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-320-A	3.026	3.218	6.36%	3.232	0.42%	3.229	-0.09%
MN-320-B	2.463	2.403	-2.44%	2.504	4.21%	2.608	4.16%
MN-320-C	0.411	0.705	71.33%	0.784	11.19%	0.878	12.07%
MN-320-D	1.141	1.486	30.17%	1.953	31.49%	2.500	27.97%
MN-320-E	0.366	0.386	5.38%	0.427	10.47%	0.473	10.86%
MN-320-F	0.065	0.065	1.13%	0.073	11.37%	0.081	11.58%
MN-320-G	0.207	0.221	6.80%	0.224	1.30%	0.227	1.23%
MN-320-H	0.052	0.056	7.47%	0.057	2.60%	0.058	1.69%
MN-320-I	0.073	0.080	10.60%	0.080	-0.29%	0.078	-2.13%
MN-320-J	1.360	1.421	4.44%	1.426	0.36%	1.430	0.32%
MN-320-K	0.675	0.752	11.31%	0.764	1.64%	0.775	1.38%
MN-320-L	2.268	3.305	45.71%	3.560	7.71%	3.813	7.11%
Total	12.108	14.097		15.083		16.150	

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area MN-330



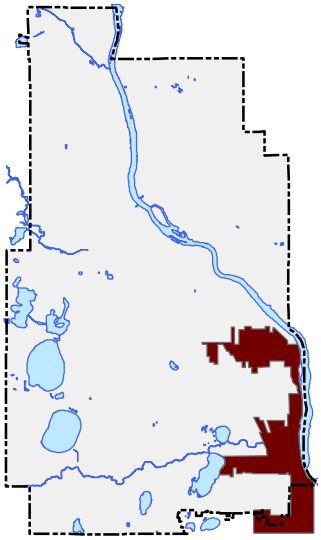


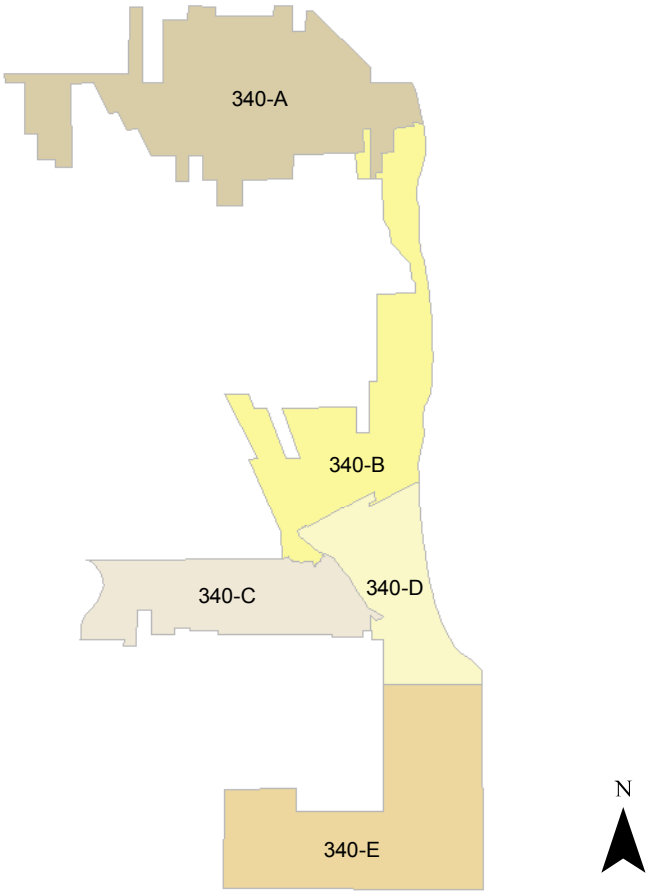
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-330-A	1.672	1.820	8.84%	1.886	3.60%	1.954	3.64%
MN-330-B	2.325	3.122	34.31%	3.350	7.29%	3.577	6.78%
MN-330-C	2.267	3.235	42.71%	3.411	5.43%	3.587	5.17%
MN-330-D	2.067	2.269	9.78%	2.567	13.14%	2.894	12.76%
MN-330-E	1.946	2.304	18.40%	2.512	8.99%	2.743	9.20%
Total	10.277	12.751		13.725		14.756	

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-MCES interceptors serve as trunk sewer for all areas and hence the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-330-A	27th St E & Hennepin Ave	54	X
MN-330-B	27th St E & Nicollet Ave	72	X
MN-330-C	26th St E & 15th Ave S	96	X
MN-330-D	26th St E & 24th Ave S	96	X
MN-330-E	26th St E & 39th Ave S	96	X

Interceptor Service Area MN-340



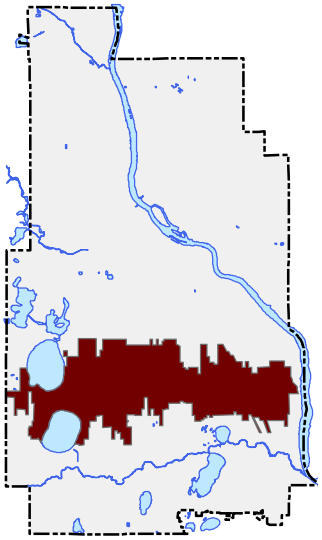


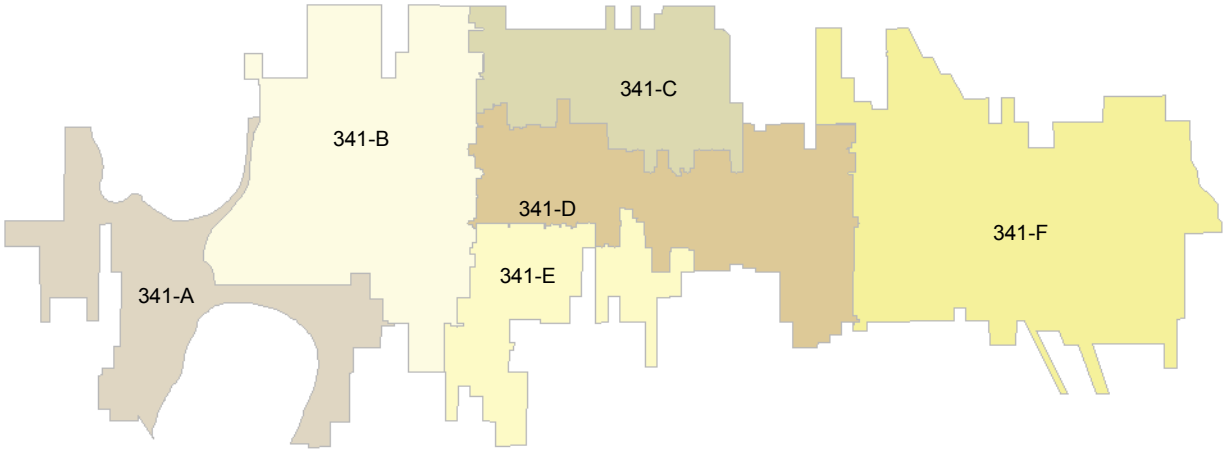
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-340-A	2.888	3.243	12.31%	3.349	3.25%	3.449	3.00%
MN-340-B	1.648	1.957	18.75%	2.060	5.26%	2.177	5.67%
MN-340-C	1.172	1.322	12.77%	1.339	1.29%	1.350	0.81%
MN-340-D	0.381	0.401	5.24%	0.430	7.10%	0.459	6.81%
MN-340-E	0.599	0.621	3.72%	0.623	0.28%	0.625	0.31%
Total	6.687	7.544		7.799		8.059	

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-MCES interceptors serve as trunk sewer for all areas and hence the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties				Trunk Full Pipe Capacity, MGD	MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	Slope (%)	n value		
MN-340-A	Lake St E & W River PKWY	66	0.46%	0.013	147.18	
MN-340-B	32nd St E & W River PKWY	66 X 72 Horseshoe				X
MN-340-C	Hiawatha Ave & 50th St E	42 X 72 Hourseshoe	14.64%	0.013	71.40	
MN-340-D	46th Ave S & Godfrey PKWY	42 X 72 Horseshoe				X
MN-340-E	Hiawatha Ave & 54th St E	36 X 72 Semi Elliptical	0.13%	0.013	41.43	

Interceptor Service Area MN-341





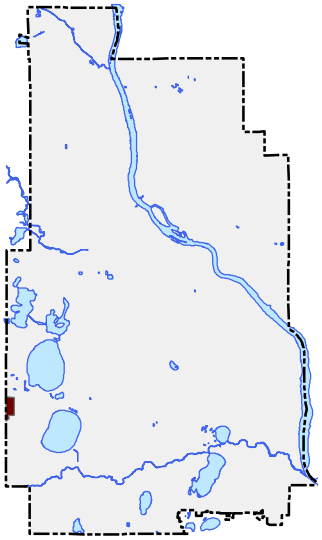
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-341-A	1.929	2.009	4.13%	2.017	0.42%	2.025	0.41%
MN-341-B	5.497	5.997	9.10%	6.135	2.30%	6.272	2.22%
MN-341-C	1.852	1.823	-1.58%	1.901	4.31%	1.968	3.51%
MN-341-D	3.155	3.362	6.54%	3.403	1.24%	3.414	0.32%
MN-341-E	1.668	1.710	2.51%	1.698	-0.67%	1.676	-1.33%
MN-341-F	5.560	6.498	16.88%	6.764	4.09%	7.035	4.01%
Total	19.661	21.398		21.919		22.390	

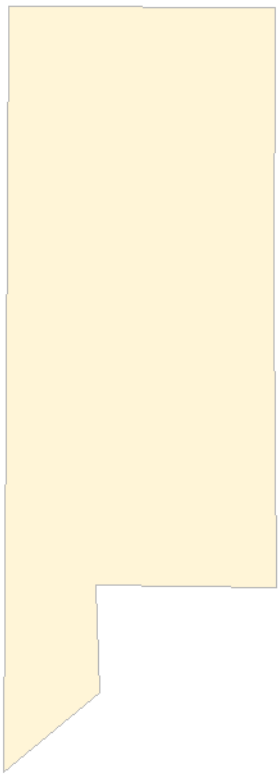
Note: 1-Sewer Service Area outside of Minneapolis was not considered.

2-MCES interceptors serve as trunk sewer for the areas of MN-341-A, MN-341-B, MN-341-D & MN-341-F and hence the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties				Trunk Full Pipe Capacity, MGD	MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	Slope (%)	n value		
MN-341-A	Dupont Ave S & 40th St W	60				X
MN-341-B	38th St W & Blaisdell Ave	90				X
MN-341-C	15th Ave S & 37th Ave S	57	1.25%	0.013	164.11	
MN-341-D	38th St W & 22nd Ave S	111				X
MN-341-E	Park Ave & 3th St E	66	0.12%	0.013	75.17	
MN-341-F	38th St E & Edmund BLVD	54				X

Interceptor Service Area MN-342



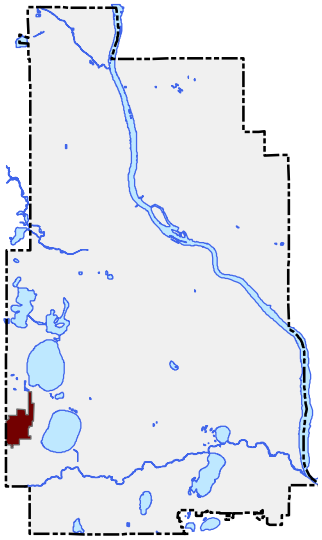


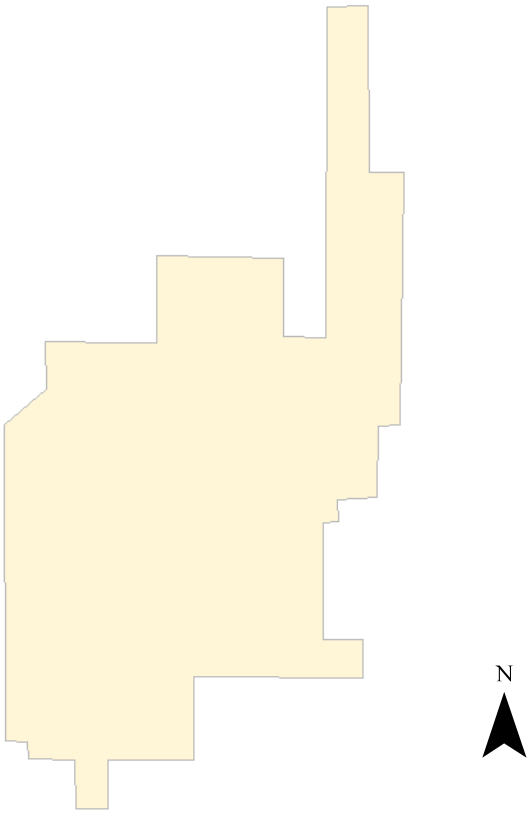
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-342	0.205	0.210	2.44%	0.210	0.11%	0.210	0.09%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-342	Drew Ave S and 39th St W	14	X

Interceptor Service Area MN-343



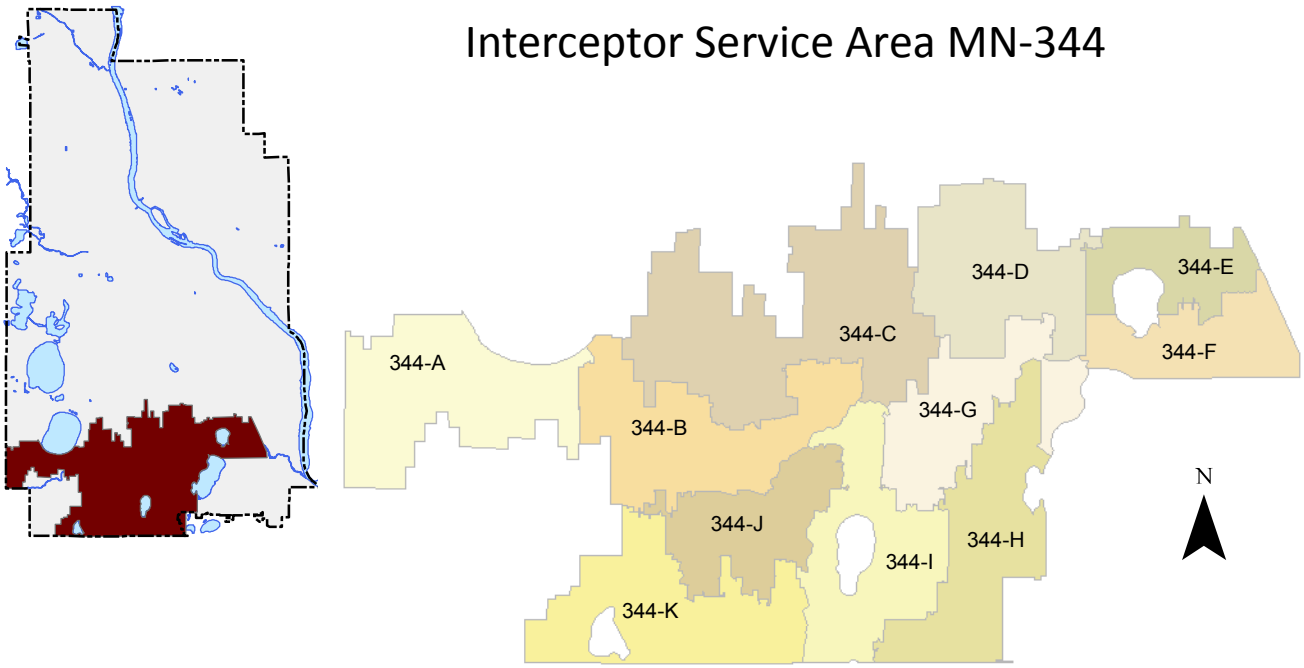


Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-343	0.949	1.007	6.03%	1.005	-0.12%	1.005	-0.02%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-343	38th St W and Xerxes Ave S	24	X

Interceptor Service Area MN-344

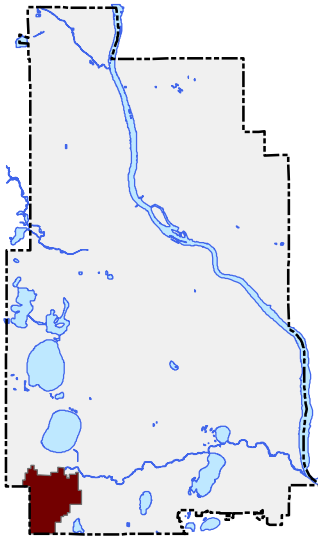


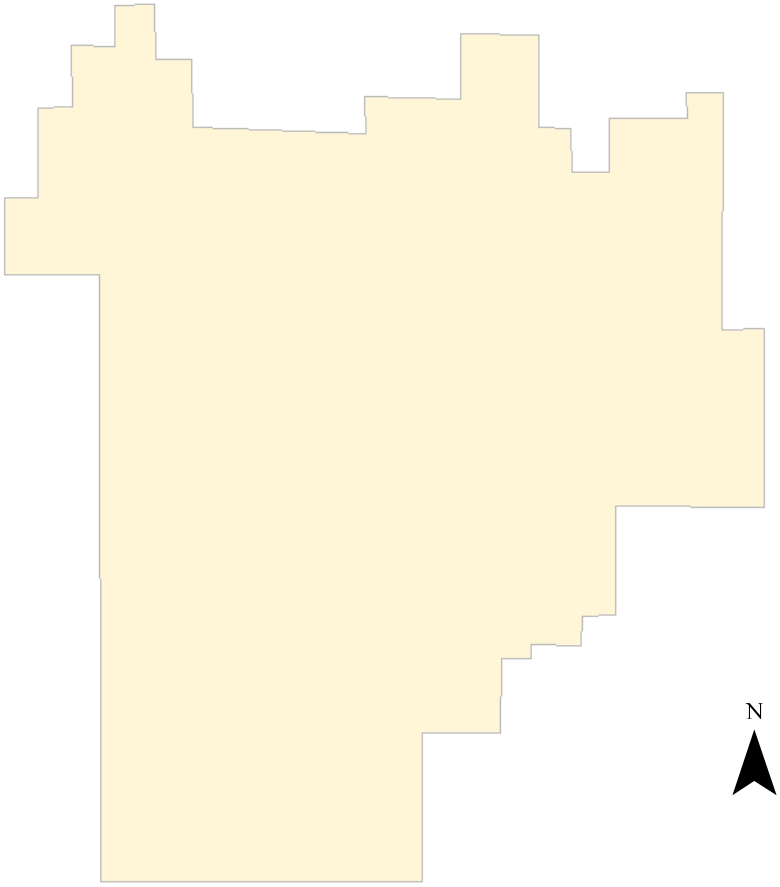
Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-344-A	2.303	2.448	6.32%	2.439	-0.39%	2.431	-0.31%
MN-344-B	1.825	1.774	-2.80%	1.762	-0.69%	1.749	-0.73%
MN-344-C	3.383	3.477	2.79%	3.473	-0.12%	3.461	-0.35%
MN-344-D	2.567	2.764	7.70%	2.799	1.27%	2.822	0.81%
MN-344-E	1.092	1.167	6.94%	1.182	1.25%	1.194	1.04%
MN-344-F	1.121	1.229	9.61%	1.243	1.13%	1.252	0.69%
MN-344-G	1.133	1.217	7.36%	1.239	1.79%	1.250	0.89%
MN-344-H	1.463	1.548	5.84%	1.582	2.14%	1.607	1.60%
MN-344-I	1.482	1.528	3.10%	1.556	1.79%	1.576	1.31%
MN-344-J	1.344	1.394	3.78%	1.392	-0.16%	1.389	-0.19%
MN-344-K	2.395	2.462	2.80%	2.488	1.06%	2.516	1.10%
Total	20.108	21.010		21.155		21.247	

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties				Trunk Full Pipe Capacity, MGD	MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	Slope (%)	n value		
MN-344-A	W 51st St and James Ave S	24				X
MN-344-B	E Minnehaha Pkwy and 5th Ave S	48				X
MN-344-C	E Minnehaha Pkwy and Portland Ave	102	0.33%	0.013	397.99	
MN-344-D	E Minnehaha Pkwy and Longfellow Ave	84	0.12%	0.013	143.00	
MN-344-E	E 46th St and Nokomis Ave S	35	0.28%	0.013	21.16	
MN-344-F	E 47th St and 38th Ave S	132 x 123 Horseshoe				X
MN-344-G	E 48th St and Cedar Ave S	110				X
MN-344-H	E Minnehaha Pkwy and 18th Ave S	21	0.15%	0.013	3.97	
MN-344-I	E Minnehaha Pkwy and Park Ave	110				X
MN-344-J	E Minnehaha Pkwy and Stevens Ave	22	0.32%	0.013	6.56	
MN-344-K	E 60th St and I35W	21	0.22%	0.013	4.80	

Interceptor Service Area MN-345



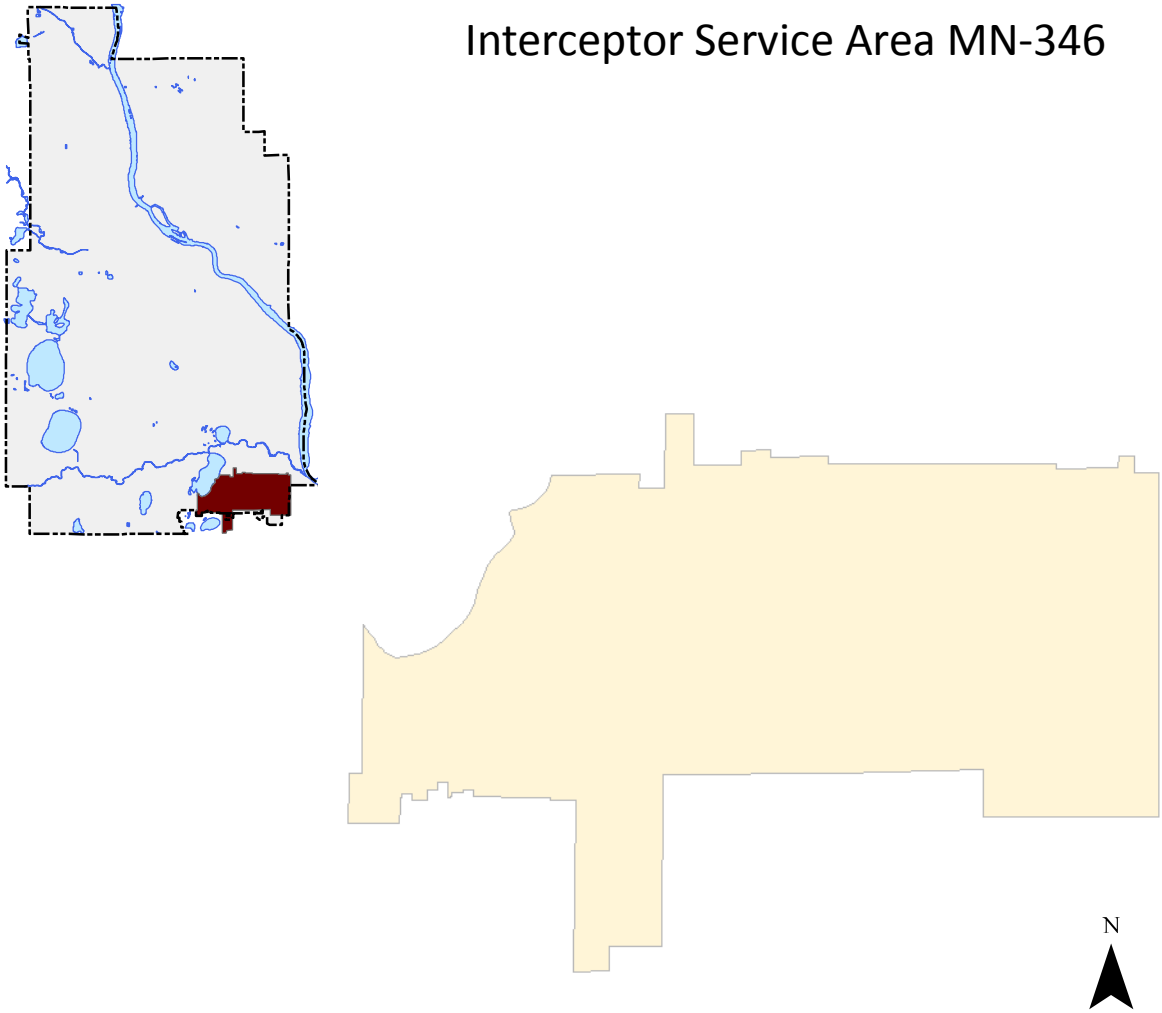


Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-345	2.928	3.057	4.44%	3.059	0.07%	3.059	-0.01%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-345	Humboldt Ave S and W Minnehaha Pkwy	30	X

Interceptor Service Area MN-346



Interceptor Service Area	2010 Design Flow Rate Based on 2010 Water Use, MGD	2020 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2010-2020	2030 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2020-2030	2040 Design Flow Rate (Projected), MGD	Design Flow Rate Percent Change 2030-2040
MN-346	3.337	3.626	8.65%	3.667	1.14%	3.691	0.66%

Note: 1-Sewer Service Area outside of Minneapolis was not considered.
2-Where MCES interceptors serve as trunk sewer, the flows are incremental.

Interceptor Service Area	Trunk Pipe Properties		MCES Sewer as Trunk Sewer
	Location	Diameter/Equivalent Diameter, inch	
MN-346	52nd St E and 46th Ave S	75	X

Appendix I – External Properties Served by City of Minneapolis Sanitary Sewers

Fort Snelling Area Sewer Estimates for 2015

Agency	Address	Estimates (Gallons) 2015	Proportion within Fort Snelling Area
Metropolitan Airports Commission	6040 South 28th Avenue	214,208,416	75.94%
Minnesota Air National Guard	5891 46th Avenue South	3,387,161	1.20%
Veterans Medical Center	1 Veterans Drive	55,343,037	19.62%
Veterans Administration B-89	6001 Minnehaha Avenue	356,814	0.13%
Veterans and Community Housing	5115 54th Street East	772,731	0.27%
Bishop Henry Whipple Building/GSA	1 Federal Drive	3,758,196	1.33%
Minnesota Department of Natural Resources (Fort Snelling Park)	101 Snelling Lake Road	1,529,008	0.54%
Minnesota Department of Transportation	6000 Minnehaha Avenue	206,454	0.07%
934th SPTG/CERU	4122 59th Street East	1,342,753	0.48%
United States Army – 88th Regional Support Command	506 Roeder Circle	667,998	0.24%
Marine Forces Reserve	6400 Bloomington Road	151,097	0.05%
Minneapolis Park and Recreation Board (Fort Snelling Golf Course)	5701 Leavenworth Avenue	51,613	0.02%
Minneapolis Park and Recreation Board (Neiman Sports Complex)	6247 Bloomington Road, 100 Federal Drive	169,053	0.06%
Northern Star Council Base Camp	201 Bloomington Road	139,880	0.05%
Fort Snelling Total		**282,084,211**	**100%**

Properties with Sanitary Sewer Connections

Property ID	Account No.	Street Address	City
292923220001	4260257401	2530 Kasota Avenue	St. Paul
202923330005	2031122400	2565 Kasota Avenue	St. Paul
292923220012	2031183401	2578 Kasota Avenue	St. Paul
1011821110002	6160193400	5145 Xerxes Avenue North	Brooklyn Center
1011821110002	6160193400	5145 Xerxes Avenue North	Brooklyn Center
1011821110005	2030727400	5123 Xerxes Avenue North	Brooklyn Center
1011821110006	2030726401	5117 Xerxes Avenue North	Brooklyn Center
1011821110007	2030725402	5109 Xerxes Avenue North	Brooklyn Center
1011821110012	6010193401	5243 Xerxes Avenue North	Brooklyn Center
1011821110013	2030732401	5233 Xerxes Avenue North	Brooklyn Center
1011821110014	2030731404	5223 Xerxes Avenue North	Brooklyn Center
1011821110021	2030724406	5101 Xerxes Avenue North	Brooklyn Center
1011821110022	2030730402	5211 Xerxes Avenue North	Brooklyn Center
1011821110023	6010192404	5201 Xerxes Avenue North	Brooklyn Center
1011821140014	730523401	3001 51st Avenue North	Brooklyn Center
0702824440140	6160181400	4540 France Avenue South	Edina
1802824110004	611287401	4634 France Avenue South	Edina
1802824110006	611289403	4640 France Avenue South	Edina
1802824110007	611290400	4646 France Avenue South	Edina
1802824110008	611291403	3900 47th Street West	Edina
1802824110077	6160187401, 6160187402	4620 France Avenue South	Edina
1802824110080	611285401	4624 France Avenue South	Edina
1802824110082	6160186401	4612 France Avenue South	Edina
1802824110083	611284403, 611284404	4610 France Avenue South	Edina
1802824110084	611283402	4608 France Avenue South	Edina
1802824110085	6160185400	4606 France Avenue South	Edina
1802824110086	6160184401	4604 France Avenue South	Edina
1802824110087	6160183400	4602 France Avenue South	Edina
1802824110088	6160182400, 6160182401	4600 France Avenue South	Edina
1802824140005	6160189402	4804 France Avenue South	Edina
1802824140007	611299402	4812 France Avenue South	Edina
1802824140008	611300400	4824 France Avenue South	Edina
1802824140009	611301411	4830 France Avenue South	Edina

Property ID	Account No.	Street Address	City
1802824140010	611302401	4846 France Avenue South	Edina
1802824410061	611311402	5132 France Avenue South	Edina
1802824410187	6160191400	5100 France Avenue South 101	Edina
1802824410262	6160219400	5120 France Avenue South 101	Edina
1802824440012	611312.401	5232 France Avenue South	Edina
1802824440115	611313.401	5300 France Avenue South	Edina
2002824210134	511817403	3301 54th Street West	Edina
2002824210146	6160265402	5420 Xerxes Avenue South	Edina
2002824240001	2011410.400	5624 Xerxes Avenue South	Edina
2002824240002	2011411.400	5628 Xerxes Avenue South	Edina
2002824240005	2011412.402	5700 Xerxes Avenue South	Edina
2002824240006	2011413.405	5704 Xerxes Avenue South	Edina
2002824240008	2011414.401	5712 Xerxes Avenue South	Edina
2002824240009	2011415.401	5716 Xerxes Avenue South	Edina
2002824240010	2011416.402	5720 Xerxes Avenue South	Edina
2002824240011	2011417.402	5724 Xerxes Avenue South	Edina
2002824240012	2011418.402	5728 Xerxes Avenue South	Edina
2002824240013	2011419.402	5732 Xerxes Avenue South	Edina
2002824240014	2011420.401	5736 Xerxes Avenue South	Edina
2002824240015	2011421.401	5740 Xerxes Avenue South	Edina
2002824240107	2011405.402	5600 Xerxes Avenue South	Edina
2002824240108	2011406.400	5604 Xerxes Avenue South	Edina
2002824240109	2011407.401	5608 Xerxes Avenue South	Edina
2002824240110	2011408.401	5612 Xerxes Avenue South	Edina
2002824240111	2011532.401	5616 Xerxes Avenue South	Edina
2002824240112	2011409.402	5620 Xerxes Avenue South	Edina
2002824310001	6160202407	5800 Xerxes Avenue South	Edina
2002824310003	6160204401	5812 Xerxes Avenue South	Edina
2002824310007	2011425400	5832 Xerxes Avenue South	Edina
2002824310008	2011426401	5836 Xerxes Avenue South	Edina
2002824310009	2011427402	5844 Xerxes Avenue South	Edina
2002824310010	2011428400	5848 Xerxes Avenue South	Edina
2002824310161	6160205401	5900 Xerxes Avenue South	Edina
2002824310162	2011429400	5904 Xerxes Avenue South	Edina
2002824310163	6160206401	5908 Xerxes Avenue South	Edina
2002824310164	2011430401	5912 Xerxes Avenue South	Edina
2002824310165	2011431407	5916 Xerxes Avenue South	Edina

Property ID	Account No.	Street Address	City
2002824310166	6160207400, 6160207401	5920 Xerxes Avenue South	Edina
2002824340004	2011434.401	6016 Xerxes Avenue South	Edina
2002824340005	2011435.403	6020 Xerxes Avenue South	Edina
2002824340006	2011436.402	6026 Xerxes Avenue South	Edina
2002824340007	2011437.401	6030 Xerxes Avenue South	Edina
2002824340008	2011439.402	6036 Xerxes Avenue South	Edina
2002824340009	2011445.403	6124 Xerxes Avenue South	Edina
2002824340010	2011446.403	6128 Xerxes Avenue South	Edina
2002824340011	2011447.402	6132 Xerxes Avenue South	Edina
2002824340031	2011438.402	6032 Xerxes Avenue South	Edina
2002824340032	2011440.401	6040 Xerxes Avenue South	Edina
2002824340053	6160209401	6012 Xerxes Avenue South	Edina
2002824340060	2011441.400	6100 Xerxes Avenue South	Edina
2002824340061	2011442.400	6104 Xerxes Avenue South	Edina
2002824340062	2011443404	6108 Xerxes Avenue South	Edina
2002824340121	2011444.401	6116 Xerxes Avenue South	Edina
1702924240023	1911827401	1915 Xerxes Avenue North	Golden Valley
1702924240024	1911828403, 1911828404, 1911828405	1917 Xerxes Avenue North	Golden Valley
1702924240027	1911831401	1935 Xerxes Avenue North	Golden Valley
1702924240028	1911832.400	1949 Xerxes Avenue North	Golden Valley
1702924310004	1911824401	1707 Xerxes Avenue North	Golden Valley
1702924310006	6020303403, 6020303404	1715 Xerxes Avenue North	Golden Valley
1702924310008	1911825400	1725 Xerxes Avenue North	Golden Valley
1702924310035	1911841400	1611 Xerxes Avenue North	Golden Valley
1702924310036	1911820400	1633 Xerxes Avenue North	Golden Valley
1702924310037	6020302403	1635 Xerxes Avenue North	Golden Valley
1702924310038	1911821403	1639 Xerxes Avenue North	Golden Valley
1702924310044	1911819400	1617 Xerxes Avenue North	Golden Valley
1702924310057	6020301404	1631 Xerxes Avenue North	Golden Valley
1702924340002	1911818400	1541 Xerxes Avenue North	Golden Valley
1702924340003	1911817401	1511 Xerxes Avenue North	Golden Valley
1702924340004	1911816402	1501 Xerxes Avenue North	Golden Valley
1011821440036	6010188401	4623 Xerxes Avenue North	Robbinsdale

Property ID	Account No.	Street Address	City
1011821440037	2030723400	4627 Xerxes Avenue North	Robbinsdale
1011821440038	6010187405	4617 Xerxes Avenue North	Robbinsdale
1011821440039	2030722401	4615 Xerxes Avenue North	Robbinsdale
0702824110006	511804.400	3810 France Avenue South	St Louis Park
0702824110007	511803.401	3808 France Avenue South	St Louis Park
0702824110008	511805.400	3814 France Avenue South	St Louis Park
0702824110009	511806.401	3818 France Avenue South	St Louis Park
0702824110010	511807.403	3824 France Avenue South	St Louis Park
0702824110011	511808.400	3828 France Avenue South	St Louis Park
0702824110012	511809.401	3834 France Avenue South	St Louis Park
0702824110013	511810.405	3838 France Avenue South	St Louis Park
0702824110014	511811.400	3844 France Avenue South	St Louis Park
0702824110105	511812.402	3910 France Avenue South	St Louis Park
0702824110107	511814.405	3930 France Avenue South	St Louis Park
0602923220015	6030456402	3509 Stinson Boulevard Northeast	St. Anthony
0602923230024	1431276403, 1431276404	3421 Stinson Boulevard Northeast	St. Anthony
0602923230026	6030453404	3415 Stinson Boulevard Northeast	St. Anthony
0602923230027	1431275404	3413 Stinson Boulevard Northeast	St. Anthony
0602923230029	1431274401	3401 Stinson Boulevard Northeast	St. Anthony
0602923320001	1431265401	3117 Stinson Boulevard Northeast	St. Anthony
0602923320031	1431269404	3207 Stinson Boulevard Northeast	St. Anthony
0602923320032	1431270402	3211 Stinson Boulevard Northeast	St. Anthony
0602923320033	1431271400	3213 Stinson Boulevard Northeast	St. Anthony
0602923320034	6030449402	3219 Stinson Boulevard Northeast	St. Anthony
0602923320035	6030450403, 6030450404	3239 Stinson Boulevard Northeast	St. Anthony
0602923320036	1431272400	3241 Stinson Boulevard Northeast	St. Anthony
0602923320037	6030451403	3245 Stinson Boulevard Northeast	St. Anthony
0602923320039	1431273404	3249 Stinson Boulevard Northeast	St. Anthony
0602923320056	6030448401	3141 Stinson Boulevard Northeast	St. Anthony
0602923320057	1431266401	3137 Stinson Boulevard Northeast	St. Anthony
0602923320059	1431267401	3149 Stinson Boulevard Northeast	St. Anthony
0702923220001	6030446400	2420 St Anthony Boulevard	St. Anthony

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Appendix J – 2017 Stormwater Catchment Inventory

Minneapolis
City of Lakes

Summary

Receiving Water	Area (acres)	Impervious (Percent)	Single Family and Duplex (Percent)	Multi Family (Percent)	Percent Institutional (Percent)	Commercial (Percent)	Industrial (Percent)	Right-Of-Way (Percent)	Golf Course (Percent)	Park, Recreational, or Preserve (Percent)	Railway (Percent)	Airport (Percent)	Open Water (Percent)
Bassett Creek	1621.227	40.62%	43.07%	1.24%	3.48%	2.13%	3.88%	24.25%	0.00%	20.37%	1.57%	0.00%	0.00%
Birch Pond	38.83913	10.30%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.88%	0.00%	0.00%	0.00%
Brownie Lake	93.86526	40.28%	30.95%	0.00%	0.01%	28.62%	0.00%	18.56%	0.00%	18.17%	3.11%	0.00%	0.58%
Cedar Lake	287.8228	31.50%	37.97%	1.05%	2.17%	0.43%	0.00%	18.65%	0.07%	37.77%	0.65%	0.00%	1.30%
Crystal Lake	420.8843	41.74%	61.97%	1.74%	2.61%	0.72%	0.00%	30.27%	0.00%	2.68%	0.00%	0.00%	0.00%
Diamond Lake	663.6601	47.77%	45.57%	4.01%	2.19%	3.57%	7.93%	27.81%	0.00%	8.91%	0.00%	0.00%	0.00%
Grass Lake	324.7184	43.28%	59.01%	0.12%	3.18%	2.31%	0.00%	29.88%	0.00%	4.86%	0.00%	0.00%	0.64%
Hart Lake	3.328352	51.18%	24.81%	0.00%	0.00%	19.23%	0.00%	52.68%	0.00%	0.00%	3.27%	0.00%	0.00%
Kenilworth Lagoon	41.45015	28.17%	57.84%	0.00%	0.00%	0.00%	0.00%	18.51%	0.00%	22.34%	0.00%	0.00%	1.30%
Lagoon	93.24384	59.97%	30.19%	16.39%	2.52%	7.61%	0.00%	21.19%	0.00%	21.83%	0.00%	0.00%	0.26%
Lake Calhoun	1156.957	44.10%	35.30%	8.05%	1.62%	5.79%	0.14%	20.53%	5.10%	15.11%	0.00%	0.00%	0.02%
Lake Harriet	1120.545	38.57%	46.59%	1.75%	2.80%	1.46%	0.00%	20.20%	0.00%	26.07%	0.00%	0.00%	1.12%
Lake Hiawatha	1243.385	42.92%	49.79%	2.92%	2.90%	1.97%	0.00%	26.89%	10.42%	5.10%	0.00%	0.00%	0.01%
Lake Nokomis	695.8433	35.05%	47.73%	0.10%	2.05%	0.40%	0.00%	22.87%	0.00%	26.61%	0.00%	0.01%	0.23%
Lake of the Isles	728.3157	45.48%	41.77%	10.59%	2.43%	3.39%	0.30%	24.13%	0.00%	17.18%	0.00%	0.00%	0.22%
Legion Lake	2.128003	43.04%	60.49%	0.00%	0.00%	0.00%	0.00%	39.51%	0.00%	0.00%	0.00%	0.00%	0.00%
Loring Pond	27.20128	16.25%	0.00%	3.14%	3.48%	0.07%	0.00%	1.34%	0.00%	91.49%	0.00%	0.00%	0.48%
Minnehaha Creek	3347.379	38.61%	52.95%	0.78%	3.20%	1.51%	0.19%	24.22%	0.73%	15.86%	0.02%	0.00%	0.00%
Mississippi River	20312.97	57.65%	29.22%	6.04%	6.48%	6.08%	11.95%	28.77%	1.55%	7.81%	2.46%	0.07%	0.13%
Mother Lake	30.51718	45.44%	25.27%	0.00%	1.49%	0.09%	0.00%	63.95%	0.00%	0.00%	0.00%	9.20%	0.00%
Powderhorn Lake	322.6616	43.50%	44.26%	5.70%	3.69%	1.64%	0.00%	27.08%	0.00%	17.54%	0.00%	0.00%	0.09%
Richfield Lake	57.56983	65.03%	27.22%	3.44%	1.02%	27.66%	0.07%	40.59%	0.00%	0.00%	0.00%	0.00%	0.00%
Ryan Lake	60.61078	42.29%	50.29%	0.00%	0.00%	0.00%	10.03%	28.27%	0.00%	2.18%	8.77%	0.00%	0.46%
Shingle Creek	1457.685	44.66%	40.50%	1.20%	2.30%	1.08%	8.78%	19.90%	1.17%	22.17%	3.75%	0.00%	0.33%
Silver Lake	24.98636	41.23%	66.09%	3.39%	0.00%	2.24%	0.00%	28.28%	0.00%	0.00%	0.00%	0.00%	0.00%
Spring Lake	49.99404	32.63%	40.24%	0.27%	6.44%	0.00%	0.00%	15.71%	0.00%	37.09%	0.00%	0.00%	0.25%
Taft Lake	138.9113	45.06%	57.64%	0.00%	0.00%	0.00%	0.00%	42.12%	0.00%	0.24%	0.00%	0.00%	0.00%
Wirth Lake	40.58665	6.09%	0.21%	0.00%	0.00%	0.00%	0.00%	0.20%	0.00%	99.59%	0.00%	0.00%	0.00%
Grand Total	34407.28	50.90%	36.17%	4.63%	4.92%	4.54%	7.81%	26.74%	1.58%	11.72%	1.72%	0.05%	0.16%

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Detail

Outfall Number	Watershed Type	Area Acres	Receiving Water	Percent Imperviousness	Percent Direct Imperviousness	Single Family and Duplex (Percent)	Multi Family (Percent)	Institutional (Percent)	Commercial (Percent)	Industrial (Percent)	ROW (Percent)	Golf Course (Percent)	Park, Recreation and Preserve (Percent)	Railway (Percent)	Airport (Percent)	Open Water (Percent)
	Direct Watershed	128.7	Bassett Creek	0.3	0.2	10.3	0.0	0.0	0.0	17.9	7.1	0.0	64.7	0.0	0.0	0.0
40-001A	Pipeshed	20.9	Bassett Creek	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
40-010	Pipeshed	711.8	Bassett Creek	0.5	0.3	60.0	1.7	3.2	2.7	0.0	29.1	0.0	3.4	0.0	0.0	0.0
40-020	Pipeshed	15.3	Bassett Creek	0.5	0.3	67.7	0.0	0.0	0.0	0.0	28.5	0.0	3.9	0.0	0.0	0.0
40-025	Pipeshed	1.4	Bassett Creek	0.5	0.3	43.4	0.0	0.0	0.0	0.0	44.1	0.0	12.4	0.0	0.0	0.0
40-030	Pipeshed	45.4	Bassett Creek	0.4	0.3	61.9	0.0	0.0	0.0	0.0	25.4	0.0	12.7	0.0	0.0	0.0
40-040	Pipeshed	73.3	Bassett Creek	0.4	0.2	62.4	1.3	1.4	0.5	0.0	31.9	0.0	2.5	0.0	0.0	0.0
40-050	Pipeshed	6.8	Bassett Creek	0.7	0.6	13.1	0.0	0.0	0.0	0.0	86.9	0.0	0.0	0.0	0.0	0.0
40-060	Pipeshed	2.2	Bassett Creek	0.4	0.3	65.7	0.0	0.0	0.0	0.0	23.8	0.0	10.5	0.0	0.0	0.0
40-070	Pipeshed	6.0	Bassett Creek	0.5	0.3	34.7	0.0	0.0	0.0	0.3	21.6	0.0	43.5	0.0	0.0	0.0
40-080	Pipeshed	138.6	Bassett Creek	0.3	0.2	29.3	0.0	21.5	5.5	0.0	12.4	0.0	31.2	0.0	0.0	0.0
40-090	Pipeshed	13.3	Bassett Creek	0.4	0.2	70.0	0.0	0.0	0.0	0.5	26.9	0.0	2.5	0.0	0.0	0.0
40-095	Pipeshed	0.5	Bassett Creek	0.5	0.4	0.0	0.0	0.0	0.0	36.6	2.1	0.0	61.3	0.0	0.0	0.0
40-100	Pipeshed	23.5	Bassett Creek	0.4	0.3	35.0	9.4	7.3	1.0	0.0	23.7	0.0	23.7	0.0	0.0	0.0
40-110	Pipeshed	5.7	Bassett Creek	0.4	0.3	61.8	2.5	0.0	0.0	0.0	26.4	0.0	9.2	0.0	0.0	0.0
40-120	Pipeshed	55.2	Bassett Creek	0.4	0.3	60.2	1.6	0.8	2.4	0.0	32.3	0.0	2.7	0.0	0.0	0.0
40-130	Pipeshed	32.1	Bassett Creek	0.5	0.3	52.7	7.9	1.8	1.0	0.0	35.6	0.0	1.0	0.0	0.0	0.0
40-140	Pipeshed	244.9	Bassett Creek	0.3	0.3	19.8	0.2	0.0	2.3	1.1	23.6	0.0	44.9	8.1	0.0	0.0
40-145	Pipeshed	4.7	Bassett Creek	0.7	0.7	5.5	0.0	0.0	0.0	94.3	0.2	0.0	0.0	0.0	0.0	0.0
40-150	Pipeshed	23.9	Bassett Creek	0.6	0.5	34.3	5.0	0.0	0.0	35.1	25.6	0.0	0.0	0.0	0.0	0.0
40-155	Pipeshed	67.0	Bassett Creek	0.4	0.4	0.0	0.0	0.0	0.0	36.0	12.3	0.0	43.2	8.5	0.0	0.0
	Direct Watershed	22.9	Birch Pond	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	99.8	0.0	0.0	0.0
81-010PB	Pipeshed	15.9	Birch Pond	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
	Direct Watershed	24.6	Brownie Lake	0.2	0.2	0.0	0.0	0.0	35.4	0.0	1.1	0.0	56.2	5.1	0.0	2.2
51-010(B)DOT	Pipeshed	3.7	Brownie Lake	0.6	0.5	0.0	0.0	0.0	50.7	0.0	34.7	0.0	14.6	0.0	0.0	0.0
51-010(C)	Pipeshed	25.9	Brownie Lake	0.4	0.2	67.9	0.0	0.0	4.8	0.0	27.4	0.0	0.0	0.0	0.0	0.0
51-020	Pipeshed	12.2	Brownie Lake	0.3	0.2	68.3	0.0	0.0	0.0	0.0	30.6	0.0	1.1	0.0	0.0	0.0
51-030	Pipeshed	16.6	Brownie Lake	0.5	0.5	17.9	0.0	0.0	37.4	0.0	19.9	0.0	14.6	10.1	0.0	0.0
51-040	Pipeshed	0.9	Brownie Lake	0.6	0.4	24.5	0.0	0.0	0.0	0.0	60.4	0.0	15.2	0.0	0.0	0.0

Outfall Number	Watershed Type	Area Acres	Receiving Water	Percent Imperviousness	Percent Direct Imperviousness	Single Family and Duplex (Percent)	Multi Family (Percent)	Institutional (Percent)	Commercial (Percent)	Industrial (Percent)	ROW (Percent)	Golf Course (Percent)	Park, Recreation and Preserve (Percent)	Railway (Percent)	Airport (Percent)	Open Water (Percent)
51-050	Pipeshed	10.1	Brownie Lake	0.8	0.7	0.0	0.0	0.0	87.7	0.0	12.3	0.0	0.0	0.0	0.0	0.0
	Direct Watershed	71.5	Cedar Lake	0.1	0.1	7.5	0.0	0.0	0.0	0.0	2.3	0.0	82.3	2.6	0.0	5.2
52-010	Pipeshed	52.7	Cedar Lake	0.3	0.2	40.2	0.0	0.0	0.0	0.0	17.7	0.0	42.1	0.0	0.0	0.0
52-030	Pipeshed	4.1	Cedar Lake	0.3	0.2	70.1	0.0	0.0	0.0	0.0	29.9	0.0	0.0	0.0	0.0	0.0
52-040	Pipeshed	3.5	Cedar Lake	0.5	0.3	31.4	5.7	0.0	0.0	0.0	29.5	0.0	33.4	0.0	0.0	0.0
52-050	Pipeshed	17.8	Cedar Lake	0.5	0.3	42.5	6.9	0.0	1.7	0.0	33.3	0.0	15.7	0.0	0.0	0.0
52-070	Pipeshed	64.7	Cedar Lake	0.5	0.3	58.2	2.5	1.8	1.5	0.0	33.9	0.0	2.1	0.0	0.0	0.0
52-075	Pipeshed	13.1	Cedar Lake	0.4	0.3	13.2	0.0	23.0	0.0	0.0	9.6	0.0	54.2	0.0	0.0	0.0
52-080	Pipeshed	8.9	Cedar Lake	0.4	0.3	26.5	0.0	22.7	0.0	0.0	5.9	0.0	44.8	0.0	0.0	0.0
52-100	Pipeshed	10.2	Cedar Lake	0.4	0.3	42.7	0.0	0.0	0.0	0.0	15.2	0.0	42.2	0.0	0.0	0.0
52-110	Pipeshed	27.4	Cedar Lake	0.3	0.2	58.7	0.0	0.0	0.0	0.0	17.9	0.0	23.4	0.0	0.0	0.0
52-120	Pipeshed	13.9	Cedar Lake	0.4	0.2	64.6	0.0	0.0	0.0	0.0	31.4	0.0	4.0	0.0	0.0	0.0
63-010	Pipeshed	420.9	Crystal Lake	0.4	0.3	62.0	1.7	2.6	0.7	0.0	30.3	0.0	2.7	0.0	0.0	0.0
	Direct Watershed	28.9	Diamond Lake	0.1	0.1	53.0	0.0	5.0	0.0	0.0	3.4	0.0	38.6	0.0	0.0	0.0
71-020	Pipeshed	15.5	Diamond Lake	0.3	0.2	66.0	0.0	0.0	0.0	0.0	25.7	0.0	8.3	0.0	0.0	0.0
71-030	Pipeshed	29.9	Diamond Lake	0.4	0.3	61.0	2.9	1.9	2.0	0.0	27.4	0.0	4.8	0.0	0.0	0.0
71-040	Pipeshed	17.3	Diamond Lake	0.2	0.1	29.7	0.0	0.0	0.0	0.0	10.5	0.0	59.8	0.0	0.0	0.0
71-050	Pipeshed	122.3	Diamond Lake	0.4	0.2	62.3	0.0	0.9	2.0	0.0	30.7	0.0	4.1	0.0	0.0	0.0
71-060	Pipeshed	4.2	Diamond Lake	0.5	0.3	69.6	0.0	0.0	4.6	0.0	25.5	0.0	0.3	0.0	0.0	0.0
71-070 (A)	Pipeshed	260.6	Diamond Lake	0.6	0.5	31.9	8.2	2.5	7.0	20.2	20.2	0.0	9.9	0.0	0.0	0.0
71-070 (B)	Pipeshed	74.4	Diamond Lake	0.5	0.4	50.9	3.5	2.3	2.2	0.0	41.2	0.0	0.0	0.0	0.0	0.0
71-080 (A)	Pipeshed	40.8	Diamond Lake	0.7	0.7	25.9	1.5	1.7	1.1	0.0	69.8	0.0	0.0	0.0	0.0	0.0
71-080 (B)	Pipeshed	62.6	Diamond Lake	0.3	0.2	64.3	1.9	3.8	0.3	0.0	29.7	0.0	0.0	0.0	0.0	0.0
71-090	Pipeshed	4.3	Diamond Lake	0.4	0.2	55.7	0.0	0.0	0.0	0.0	17.0	0.0	27.3	0.0	0.0	0.0
71-100	Pipeshed	2.7	Diamond Lake	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
	Direct Watershed	6.6	Grass Lake	0.1	0.1	10.6	0.0	0.0	0.0	0.0	8.2	0.0	50.0	0.0	0.0	31.3
83-010DOT	Pipeshed	23.4	Grass Lake	0.7	0.6	27.3	0.0	0.0	25.2	0.0	47.5	0.0	0.0	0.0	0.0	0.0
83-012	Pipeshed	1.1	Grass Lake	0.4	0.3	32.7	0.0	0.0	0.0	0.0	60.6	0.0	6.8	0.0	0.0	0.0
83-015	Pipeshed	0.9	Grass Lake	0.3	0.2	74.7	0.0	0.0	0.0	0.0	9.6	0.0	15.7	0.0	0.0	0.0
83-020 (B)	Pipeshed	55.1	Grass Lake	0.5	0.3	72.6	0.0	0.0	0.4	0.0	26.5	0.0	0.5	0.0	0.0	0.0

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83-030	Pipeshed	1.4	Grass Lake	0.5	0.3	68.1	0.0	0.0	0.0	0.0	19.3	0.0	12.6	0.0	0.0	0.0
83-040	Pipeshed	1.1	Grass Lake	0.4	0.3	67.1	0.0	0.0	0.0	0.0	18.8	0.0	14.1	0.0	0.0	0.0
83-050	Pipeshed	31.5	Grass Lake	0.3	0.2	71.2	0.0	0.0	0.0	0.0	28.4	0.0	0.4	0.0	0.0	0.0
83-060	Pipeshed	8.5	Grass Lake	0.3	0.2	81.2	0.0	0.0	0.0	0.0	16.8	0.0	2.0	0.0	0.0	0.0
83-070	Pipeshed	1.6	Grass Lake	0.4	0.3	51.5	0.0	0.0	0.0	0.0	28.1	0.0	19.7	0.0	0.0	0.7
83-080	Pipeshed	193.5	Grass Lake	0.4	0.3	57.7	0.2	5.3	0.7	0.0	30.3	0.0	5.7	0.0	0.0	0.0
61-010CH	Pipeshed	3.3	Hart Lake	0.5	0.4	24.8	0.0	0.0	19.2	0.0	52.7	0.0	0.0	3.3	0.0	0.0
52-020	Pipeshed	4.2	Kenilworth Lagoon	0.3	0.2	63.2	0.0	0.0	0.0	0.0	31.6	0.0	5.2	0.0	0.0	0.0
53-010	Pipeshed	5.4	Kenilworth Lagoon	0.5	0.3	65.9	0.0	0.0	0.0	0.0	32.5	0.0	1.6	0.0	0.0	0.0
53-030 (A)	Pipeshed	11.6	Kenilworth Lagoon	0.3	0.2	66.9	0.0	0.0	0.0	0.0	29.9	0.0	3.2	0.0	0.0	0.0
	Direct Watershed	20.3	Kenilworth Lagoon	0.2	0.1	49.4	0.0	0.0	0.0	0.0	5.6	0.0	42.4	0.0	0.0	2.7
54-010	Pipeshed	87.5	Lagoon	0.6	0.5	32.2	17.5	2.7	8.1	0.0	22.6	0.0	17.0	0.0	0.0	0.0
54-215	Pipeshed	0.3	Lagoon	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
	Direct Watershed	5.4	Lagoon	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.2	0.0	0.0	3.8
	Direct Watershed	56.7	Lake Calhoun	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	99.5	0.0	0.0	0.4
54-040	Pipeshed	232.6	Lake Calhoun	0.6	0.5	37.6	11.4	2.6	14.4	0.7	31.2	0.0	2.1	0.0	0.0	0.0
54-050 (A)	Pipeshed	27.9	Lake Calhoun	0.3	0.2	12.1	5.3	6.9	0.0	0.0	8.1	0.0	67.6	0.0	0.0	0.0
54-052	Pipeshed	3.2	Lake Calhoun	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
54-055 (A)	Pipeshed	13.8	Lake Calhoun	0.2	0.1	31.3	0.0	0.0	0.0	0.0	11.7	0.0	57.0	0.0	0.0	0.0
54-060	Pipeshed	9.6	Lake Calhoun	0.4	0.3	58.7	0.0	0.0	0.0	0.0	17.2	0.0	24.1	0.0	0.0	0.0
54-070	Pipeshed	52.4	Lake Calhoun	0.5	0.3	64.1	0.5	0.0	0.0	0.0	29.2	0.0	6.2	0.0	0.0	0.0
54-080	Pipeshed	435.3	Lake Calhoun	0.4	0.3	54.6	2.0	1.7	2.2	0.0	24.2	0.0	4.9	0.0	0.0	0.0
54-090	Pipeshed	1.1	Lake Calhoun	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
54-095	Pipeshed	10.3	Lake Calhoun	0.4	0.3	57.1	0.0	0.0	0.0	0.0	12.9	0.0	30.0	0.0	0.0	0.0
54-100	Pipeshed	83.8	Lake Calhoun	0.1	0.1	2.8	0.0	3.4	0.0	0.0	9.2	0.0	0.3	0.0	0.0	0.0
54-110	Pipeshed	25.1	Lake Calhoun	0.2	0.1	26.6	0.0	0.1	0.0	0.0	13.9	0.5	5.8	0.0	0.0	0.0
54-115	Pipeshed	0.0	Lake Calhoun	0.9	0.6	0.0	52.1	0.0	0.0	0.0	47.9	0.0	0.0	0.0	0.0	0.0
54-120	Pipeshed	15.2	Lake Calhoun	0.4	0.2	15.2	8.7	0.0	0.0	0.0	15.1	0.5	15.1	0.0	0.0	0.0
54-130	Pipeshed	0.4	Lake Calhoun	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
54-140 (A)	Pipeshed	113.9	Lake Calhoun	0.6	0.5	4.8	32.4	0.5	16.2	0.0	13.0	0.1	16.7	0.0	0.0	0.0

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54-140 (B)	Pipeshed	8.4	Lake Calhoun	0.6	0.5	0.0	0.0	0.0	41.8	0.0	16.2	0.0	42.1	0.0	0.0	0.0
54-150	Pipeshed	54.7	Lake Calhoun	0.5	0.3	24.8	29.1	0.0	1.2	0.0	12.0	0.0	32.9	0.0	0.0	0.0
54-160	Pipeshed	1.9	Lake Calhoun	1.0	0.8	0.0	69.7	0.0	0.0	0.0	19.1	0.0	11.2	0.0	0.0	0.0
54-170	Pipeshed	6.2	Lake Calhoun	0.7	0.6	0.0	8.8	0.0	23.1	0.0	16.4	0.0	51.8	0.0	0.0	0.0
54-180PB	Pipeshed	1.4	Lake Calhoun	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
54-190	Pipeshed	1.8	Lake Calhoun	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
54-200	Pipeshed	0.9	Lake Calhoun	0.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
54-210	Pipeshed	0.3	Lake Calhoun	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
	Direct Watershed	23.8	Lake Harriet	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.3	0.0	0.0	9.7
57-005	Pipeshed	73.4	Lake Harriet	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
57-010	Pipeshed	25.1	Lake Harriet	0.3	0.2	50.2	0.0	0.0	0.0	0.0	15.4	0.0	34.4	0.0	0.0	0.1
57-015	Pipeshed	0.0	Lake Harriet	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
57-020	Pipeshed	157.3	Lake Harriet	0.5	0.3	63.2	2.6	3.1	0.7	0.0	29.5	0.0	1.0	0.0	0.0	0.0
57-030	Pipeshed	13.4	Lake Harriet	0.3	0.2	52.5	0.0	0.0	0.0	0.0	24.2	0.0	23.3	0.0	0.0	0.0
57-040	Pipeshed	38.2	Lake Harriet	0.3	0.2	71.9	0.0	0.0	0.0	0.0	24.9	0.0	3.2	0.0	0.0	0.0
57-050	Pipeshed	4.0	Lake Harriet	0.3	0.2	54.1	0.0	0.0	0.0	0.0	25.3	0.0	20.6	0.0	0.0	0.0
57-060	Pipeshed	27.2	Lake Harriet	0.5	0.3	67.1	2.0	0.0	3.7	0.0	27.0	0.0	0.1	0.0	0.0	0.0
57-070	Pipeshed	81.4	Lake Harriet	0.4	0.3	69.0	0.0	0.6	0.0	0.0	30.1	0.0	0.3	0.0	0.0	0.0
57-080	Pipeshed	6.8	Lake Harriet	0.3	0.2	77.7	0.0	0.0	0.0	0.0	20.8	0.0	1.5	0.0	0.0	0.0
57-090 (A)	Pipeshed	23.5	Lake Harriet	0.4	0.3	69.5	0.0	0.0	0.0	0.0	30.0	0.0	0.5	0.0	0.0	0.0
57-090 (B)	Pipeshed	3.0	Lake Harriet	0.4	0.2	52.2	0.0	0.0	0.0	0.0	33.1	0.0	14.7	0.0	0.0	0.0
57-095	Pipeshed	4.9	Lake Harriet	0.3	0.2	87.5	0.0	0.0	0.0	0.0	6.4	0.0	6.1	0.0	0.0	0.0
57-100 (A)	Pipeshed	360.8	Lake Harriet	0.5	0.3	60.0	0.7	5.9	3.2	0.0	27.2	0.0	2.9	0.0	0.0	0.0
57-110	Pipeshed	26.3	Lake Harriet	0.3	0.2	50.2	0.6	0.2	0.0	0.0	12.4	0.0	36.5	0.0	0.0	0.0
57-120	Pipeshed	49.9	Lake Harriet	0.6	0.4	38.4	22.6	8.8	5.5	0.0	22.9	0.0	1.9	0.0	0.0	0.0
57-130	Pipeshed	1.8	Lake Harriet	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
57-140	Pipeshed	3.8	Lake Harriet	0.5	0.3	11.9	3.8	0.0	0.0	0.0	20.4	0.0	63.9	0.0	0.0	0.0
57-150	Pipeshed	23.3	Lake Harriet	0.4	0.2	61.8	3.2	1.4	0.0	0.0	25.5	0.0	8.2	0.0	0.0	0.0
57-160	Pipeshed	21.0	Lake Harriet	0.3	0.2	36.0	0.8	0.0	0.0	0.0	5.1	0.0	58.0	0.0	0.0	0.0
57-170	Pipeshed	151.6	Lake Harriet	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.2	0.0	0.0	6.8

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	Direct Watershed	26.5	Lake Hiawatha	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.2	80.8	0.0	0.0	0.7
76-005 (A)	Pipeshed	195.9	Lake Hiawatha	0.2	0.1	23.3	0.7	0.5	0.1	0.0	13.0	0.6	0.0	0.0	0.0	0.0
76-010	Pipeshed	920.2	Lake Hiawatha	0.5	0.3	55.8	3.7	3.8	2.5	0.0	30.3	0.0	3.8	0.0	0.0	0.0
76-020	Pipeshed	88.4	Lake Hiawatha	0.4	0.3	61.3	0.8	0.3	1.5	0.0	30.2	0.0	5.0	0.0	0.0	0.0
76-030	Pipeshed	7.6	Lake Hiawatha	0.6	0.4	44.1	0.0	0.0	0.0	0.0	24.6	0.0	31.3	0.0	0.0	0.0
76-040	Pipeshed	3.4	Lake Hiawatha	0.5	0.3	55.1	3.3	0.0	0.0	0.0	33.8	0.0	7.8	0.0	0.0	0.0
76-050	Pipeshed	1.4	Lake Hiawatha	0.7	0.4	40.8	0.3	0.0	0.0	0.0	34.2	0.0	24.7	0.0	0.0	0.0
	Direct Watershed	43.5	Lake Nokomis	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.1	0.0	0.0	0.9
72-010	Pipeshed	14.3	Lake Nokomis	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
72-020	Pipeshed	21.7	Lake Nokomis	0.5	0.3	52.1	2.0	0.0	3.9	0.0	27.4	0.0	14.6	0.0	0.0	0.0
72-030	Pipeshed	10.3	Lake Nokomis	0.2	0.1	13.2	0.0	0.0	0.0	0.0	0.2	0.0	86.5	0.0	0.0	0.0
72-040 (A)	Pipeshed	149.0	Lake Nokomis	0.4	0.3	63.2	0.2	3.0	0.3	0.0	29.0	0.0	4.2	0.0	0.0	0.0
72-050	Pipeshed	2.7	Lake Nokomis	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
72-055(B)PB	Pipeshed	114.1	Lake Nokomis	0.3	0.2	49.2	0.0	3.2	0.0	0.0	23.7	0.0	23.9	0.0	0.1	0.0
72-090	Pipeshed	92.9	Lake Nokomis	0.3	0.2	48.6	0.0	0.8	0.5	0.0	25.2	0.0	24.1	0.0	0.0	0.6
72-115(A)PB	Pipeshed	148.7	Lake Nokomis	0.3	0.2	52.4	0.0	3.2	0.0	0.0	25.3	0.0	19.1	0.0	0.0	0.0
72-125PB	Pipeshed	78.5	Lake Nokomis	0.4	0.2	58.6	0.0	0.6	1.3	0.0	27.6	0.0	11.9	0.0	0.0	0.0
72-130	Pipeshed	1.6	Lake Nokomis	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.8	0.0	59.3	0.0	0.0	39.9
72-140	Pipeshed	13.1	Lake Nokomis	0.1	0.1	0.0	0.0	0.0	0.0	0.0	1.4	0.0	98.6	0.0	0.0	0.0
72-150	Pipeshed	3.8	Lake Nokomis	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
72-160	Pipeshed	1.7	Lake Nokomis	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
53-020	Pipeshed	8.5	Lake of the Isles	0.5	0.3	59.7	0.0	0.0	0.0	0.0	33.3	0.0	7.0	0.0	0.0	0.0
53-040	Pipeshed	2.4	Lake of the Isles	0.4	0.3	66.3	0.0	0.0	0.0	0.0	19.9	0.0	13.8	0.0	0.0	0.0
53-050	Pipeshed	12.5	Lake of the Isles	0.4	0.2	71.7	0.0	0.0	0.0	0.0	22.8	0.0	5.6	0.0	0.0	0.0
53-060	Pipeshed	18.7	Lake of the Isles	0.4	0.2	65.6	0.2	0.0	0.8	0.0	28.4	0.0	5.1	0.0	0.0	0.0
53-070	Pipeshed	2.5	Lake of the Isles	0.4	0.2	51.8	0.0	0.0	0.0	0.0	26.3	0.0	21.9	0.0	0.0	0.0
53-080	Pipeshed	10.0	Lake of the Isles	0.4	0.2	62.5	0.0	0.0	0.0	0.0	21.4	0.0	16.1	0.0	0.0	0.0
53-090	Pipeshed	44.7	Lake of the Isles	0.4	0.2	66.7	0.6	3.2	0.7	0.0	25.5	0.0	3.3	0.0	0.0	0.0
53-100	Pipeshed	114.8	Lake of the Isles	0.3	0.2	42.9	0.4	1.6	0.0	0.0	19.6	0.0	35.5	0.0	0.0	0.0
53-110	Pipeshed	4.5	Lake of the Isles	0.3	0.2	45.6	0.0	0.0	0.0	0.0	10.1	0.0	44.4	0.0	0.0	0.0

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53-120	Pipeshed	92.0	Lake of the Isles	0.5	0.3	55.9	10.5	2.3	2.6	0.0	28.2	0.0	0.4	0.0	0.0	0.0
53-130	Pipeshed	7.8	Lake of the Isles	0.4	0.2	71.2	0.0	0.0	0.0	0.0	16.8	0.0	12.1	0.0	0.0	0.0
53-140	Pipeshed	3.8	Lake of the Isles	0.4	0.3	69.6	0.0	0.0	0.0	0.0	20.3	0.0	10.1	0.0	0.0	0.0
53-150	Pipeshed	138.6	Lake of the Isles	0.6	0.4	40.4	15.1	4.0	7.5	0.0	31.0	0.0	2.0	0.0	0.0	0.0
53-160	Pipeshed	193.1	Lake of the Isles	0.6	0.4	32.5	23.7	3.5	5.9	1.1	27.8	0.0	5.4	0.0	0.0	0.0
53-170	Pipeshed	6.0	Lake of the Isles	0.4	0.3	57.0	0.0	0.0	0.0	0.0	21.3	0.0	21.7	0.0	0.0	0.0
53-180	Pipeshed	0.6	Lake of the Isles	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
53-190	Pipeshed	7.0	Lake of the Isles	0.3	0.2	50.6	0.0	0.0	0.0	0.0	13.2	0.0	36.2	0.0	0.0	0.0
	Direct Watershed	60.7	Lake of the Isles	0.1	0.1	3.6	0.0	0.0	0.0	0.0	0.3	0.0	93.4	0.0	0.0	2.7
64-110	Pipeshed	2.1	Legion Lake	0.4	0.3	60.5	0.0	0.0	0.0	0.0	39.5	0.0	0.0	0.0	0.0	0.0
	Direct Watershed	20.0	Loring Pond	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.0	99.1	0.0	0.0	0.7
45-010	Pipeshed	0.0	Loring Pond	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
45-020	Pipeshed	2.2	Loring Pond	0.6	0.5	0.0	39.3	43.5	0.4	0.0	14.7	0.0	2.1	0.0	0.0	0.0
45-030	Pipeshed	5.0	Loring Pond	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
	Direct Watershed	286.7	Minnehaha Creek	0.2	0.1	10.8	0.0	3.8	0.0	0.0	2.6	0.0	72.7	0.1	0.0	0.0
70-005ED	Pipeshed	3.9	Minnehaha Creek	0.6	0.4	57.3	0.1	9.5	0.0	0.0	33.1	0.0	0.0	0.0	0.0	0.0
70-010ED	Pipeshed	4.2	Minnehaha Creek	0.5	0.3	60.2	0.0	0.0	5.5	0.0	34.3	0.0	0.0	0.0	0.0	0.0
70-015	Pipeshed	9.4	Minnehaha Creek	0.4	0.3	66.9	0.0	0.0	0.0	0.0	32.4	0.0	0.8	0.0	0.0	0.0
70-020	Pipeshed	33.0	Minnehaha Creek	0.4	0.2	71.1	0.0	0.0	0.0	0.0	28.9	0.0	0.0	0.0	0.0	0.0
70-025	Pipeshed	0.9	Minnehaha Creek	0.6	0.3	45.2	0.0	0.0	0.0	0.0	54.8	0.0	0.0	0.0	0.0	0.0
70-030	Pipeshed	10.6	Minnehaha Creek	0.4	0.2	69.6	0.0	0.0	0.0	0.0	30.4	0.0	0.0	0.0	0.0	0.0
70-035	Pipeshed	5.2	Minnehaha Creek	0.5	0.3	76.7	0.0	0.0	0.0	0.0	20.9	0.0	2.4	0.0	0.0	0.0
70-040	Pipeshed	2.5	Minnehaha Creek	0.4	0.2	67.8	0.0	0.0	0.0	0.0	27.5	0.0	4.6	0.0	0.0	0.0
70-050	Pipeshed	12.8	Minnehaha Creek	0.2	0.1	72.1	0.0	0.0	0.0	0.0	27.9	0.0	0.0	0.0	0.0	0.0
70-055	Pipeshed	319.0	Minnehaha Creek	0.4	0.3	62.6	0.7	1.2	1.6	0.0	27.2	0.0	6.7	0.0	0.0	0.0
70-060	Pipeshed	0.6	Minnehaha Creek	0.4	0.3	34.8	0.0	0.0	0.0	0.0	5.4	0.0	59.8	0.0	0.0	0.0
70-065	Pipeshed	11.5	Minnehaha Creek	0.2	0.2	83.4	0.0	0.0	0.0	0.0	10.0	0.0	6.5	0.0	0.0	0.0
70-075	Pipeshed	2.5	Minnehaha Creek	0.3	0.2	59.2	0.0	0.0	0.0	0.0	40.8	0.0	0.0	0.0	0.0	0.0
70-080	Pipeshed	8.6	Minnehaha Creek	0.4	0.3	53.8	0.3	0.0	3.6	0.0	36.6	0.0	5.7	0.0	0.0	0.0
70-085	Pipeshed	228.0	Minnehaha Creek	0.4	0.2	69.4	0.1	0.7	0.4	0.0	28.5	0.0	1.0	0.0	0.0	0.0

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70-090	Pipeshed	14.5	Minnehaha Creek	0.4	0.2	64.0	0.0	0.0	0.0	0.0	33.3	0.0	2.7	0.0	0.0	0.0
70-100	Pipeshed	7.7	Minnehaha Creek	0.5	0.3	64.1	0.0	0.0	0.0	0.0	35.9	0.0	0.0	0.0	0.0	0.0
70-130	Pipeshed	81.8	Minnehaha Creek	0.4	0.3	56.6	0.0	10.5	0.0	0.0	25.4	0.0	7.5	0.0	0.0	0.0
70-150	Pipeshed	8.6	Minnehaha Creek	0.3	0.2	56.0	0.0	0.0	0.0	0.0	6.1	0.0	37.9	0.0	0.0	0.0
70-152	Pipeshed	0.3	Minnehaha Creek	0.4	0.2	45.0	0.0	0.0	0.0	0.0	35.8	0.0	19.2	0.0	0.0	0.0
70-153	Pipeshed	0.1	Minnehaha Creek	0.6	0.4	20.4	0.0	0.0	0.0	0.0	40.3	0.0	39.3	0.0	0.0	0.0
70-157	Pipeshed	1.2	Minnehaha Creek	0.4	0.3	30.3	0.0	0.0	0.0	0.0	34.1	0.0	35.6	0.0	0.0	0.0
70-165	Pipeshed	25.6	Minnehaha Creek	0.3	0.2	69.8	0.0	0.0	0.0	0.0	28.4	0.0	1.8	0.0	0.0	0.0
70-167	Pipeshed	2.3	Minnehaha Creek	0.2	0.1	29.8	0.0	0.0	0.0	0.0	37.0	0.0	33.2	0.0	0.0	0.0
70-170	Pipeshed	28.1	Minnehaha Creek	0.3	0.2	56.7	0.8	0.0	0.0	0.0	22.8	0.0	19.6	0.0	0.0	0.0
70-175	Pipeshed	34.8	Minnehaha Creek	0.4	0.3	55.1	0.6	2.3	1.0	0.0	28.0	0.0	13.0	0.0	0.0	0.0
70-180	Pipeshed	57.8	Minnehaha Creek	0.4	0.3	68.3	0.5	1.1	0.5	0.0	27.3	0.0	2.2	0.0	0.0	0.0
70-185	Pipeshed	1.3	Minnehaha Creek	0.3	0.2	37.4	0.0	0.0	0.0	0.0	2.0	0.0	60.5	0.0	0.0	0.0
70-190	Pipeshed	11.7	Minnehaha Creek	0.4	0.2	67.0	0.0	0.0	0.0	0.0	31.7	0.0	1.3	0.0	0.0	0.0
70-200	Pipeshed	44.6	Minnehaha Creek	0.4	0.2	67.9	0.0	5.7	0.0	0.0	24.0	0.0	2.3	0.0	0.0	0.0
70-225	Pipeshed	11.8	Minnehaha Creek	0.4	0.2	66.3	0.0	0.0	0.0	0.0	30.1	0.0	3.6	0.0	0.0	0.0
70-240	Pipeshed	5.1	Minnehaha Creek	0.4	0.2	70.8	0.0	0.0	0.0	0.0	22.6	0.0	6.5	0.0	0.0	0.0
70-245	Pipeshed	10.1	Minnehaha Creek	0.4	0.2	67.2	0.0	0.0	0.0	0.0	28.0	0.0	4.9	0.0	0.0	0.0
70-250	Pipeshed	3.1	Minnehaha Creek	0.5	0.3	71.7	0.0	0.0	0.0	0.0	24.0	0.0	4.3	0.0	0.0	0.0
70-253	Pipeshed	71.8	Minnehaha Creek	0.5	0.4	47.9	2.3	4.8	14.0	0.0	30.2	0.0	0.8	0.0	0.0	0.0
70-255 (A)	Pipeshed	3.4	Minnehaha Creek	0.1	0.1	92.8	0.0	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0
70-255 (B)	Pipeshed	39.3	Minnehaha Creek	0.3	0.2	69.0	0.0	0.0	0.0	0.7	28.4	0.0	2.0	0.0	0.0	0.0
70-260 (A)	Pipeshed	0.0	Minnehaha Creek	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
70-260 (B)	Pipeshed	22.4	Minnehaha Creek	0.3	0.2	66.6	0.0	0.0	0.0	2.8	27.7	0.0	2.9	0.0	0.0	0.0
70-265 (A)	Pipeshed	14.8	Minnehaha Creek	0.3	0.2	74.6	0.0	0.0	0.0	0.0	20.9	0.0	4.5	0.0	0.0	0.0
70-265 (B)	Pipeshed	137.3	Minnehaha Creek	0.5	0.3	59.0	4.2	5.3	3.8	0.0	26.2	0.0	1.5	0.0	0.0	0.0
70-270	Pipeshed	4.8	Minnehaha Creek	0.2	0.1	76.9	0.0	0.0	0.0	0.0	16.9	0.0	6.2	0.0	0.0	0.0
70-275	Pipeshed	5.2	Minnehaha Creek	0.4	0.3	19.0	0.0	0.2	2.2	0.0	11.5	0.0	67.1	0.0	0.0	0.0
70-280	Pipeshed	8.9	Minnehaha Creek	0.3	0.2	72.5	0.0	0.0	0.0	0.0	24.0	0.0	3.5	0.0	0.0	0.0
70-285	Pipeshed	14.7	Minnehaha Creek	0.3	0.2	72.7	0.2	0.0	0.0	0.0	27.1	0.0	0.0	0.0	0.0	0.0

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70-290	Pipeshed	4.5	Minnehaha Creek	0.3	0.2	76.6	0.0	0.0	0.0	0.0	14.8	0.0	8.6	0.0	0.0	0.0
70-295	Pipeshed	2.0	Minnehaha Creek	0.2	0.1	27.1	0.0	0.0	0.0	0.0	2.4	0.0	70.5	0.0	0.0	0.0
70-300	Pipeshed	3.7	Minnehaha Creek	0.3	0.2	49.9	0.0	0.0	0.0	0.0	42.9	0.0	7.2	0.0	0.0	0.0
70-305	Pipeshed	12.2	Minnehaha Creek	0.3	0.2	71.3	3.0	0.0	0.0	0.0	25.1	0.0	0.6	0.0	0.0	0.0
70-307	Pipeshed	0.4	Minnehaha Creek	0.4	0.3	19.1	0.0	0.0	0.0	0.0	80.9	0.0	0.0	0.0	0.0	0.0
70-310	Pipeshed	3.1	Minnehaha Creek	0.2	0.1	72.2	0.0	0.0	0.0	0.0	16.7	0.0	11.1	0.0	0.0	0.0
70-315	Pipeshed	10.6	Minnehaha Creek	0.3	0.2	50.9	0.0	0.0	0.0	0.0	12.4	0.0	36.6	0.0	0.0	0.0
70-320	Pipeshed	25.2	Minnehaha Creek	0.3	0.2	71.6	0.0	0.0	0.0	0.0	23.4	0.0	5.0	0.0	0.0	0.0
70-325	Pipeshed	1.7	Minnehaha Creek	0.4	0.2	89.9	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0
70-330	Pipeshed	262.6	Minnehaha Creek	0.5	0.3	56.9	0.4	11.7	0.8	0.0	30.2	0.0	0.1	0.0	0.0	0.0
70-335	Pipeshed	1.6	Minnehaha Creek	0.4	0.3	25.0	0.0	0.0	0.0	0.0	10.4	0.0	64.6	0.0	0.0	0.0
70-340	Pipeshed	0.6	Minnehaha Creek	0.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
70-345	Pipeshed	4.3	Minnehaha Creek	0.3	0.2	60.8	0.0	0.0	0.0	0.0	27.4	0.0	11.8	0.0	0.0	0.0
70-350	Pipeshed	236.5	Minnehaha Creek	0.4	0.3	44.5	1.0	0.3	3.1	0.1	24.0	0.0	27.0	0.0	0.0	0.0
70-355	Pipeshed	1.5	Minnehaha Creek	0.3	0.2	48.7	0.0	0.0	0.0	0.0	31.1	0.0	20.2	0.0	0.0	0.0
70-360	Pipeshed	138.8	Minnehaha Creek	0.3	0.2	51.6	0.4	0.6	1.3	0.0	23.2	0.0	23.0	0.0	0.0	0.0
70-365	Pipeshed	5.2	Minnehaha Creek	0.5	0.3	60.4	0.0	8.4	0.0	0.0	25.0	0.0	6.2	0.0	0.0	0.0
70-370	Pipeshed	3.7	Minnehaha Creek	0.3	0.2	56.2	0.0	0.0	0.0	0.0	16.6	0.0	27.3	0.0	0.0	0.0
70-375	Pipeshed	5.6	Minnehaha Creek	0.4	0.3	52.6	0.0	7.5	0.0	0.0	34.7	0.0	5.2	0.0	0.0	0.0
70-380	Pipeshed	14.7	Minnehaha Creek	0.4	0.2	67.1	0.0	0.0	0.0	0.0	27.8	0.0	5.0	0.0	0.0	0.0
70-385	Pipeshed	20.7	Minnehaha Creek	0.3	0.2	64.0	0.7	0.0	0.0	0.0	25.6	0.0	9.7	0.0	0.0	0.0
70-390 (B)	Pipeshed	54.6	Minnehaha Creek	0.4	0.2	61.8	0.0	5.5	0.0	0.0	32.1	0.0	0.6	0.0	0.0	0.0
70-395	Pipeshed	50.0	Minnehaha Creek	0.4	0.2	66.9	0.0	0.0	0.0	0.0	27.7	0.0	5.3	0.0	0.0	0.0
70-400	Pipeshed	7.8	Minnehaha Creek	0.3	0.2	65.0	0.0	0.0	0.0	0.0	31.5	0.0	3.5	0.0	0.0	0.0
70-405	Pipeshed	3.5	Minnehaha Creek	0.4	0.3	45.9	0.0	0.0	0.0	0.0	40.7	0.0	13.4	0.0	0.0	0.0
70-407	Pipeshed	0.5	Minnehaha Creek	0.8	0.6	0.0	0.0	0.0	0.0	0.0	2.9	0.0	97.1	0.0	0.0	0.0
70-408	Pipeshed	1.1	Minnehaha Creek	0.3	0.3	0.2	0.0	0.0	0.0	0.0	2.8	0.0	97.0	0.0	0.0	0.0
70-410	Pipeshed	4.1	Minnehaha Creek	0.4	0.3	47.6	0.0	0.0	0.0	0.0	33.4	0.0	19.0	0.0	0.0	0.0
70-415	Pipeshed	105.8	Minnehaha Creek	0.4	0.2	46.8	0.1	0.7	0.9	0.0	24.2	0.0	27.3	0.0	0.0	0.0
70-420	Pipeshed	12.4	Minnehaha Creek	0.4	0.2	64.9	0.0	0.0	0.0	0.0	34.0	0.0	1.1	0.0	0.0	0.0

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70-425PB	Pipeshed	19.5	Minnehaha Creek	0.4	0.3	20.9	0.6	5.9	14.3	0.0	19.3	0.0	39.0	0.0	0.0	0.0
70-427	Pipeshed	29.6	Minnehaha Creek	0.1	0.1	16.7	0.0	0.0	0.0	0.0	6.5	0.0	76.8	0.0	0.0	0.0
70-430	Pipeshed	2.8	Minnehaha Creek	0.3	0.2	0.0	0.0	0.0	0.1	0.0	0.6	0.1	91.3	0.0	0.0	0.0
70-435	Pipeshed	7.7	Minnehaha Creek	0.3	0.2	0.0	0.0	0.0	0.0	0.0	2.2	0.0	97.8	0.0	0.0	0.0
70-440	Pipeshed	28.0	Minnehaha Creek	0.6	0.4	43.6	1.2	11.6	6.8	0.0	30.5	0.1	0.0	0.0	0.0	0.0
70-443PB	Pipeshed	13.3	Minnehaha Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.9	7.8	0.0	0.0	0.0
70-445	Pipeshed	5.4	Minnehaha Creek	0.4	0.2	52.4	0.0	0.0	0.0	0.0	21.9	0.0	25.7	0.0	0.0	0.0
70-446	Pipeshed	0.0	Minnehaha Creek	0.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
70-447	Pipeshed	1.6	Minnehaha Creek	0.7	0.4	50.3	0.0	0.0	0.0	0.0	36.6	0.0	13.1	0.0	0.0	0.0
70-449	Pipeshed	0.4	Minnehaha Creek	0.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
70-450	Pipeshed	0.7	Minnehaha Creek	0.7	0.4	28.1	8.1	0.0	0.0	0.0	54.8	0.0	9.1	0.0	0.0	0.0
70-465	Pipeshed	2.9	Minnehaha Creek	0.4	0.2	66.9	0.0	0.0	0.0	0.0	28.9	0.0	4.2	0.0	0.0	0.0
70-467	Pipeshed	0.1	Minnehaha Creek	0.7	0.5	14.6	0.0	0.0	0.0	0.0	9.7	0.0	75.7	0.0	0.0	0.0
70-470	Pipeshed	6.3	Minnehaha Creek	0.4	0.2	66.0	0.2	0.0	0.0	0.0	31.9	0.0	2.0	0.0	0.0	0.0
70-475	Pipeshed	229.2	Minnehaha Creek	0.5	0.3	60.7	1.9	7.1	1.2	0.0	28.9	0.0	0.1	0.1	0.0	0.0
70-477	Pipeshed	1.3	Minnehaha Creek	0.4	0.2	45.2	0.0	0.0	0.0	0.0	49.6	0.0	5.2	0.0	0.0	0.0
70-479	Pipeshed	2.3	Minnehaha Creek	0.4	0.2	69.1	0.0	0.0	0.0	0.0	21.8	0.0	9.1	0.0	0.0	0.0
70-480	Pipeshed	0.2	Minnehaha Creek	0.5	0.3	0.0	0.0	0.0	0.0	0.0	15.9	0.0	84.1	0.0	0.0	0.0
70-485	Pipeshed	6.4	Minnehaha Creek	0.4	0.2	68.3	0.0	0.0	0.0	0.0	31.0	0.0	0.7	0.0	0.0	0.0
70-490 (A)	Pipeshed	48.0	Minnehaha Creek	0.4	0.3	55.5	0.2	14.7	0.0	0.0	29.1	0.0	0.4	0.1	0.0	0.0
70-495	Pipeshed	8.2	Minnehaha Creek	0.3	0.2	50.4	0.0	0.0	0.0	0.0	21.4	0.0	28.2	0.0	0.0	0.0
70-500	Pipeshed	0.8	Minnehaha Creek	0.4	0.2	46.0	0.0	0.0	0.0	0.0	36.1	0.0	17.9	0.0	0.0	0.0
70-505	Pipeshed	6.9	Minnehaha Creek	0.4	0.2	65.9	0.0	0.0	0.0	0.0	25.1	0.0	9.1	0.0	0.0	0.0
70-510	Pipeshed	35.9	Minnehaha Creek	0.3	0.2	50.2	3.2	0.3	0.3	0.0	20.2	0.0	25.8	0.0	0.0	0.0
70-515	Pipeshed	66.6	Minnehaha Creek	0.5	0.3	54.3	4.4	3.3	7.5	0.0	27.8	0.0	2.7	0.0	0.0	0.0
70-520	Pipeshed	4.1	Minnehaha Creek	0.4	0.2	47.9	0.0	0.0	0.0	0.0	31.3	0.0	20.8	0.0	0.0	0.0
70-525	Pipeshed	4.7	Minnehaha Creek	0.3	0.2	54.6	0.0	0.0	0.0	0.0	21.8	0.0	23.6	0.0	0.0	0.0
70-530	Pipeshed	1.0	Minnehaha Creek	0.4	0.2	70.3	0.0	0.0	0.0	0.0	2.2	0.0	27.5	0.0	0.0	0.0
70-535	Pipeshed	23.5	Minnehaha Creek	0.4	0.3	59.6	0.9	0.0	2.8	0.0	29.7	0.0	6.3	0.6	0.0	0.0
70-540	Pipeshed	5.2	Minnehaha Creek	0.5	0.3	69.5	0.0	0.0	0.0	0.0	25.6	0.0	5.0	0.0	0.0	0.0

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70-545	Pipeshed	2.3	Minnehaha Creek	0.5	0.3	48.7	0.0	0.0	0.0	0.0	29.4	0.0	21.9	0.0	0.0	0.0
70-550	Pipeshed	2.0	Minnehaha Creek	0.4	0.2	47.8	0.0	0.0	0.0	0.0	50.4	0.0	1.8	0.0	0.0	0.0
70-555	Pipeshed	0.8	Minnehaha Creek	0.4	0.3	4.2	0.0	0.0	0.0	0.0	5.7	0.0	90.0	0.1	0.0	0.0
70-560	Pipeshed	4.0	Minnehaha Creek	0.3	0.2	54.4	0.0	0.0	0.0	0.0	19.8	0.0	25.9	0.0	0.0	0.0
70-570	Pipeshed	1.7	Minnehaha Creek	0.3	0.2	60.3	0.0	0.0	0.0	0.0	24.1	0.0	15.6	0.0	0.0	0.0
70-575	Pipeshed	16.3	Minnehaha Creek	0.3	0.2	72.9	0.0	0.0	0.0	0.0	25.1	0.0	2.0	0.0	0.0	0.0
70-576	Pipeshed	3.7	Minnehaha Creek	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
70-577PB	Pipeshed	1.0	Minnehaha Creek	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
70-578PB	Pipeshed	3.2	Minnehaha Creek	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
70-579PB	Pipeshed	0.7	Minnehaha Creek	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
70-580	Pipeshed	137.4	Minnehaha Creek	0.4	0.3	40.6	1.2	0.0	2.2	3.6	22.1	0.0	30.3	0.0	0.0	0.0
10-010DOT	Pipeshed	84.5	Mississippi River	0.4	0.3	52.2	0.0	2.5	0.2	0.0	34.3	0.0	10.7	0.0	0.0	0.0
10-015PB	Pipeshed	0.8	Mississippi River	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-020PB	Pipeshed	2.4	Mississippi River	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	99.6	0.0	0.0	0.0
10-030PB	Pipeshed	8.3	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.0	99.4	0.0	0.0	0.0
10-040DOT	Pipeshed	160.4	Mississippi River	0.5	0.4	39.5	0.0	7.6	0.7	4.2	39.1	0.0	8.9	0.0	0.0	0.0
10-050	Pipeshed	116.9	Mississippi River	0.5	0.3	57.5	1.3	1.4	3.5	6.8	28.6	0.0	0.8	0.0	0.0	0.0
10-055PB	Pipeshed	1.8	Mississippi River	0.3	0.3	0.0	0.0	0.0	0.0	33.4	6.2	0.0	60.3	0.0	0.0	0.0
10-060	Pipeshed	6.5	Mississippi River	0.2	0.2	0.0	0.0	0.0	0.0	68.6	31.1	0.0	0.4	0.0	0.0	0.0
10-065PB	Pipeshed	0.3	Mississippi River	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-067PB	Pipeshed	26.0	Mississippi River	0.3	0.3	0.0	0.0	0.0	0.0	91.8	0.9	0.0	7.3	0.0	0.0	0.0
10-070PB	Pipeshed	15.4	Mississippi River	0.3	0.2	0.0	0.0	0.0	0.0	3.5	1.9	0.0	87.3	7.2	0.0	0.1
10-073	Pipeshed	65.2	Mississippi River	0.8	0.8	0.1	0.0	0.0	0.0	84.1	15.6	0.0	0.0	0.2	0.0	0.0
10-074PRV	Pipeshed	10.9	Mississippi River	0.2	0.2	0.0	0.0	0.0	0.0	65.9	14.7	0.0	13.1	6.3	0.0	0.0
10-077	Pipeshed	1.1	Mississippi River	0.0	0.0	0.0	0.0	0.0	0.0	60.9	39.1	0.0	0.0	0.0	0.0	0.0
10-085PRV	Pipeshed	1.9	Mississippi River	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
10-090(A)PRV	Pipeshed	2.9	Mississippi River	0.9	0.9	0.0	0.0	0.0	0.0	97.7	2.2	0.0	0.0	0.0	0.0	0.2
10-090(B)PRV	Pipeshed	8.6	Mississippi River	0.9	0.9	0.0	0.0	0.0	0.0	81.0	4.5	0.0	0.0	13.3	0.0	1.2
10-090(C)PRV	Pipeshed	7.6	Mississippi River	0.7	0.7	0.0	0.0	0.0	0.0	81.4	2.6	0.0	0.0	16.0	0.0	0.0
10-090(D)PRV	Pipeshed	7.2	Mississippi River	0.9	0.9	0.0	0.0	0.0	0.0	90.3	8.7	0.0	0.0	1.0	0.0	0.0

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10-100	Pipeshed	1466.7	Mississippi River	0.4	0.4	34.9	0.5	0.6	0.7	15.1	21.0	0.1	5.0	9.0	0.0	0.0
10-110 (A)	Pipeshed	292.4	Mississippi River	0.5	0.3	46.6	0.9	0.9	1.5	3.2	36.9	0.0	10.0	0.0	0.0	0.0
10-115PB	Pipeshed	2.9	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-117PB	Pipeshed	0.1	Mississippi River	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-120 (C)	Pipeshed	0.8	Mississippi River	1.0	1.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
10-120(a)	Pipeshed	103.8	Mississippi River	0.5	0.4	34.9	2.3	4.3	2.7	22.7	25.2	0.0	3.4	4.4	0.0	0.0
10-120(b)	Pipeshed	256.8	Mississippi River	0.4	0.3	57.7	2.7	3.2	2.0	5.2	28.8	0.0	0.0	0.3	0.0	0.0
10-130	Pipeshed	322.2	Mississippi River	0.7	0.6	24.3	1.0	3.9	2.6	27.7	17.0	0.0	0.5	23.0	0.0	0.0
10-140(a)	Pipeshed	3.4	Mississippi River	1.0	0.9	0.0	0.0	0.0	0.0	86.4	5.3	0.0	0.0	0.0	0.0	8.3
10-145	Pipeshed	10.9	Mississippi River	0.8	0.8	5.1	0.0	0.0	11.7	34.2	40.9	0.0	0.0	0.5	0.0	7.7
10-150	Pipeshed	148.4	Mississippi River	0.6	0.5	41.3	1.9	0.0	7.4	17.0	28.8	0.0	1.2	1.9	0.0	0.6
10-160	Pipeshed	20.8	Mississippi River	0.6	0.6	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0
10-170	Pipeshed	167.6	Mississippi River	0.5	0.4	34.6	4.3	5.8	3.6	15.3	28.6	0.0	7.8	0.0	0.0	0.0
10-180	Pipeshed	276.1	Mississippi River	0.5	0.4	43.9	6.7	5.1	3.6	4.3	29.2	0.0	5.9	1.4	0.0	0.0
10-183PB	Pipeshed	1.4	Mississippi River	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-185PRV	Pipeshed	11.1	Mississippi River	1.0	1.0	0.0	0.0	0.0	0.0	92.2	7.8	0.0	0.0	0.0	0.0	0.0
10-190	Pipeshed	26.9	Mississippi River	0.9	0.9	0.0	0.0	0.0	0.0	76.5	21.5	0.0	0.0	2.0	0.0	0.0
10-200	Pipeshed	47.4	Mississippi River	0.6	0.5	22.7	0.2	5.8	1.8	27.2	19.5	0.0	3.9	18.9	0.0	0.0
10-210 (A)	Pipeshed	2.2	Mississippi River	1.0	1.0	0.0	0.0	0.0	0.0	84.6	15.4	0.0	0.0	0.0	0.0	0.0
10-210 (B)	Pipeshed	87.6	Mississippi River	0.6	0.5	34.3	0.6	6.7	2.0	22.4	23.5	0.0	9.7	0.8	0.0	0.0
10-220	Pipeshed	17.5	Mississippi River	0.8	0.7	0.0	11.1	38.7	11.1	5.0	16.9	0.0	17.1	0.0	0.0	0.0
10-230	Pipeshed	231.0	Mississippi River	0.5	0.4	45.3	2.9	7.8	3.7	9.0	31.1	0.0	0.2	0.0	0.0	0.0
10-240	Pipeshed	115.3	Mississippi River	0.8	0.7	15.7	5.0	4.3	20.2	15.8	35.5	0.0	2.9	0.0	0.0	0.5
10-250	Pipeshed	245.1	Mississippi River	0.6	0.4	37.8	8.1	7.5	6.6	11.2	28.5	0.0	0.0	0.1	0.0	0.2
10-260	Pipeshed	16.5	Mississippi River	0.9	0.8	0.0	0.0	15.9	36.4	22.3	18.7	0.0	6.8	0.0	0.0	0.0
10-270	Pipeshed	71.4	Mississippi River	0.6	0.5	31.6	8.2	3.5	3.0	22.8	30.9	0.0	0.0	0.0	0.0	0.0
10-280	Pipeshed	44.5	Mississippi River	0.9	0.9	0.0	0.0	0.3	1.1	70.0	28.7	0.0	0.0	0.0	0.0	0.0
10-290	Pipeshed	17.8	Mississippi River	0.6	0.5	0.0	0.0	0.0	0.0	53.8	14.5	0.0	29.2	0.0	0.0	2.5
10-295	Pipeshed	851.1	Mississippi River	0.6	0.5	17.5	16.8	7.8	5.0	18.4	30.7	0.0	3.7	0.1	0.0	0.0
10-297	Pipeshed	3.2	Mississippi River	0.8	0.6	0.9	81.8	0.0	0.0	6.7	10.6	0.0	0.0	0.0	0.0	0.0

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10-300	Pipeshed	1.4	Mississippi River	0.9	0.8	0.0	0.0	0.0	0.0	0.0	18.8	0.0	39.6	0.0	0.0	41.6
10-305	Pipeshed	23.9	Mississippi River	0.5	0.4	36.9	5.0	0.0	0.2	5.1	22.7	0.0	30.2	0.0	0.0	0.0
10-310(B)	Pipeshed	66.0	Mississippi River	0.4	0.3	34.2	6.0	8.4	0.7	0.0	25.4	0.0	25.2	0.0	0.0	0.0
10-315	Pipeshed	3.0	Mississippi River	0.3	0.2	17.2	0.0	0.0	0.0	0.0	7.1	0.0	75.7	0.0	0.0	0.0
10-316	Pipeshed	6.5	Mississippi River	0.2	0.2	26.1	0.0	0.0	0.0	0.0	10.7	0.0	63.1	0.0	0.0	0.0
10-320	Pipeshed	394.3	Mississippi River	0.6	0.5	37.0	7.3	4.7	4.0	12.3	24.4	0.0	5.5	4.9	0.0	0.0
10-325	Pipeshed	2.6	Mississippi River	0.3	0.2	38.4	11.5	0.0	0.0	0.0	8.4	0.0	41.7	0.0	0.0	0.0
10-330	Pipeshed	30.8	Mississippi River	0.7	0.5	59.2	12.8	1.2	4.6	0.9	10.7	0.0	9.1	1.5	0.0	0.0
10-340	Pipeshed	7.0	Mississippi River	0.6	0.5	0.0	0.2	84.7	1.5	2.4	2.9	0.0	8.3	0.0	0.0	0.0
10-345	Pipeshed	5.3	Mississippi River	0.7	0.5	0.0	35.5	34.5	0.0	0.0	24.5	0.0	5.5	0.0	0.0	0.0
10-350	Pipeshed	30.9	Mississippi River	0.9	0.8	9.8	23.0	0.0	26.6	9.1	29.0	0.0	2.0	0.0	0.0	0.4
10-360	Pipeshed	16.1	Mississippi River	0.6	0.5	0.0	0.9	32.5	8.2	0.0	22.8	0.0	29.8	5.8	0.0	0.0
10-370	Pipeshed	11.9	Mississippi River	0.8	0.6	0.0	27.0	4.6	20.7	0.0	32.1	0.0	14.6	0.0	0.0	1.0
10-373	Pipeshed	0.9	Mississippi River	0.7	0.6	0.0	0.0	0.0	0.5	0.0	32.9	0.0	57.6	0.0	0.0	8.9
10-375PB	Pipeshed	1.3	Mississippi River	0.4	0.4	0.0	0.0	0.0	79.6	0.0	4.2	0.0	16.2	0.0	0.0	0.0
10-380	Pipeshed	20.4	Mississippi River	0.9	0.8	0.0	15.3	41.4	10.2	0.0	14.5	0.0	16.1	0.0	0.0	2.5
10-390 (B)	Pipeshed	18.7	Mississippi River	0.9	0.8	6.3	19.1	0.0	0.6	39.4	14.3	0.0	13.5	6.1	0.0	0.7
10-390(A)PRV	Pipeshed	30.1	Mississippi River	0.8	0.7	0.0	20.4	0.0	24.5	16.1	26.3	0.0	7.4	0.0	0.0	5.3
10-395	Pipeshed	16.1	Mississippi River	0.9	0.7	0.0	33.1	9.7	19.7	0.1	11.1	0.0	26.3	0.0	0.0	0.0
10-395PB	Pipeshed	2.9	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.6	0.0	0.0	5.4
10-397	Pipeshed	2.8	Mississippi River	0.9	0.8	0.0	0.0	0.0	0.0	65.1	0.4	0.0	33.4	0.0	0.0	1.1
10-400DOT	Pipeshed	809.4	Mississippi River	0.7	0.6	17.5	3.2	8.0	10.5	10.6	42.1	0.0	6.4	1.6	0.0	0.0
10-410	Pipeshed	349.7	Mississippi River	1.0	0.9	0.5	3.8	8.6	49.4	0.1	35.8	0.0	1.6	0.3	0.0	0.0
10-420	Pipeshed	192.7	Mississippi River	0.9	0.8	1.4	7.3	16.1	32.3	5.7	29.3	0.0	7.5	0.4	0.0	0.0
10-430DOT	Pipeshed	3188.7	Mississippi River	0.6	0.5	30.1	12.4	5.8	7.8	0.8	36.8	0.0	6.3	0.0	0.0	0.0
10-440DOT	Pipeshed	1273.1	Mississippi River	0.5	0.4	33.3	2.1	2.0	4.4	7.9	33.5	0.1	16.1	0.7	0.0	0.0
10-450	Pipeshed	1020.8	Mississippi River	0.7	0.6	17.8	9.1	5.6	7.4	25.3	24.1	0.0	3.2	7.4	0.0	0.0
10-455	Pipeshed	6.7	Mississippi River	0.7	0.7	0.0	0.0	0.0	2.8	43.9	27.6	0.0	25.6	0.0	0.0	0.0
10-460	Pipeshed	827.0	Mississippi River	0.7	0.7	14.6	3.5	2.9	5.1	49.0	20.4	0.0	0.0	4.5	0.0	0.0
10-465PB	Pipeshed	19.6	Mississippi River	0.5	0.4	0.0	17.2	0.0	0.0	0.0	13.9	0.0	68.9	0.0	0.0	0.0

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10-470	Pipeshed	10.3	Mississippi River	0.6	0.6	0.0	0.0	83.2	0.0	0.0	16.0	0.0	0.8	0.0	0.0	0.0
10-475	Pipeshed	0.2	Mississippi River	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-480	Pipeshed	26.8	Mississippi River	0.6	0.5	0.0	11.1	46.7	8.6	0.0	22.2	0.0	11.4	0.0	0.0	0.0
10-485	Pipeshed	12.6	Mississippi River	0.6	0.5	0.0	0.0	70.3	0.0	0.0	0.2	0.0	29.5	0.0	0.0	0.0
10-487	Pipeshed	2.3	Mississippi River	0.9	0.8	0.0	0.0	68.1	0.0	0.0	27.7	0.0	4.3	0.0	0.0	0.0
10-488	Pipeshed	3.4	Mississippi River	0.6	0.5	0.0	0.0	63.2	0.0	0.0	27.6	0.0	9.2	0.0	0.0	0.0
10-489	Pipeshed	2.3	Mississippi River	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	99.9	0.0	0.0	0.0
10-490	Pipeshed	138.9	Mississippi River	0.7	0.6	5.1	25.3	24.9	9.5	0.5	28.4	0.0	3.7	2.5	0.0	0.0
10-500	Pipeshed	636.8	Mississippi River	0.6	0.5	29.3	13.7	7.6	4.4	4.2	34.1	0.0	4.8	1.8	0.0	0.0
10-505	Pipeshed	8.6	Mississippi River	0.6	0.5	0.0	0.0	51.6	0.0	0.0	11.3	0.0	37.1	0.0	0.0	0.0
10-506	Pipeshed	2.1	Mississippi River	0.5	0.4	0.0	0.0	14.6	0.0	0.0	0.0	0.0	85.4	0.0	0.0	0.0
10-507	Pipeshed	6.1	Mississippi River	0.2	0.1	0.0	0.0	4.1	0.0	0.0	0.0	0.0	95.9	0.0	0.0	0.0
10-508	Pipeshed	0.1	Mississippi River	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-510	Pipeshed	55.4	Mississippi River	0.7	0.6	4.5	5.7	46.5	4.8	0.0	27.6	0.0	10.9	0.0	0.0	0.0
10-511	Pipeshed	2.5	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	98.1	0.0	0.0	1.6
10-512	Pipeshed	3.0	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.8	0.0	0.0	0.2
10-513	Pipeshed	6.4	Mississippi River	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-515	Pipeshed	14.1	Mississippi River	0.2	0.2	0.0	0.0	0.0	0.0	0.0	6.4	0.0	93.6	0.0	0.0	0.0
10-530	Pipeshed	200.9	Mississippi River	0.8	0.7	2.4	3.5	63.2	3.6	6.4	16.4	0.0	0.8	3.7	0.0	0.0
10-540DOT	Pipeshed	34.8	Mississippi River	0.6	0.5	5.2	0.8	0.0	0.0	0.0	54.1	0.0	39.9	0.0	0.0	0.0
10-550	Pipeshed	23.1	Mississippi River	0.5	0.4	36.3	20.1	0.0	4.8	0.0	32.2	0.0	6.6	0.0	0.0	0.0
10-560	Pipeshed	331.8	Mississippi River	0.8	0.7	2.9	7.6	10.0	6.5	46.3	15.1	0.2	3.4	8.2	0.0	0.0
10-565	Pipeshed	152.0	Mississippi River	0.6	0.5	26.0	10.1	3.4	9.1	2.5	40.6	0.0	8.3	0.0	0.0	0.0
10-568	Pipeshed	23.3	Mississippi River	0.6	0.4	40.9	6.9	13.5	1.1	0.0	25.7	0.0	9.7	2.4	0.0	0.0
10-570	Pipeshed	218.5	Mississippi River	0.5	0.4	39.4	3.5	2.7	7.2	7.5	30.4	0.0	9.3	0.0	0.0	0.0
10-580	Pipeshed	8.4	Mississippi River	0.3	0.2	78.1	0.0	0.0	0.0	0.0	13.7	0.0	8.2	0.0	0.0	0.0
10-600	Pipeshed	126.2	Mississippi River	0.3	0.2	62.0	1.4	3.0	1.9	0.0	29.1	0.0	0.9	1.6	0.0	0.0
10-605	Pipeshed	2.5	Mississippi River	0.4	0.4	0.0	0.0	80.5	0.0	0.0	0.1	0.0	19.4	0.0	0.0	0.0
10-607	Pipeshed	1.8	Mississippi River	0.4	0.3	0.0	0.0	38.5	0.0	0.0	0.0	0.0	61.5	0.0	0.0	0.0
10-610	Pipeshed	40.5	Mississippi River	0.4	0.3	51.9	0.5	1.7	0.6	2.4	32.6	0.0	10.4	0.0	0.0	0.0

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10-615	Pipeshed	15.1	Mississippi River	0.3	0.3	4.1	0.0	28.1	0.0	0.0	8.4	0.0	16.2	43.2	0.0	0.0
10-630DOT	Pipeshed	989.1	Mississippi River	0.6	0.5	26.8	4.9	7.4	12.4	11.2	28.0	0.0	9.0	0.4	0.0	0.0
10-640	Pipeshed	271.8	Mississippi River	0.5	0.3	54.3	3.3	5.8	2.9	2.6	29.9	0.0	1.2	0.0	0.0	0.0
10-660	Pipeshed	297.7	Mississippi River	0.4	0.3	59.6	0.9	2.8	0.4	1.9	28.1	0.0	6.4	0.0	0.0	0.0
10-670	Pipeshed	144.7	Mississippi River	0.4	0.2	65.5	0.2	1.5	0.0	0.0	28.6	0.0	4.2	0.0	0.0	0.0
10-680	Pipeshed	666.5	Mississippi River	0.5	0.4	48.9	2.4	3.3	2.9	6.5	33.1	0.0	0.8	2.1	0.0	0.0
10-690	Pipeshed	68.5	Mississippi River	0.4	0.3	39.9	0.0	33.1	0.0	0.0	16.4	0.0	10.6	0.0	0.0	0.0
10-700	Pipeshed	214.4	Mississippi River	0.5	0.3	55.9	4.8	3.3	0.7	4.0	28.4	0.0	2.8	0.0	0.0	0.0
10-710	Pipeshed	38.3	Mississippi River	0.3	0.2	35.7	1.7	10.5	0.1	0.0	12.3	0.0	39.7	0.0	0.0	0.0
10-712	Pipeshed	0.2	Mississippi River	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
10-720	Pipeshed	1009.9	Mississippi River	0.5	0.3	50.3	3.0	5.0	1.4	0.8	30.7	0.0	6.9	0.7	1.4	0.0
10-800	Pipeshed	2.3	Mississippi River	0.3	0.2	0.0	0.0	0.0	0.0	0.0	2.7	0.0	97.3	0.0	0.0	0.0
15-005UM	Pipeshed	3.2	Mississippi River	0.6	0.6	0.0	0.0	2.1	0.0	92.3	5.6	0.0	0.0	0.0	0.0	0.0
15-010UM	Pipeshed	2.4	Mississippi River	0.4	0.4	0.0	0.0	93.1	0.0	0.0	1.8	0.0	0.0	5.0	0.0	0.0
15-020UM	Pipeshed	0.2	Mississippi River	0.9	0.8	0.0	0.0	80.2	0.0	0.0	19.8	0.0	0.0	0.0	0.0	0.0
15-030UM	Pipeshed	0.2	Mississippi River	0.9	0.8	0.0	0.0	99.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
15-040UM	Pipeshed	3.7	Mississippi River	0.9	0.9	0.0	0.0	92.3	0.0	0.0	3.8	0.0	0.0	3.9	0.0	0.0
15-045UM	Pipeshed	0.5	Mississippi River	0.9	0.8	0.0	0.0	96.8	0.0	0.0	0.0	0.0	1.1	0.0	0.0	2.1
15-050UM	Pipeshed	28.8	Mississippi River	0.7	0.7	0.0	0.5	50.4	0.8	2.4	3.8	0.0	0.4	41.3	0.0	0.4
15-060UM	Pipeshed	0.7	Mississippi River	0.8	0.8	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-070UM	Pipeshed	4.8	Mississippi River	0.7	0.6	0.0	0.0	94.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0
15-080UM	Pipeshed	13.5	Mississippi River	0.7	0.6	0.0	0.0	97.0	0.0	0.0	2.4	0.0	0.6	0.0	0.0	0.0
15-100UM	Pipeshed	11.9	Mississippi River	0.8	0.7	0.0	0.0	72.3	0.0	0.0	23.5	0.0	4.2	0.0	0.0	0.0
15-110UM	Pipeshed	3.1	Mississippi River	0.9	0.8	0.0	0.0	58.0	0.0	0.0	38.7	0.0	3.2	0.0	0.0	0.0
15-120UM	Pipeshed	2.1	Mississippi River	0.9	0.8	0.0	0.0	68.5	0.0	0.0	27.3	0.0	4.2	0.0	0.0	0.0
15-130UM	Pipeshed	7.7	Mississippi River	0.9	0.8	0.0	0.0	99.2	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
15-140UM	Pipeshed	0.4	Mississippi River	0.4	0.4	0.0	0.0	27.3	0.0	0.0	72.7	0.0	0.0	0.0	0.0	0.0
15-145UM	Pipeshed	28.6	Mississippi River	0.8	0.7	0.0	0.0	83.3	0.0	0.0	3.7	0.0	13.0	0.0	0.0	0.0
15-150UM	Pipeshed	4.0	Mississippi River	0.7	0.6	0.0	0.0	59.7	0.0	0.0	32.1	0.0	8.2	0.0	0.0	0.0
15-160UM	Pipeshed	8.4	Mississippi River	0.8	0.7	0.0	0.0	90.7	0.0	0.0	5.6	0.0	3.7	0.0	0.0	0.0

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15-170UM	Pipeshed	1.7	Mississippi River	0.5	0.5	0.0	0.0	99.2	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
10-080PRV	Pipeshed	23.0	Mississippi River	0.9	0.8	0.0	0.0	0.0	0.0	81.0	6.9	0.0	0.0	12.1	0.0	0.0
	Direct Watershed	15.8	Mississippi River	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	94.8	0.0	0.0	0.0
	Direct Watershed	120.7	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	3.2	1.1	0.0	94.6	0.0	0.0	1.0
	Direct Watershed	81.8	Mississippi River	0.2	0.2	0.0	6.2	0.3	0.0	0.0	5.1	0.0	80.5	0.2	0.0	2.9
	Direct Watershed	0.3	Mississippi River	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
	Direct Watershed	3.1	Mississippi River	0.8	0.7	0.0	0.0	68.2	0.0	0.0	12.1	0.0	0.3	0.1	0.0	19.3
	Direct Watershed	1.8	Mississippi River	0.7	0.7	0.0	0.0	29.7	12.1	0.0	44.7	0.0	0.0	9.0	0.0	4.5
	Direct Watershed	10.0	Mississippi River	0.3	0.3	0.0	0.7	31.1	0.0	55.6	4.2	0.0	6.2	0.9	0.0	1.3
	Direct Watershed	41.2	Mississippi River	0.5	0.4	0.0	0.0	0.0	0.0	23.8	2.9	0.0	71.2	0.0	0.0	2.1
	Direct Watershed	1.8	Mississippi River	1.0	1.0	0.0	0.0	0.0	0.0	0.0	44.7	0.0	0.0	0.0	0.0	55.3
	Direct Watershed	1.1	Mississippi River	0.4	0.3	0.0	0.0	0.0	0.0	2.1	0.3	0.0	66.8	0.0	0.0	30.7
	Direct Watershed	0.6	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.6	0.0	0.0	0.4
	Direct Watershed	5.8	Mississippi River	0.5	0.5	0.0	0.0	12.9	0.0	80.8	2.3	0.0	0.0	0.0	0.0	4.0
	Direct Watershed	12.7	Mississippi River	0.4	0.4	0.0	0.0	0.0	0.0	50.7	9.7	0.0	34.3	0.0	0.0	5.3
	Direct Watershed	0.9	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.2	0.0	0.0	4.8
	Direct Watershed	0.5	Mississippi River	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.8	0.0	0.0	0.2
	Direct Watershed	0.4	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.9	0.0	0.0	8.1
	Direct Watershed	1.3	Mississippi River	0.2	0.2	1.5	44.2	0.0	0.0	0.0	52.3	0.0	0.0	1.9	0.0	0.0
	Direct Watershed	1.3	Mississippi River	0.5	0.3	46.8	0.0	0.0	0.0	0.0	52.4	0.0	0.0	0.8	0.0	0.0
	Direct Watershed	14.8	Mississippi River	0.3	0.2	0.0	0.0	2.5	6.8	0.0	9.6	0.0	77.3	1.3	0.0	2.5
	Direct Watershed	13.7	Mississippi River	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.3	0.6	0.0	2.2
	Direct Watershed	2.6	Mississippi River	0.5	0.5	5.0	3.2	0.0	38.8	0.0	36.4	0.0	0.0	16.5	0.0	0.0
	Direct Watershed	10.5	Mississippi River	0.5	0.5	0.7	15.3	0.0	3.6	31.8	36.5	0.0	0.9	11.2	0.0	0.0
	Direct Watershed	16.6	Mississippi River	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.0	93.8	0.0	0.0	5.5
	Direct Watershed	6.2	Mississippi River	0.9	0.9	2.1	0.0	0.0	15.6	53.6	19.2	0.0	0.0	9.5	0.0	0.0
	Direct Watershed	14.2	Mississippi River	0.2	0.2	0.0	0.0	0.0	0.0	93.8	4.0	0.0	0.0	0.0	0.0	2.2
	Direct Watershed	7.2	Mississippi River	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
	Direct Watershed	0.0	Mississippi River	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
	Direct Watershed	0.0	Mississippi River	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0

Outfall Number	Watershed Type	Area Acres	Receiving Water	Percent Imperviousness	Percent Direct Imperviousness	Single Family and Duplex (Percent)	Multi Family (Percent)	Institutional (Percent)	Commercial (Percent)	Industrial (Percent)	ROW (Percent)	Golf Course (Percent)	Park, Recreation and Preserve (Percent)	Railway (Percent)	Airport (Percent)	Open Water (Percent)
	Direct Watershed	23.3	Mississippi River	0.6	0.6	0.0	0.8	6.6	0.0	43.1	13.6	0.0	26.6	5.1	0.0	4.1
	Direct Watershed	21.5	Mississippi River	0.3	0.3	19.3	2.8	0.0	4.1	26.3	5.6	0.0	28.5	6.5	0.0	6.9
	Direct Watershed	0.3	Mississippi River	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.9	0.0	0.0	33.1
	Direct Watershed	0.6	Mississippi River	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.4	0.0	0.0	21.6
	Direct Watershed	19.0	Mississippi River	0.8	0.8	0.0	0.0	0.0	0.0	69.2	2.2	0.0	0.0	13.8	0.0	14.7
	Direct Watershed	0.1	Mississippi River	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.2	0.0	0.0	16.8
	Direct Watershed	80.6	Mississippi River	0.4	0.4	0.4	0.9	1.7	2.8	76.3	6.7	0.0	8.3	0.0	0.0	2.9
	Direct Watershed	1.1	Mississippi River	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
	Direct Watershed	0.2	Mississippi River	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
	Direct Watershed	36.7	Mississippi River	0.1	0.1	0.0	0.0	0.0	0.0	0.0	2.2	0.0	97.8	0.0	0.0	0.0
	Direct Watershed	7.0	Mississippi River	0.6	0.5	0.0	0.0	9.8	0.0	23.1	1.0	0.0	9.0	0.0	0.0	0.0
	Direct Watershed	27.8	Mother Lake	0.5	0.4	22.5	0.0	1.6	0.1	0.0	65.8	0.0	0.0	0.0	9.9	0.0
74-020	Pipeshed	2.8	Mother Lake	0.5	0.2	52.7	0.0	0.0	0.0	0.0	45.5	0.0	0.0	0.0	1.8	0.0
	Direct Watershed	44.6	Powderhorn Lake	0.1	0.1	4.1	0.3	0.0	0.0	0.0	0.6	0.0	94.4	0.0	0.0	0.6
82-010	Pipeshed	24.5	Powderhorn Lake	0.6	0.4	33.0	14.2	9.7	5.6	0.0	26.3	0.0	11.1	0.0	0.0	0.0
82-015	Pipeshed	3.1	Powderhorn Lake	0.2	0.1	4.7	3.5	0.0	0.0	0.0	10.8	0.0	80.9	0.0	0.0	0.0
82-020	Pipeshed	69.9	Powderhorn Lake	0.4	0.3	51.7	7.8	0.9	1.9	0.0	30.1	0.0	7.6	0.0	0.0	0.0
82-030	Pipeshed	81.2	Powderhorn Lake	0.5	0.3	53.8	6.6	1.5	2.2	0.0	33.9	0.0	2.1	0.0	0.0	0.0
82-040	Pipeshed	99.4	Powderhorn Lake	0.5	0.3	53.3	3.9	7.7	0.8	0.0	32.0	0.0	2.2	0.0	0.0	0.0
65-010DOT	Pipeshed	5.3	Richfield Lake	0.8	0.7	4.8	30.4	0.3	14.0	0.8	49.7	0.0	0.0	0.0	0.0	0.0
65-020(A)DOT	Pipeshed	52.2	Richfield Lake	0.6	0.5	29.5	0.7	1.1	29.0	0.0	39.7	0.0	0.0	0.0	0.0	0.0
	Direct Watershed	4.9	Ryan Lake	0.1	0.1	4.7	0.0	0.0	0.0	81.6	8.0	0.0	0.0	0.0	0.0	5.7
21-010	Pipeshed	55.7	Ryan Lake	0.5	0.3	54.3	0.0	0.0	0.0	3.7	30.1	0.0	2.4	9.5	0.0	0.0
	Direct Watershed	79.5	Shingle Creek	0.2	0.2	1.8	1.5	8.7	0.5	2.1	5.8	0.0	77.4	2.0	0.0	0.0
20-010	Pipeshed	1.8	Shingle Creek	0.5	0.3	50.9	0.0	0.0	0.0	0.0	40.7	0.0	8.4	0.0	0.0	0.0
20-011 (A)	Pipeshed	93.0	Shingle Creek	0.4	0.3	61.3	0.0	0.0	0.0	0.0	23.5	0.2	10.0	0.0	0.0	5.1
20-012	Pipeshed	1.5	Shingle Creek	0.6	0.3	40.3	10.3	0.0	0.0	0.0	47.5	0.0	1.9	0.0	0.0	0.0
20-013	Pipeshed	0.7	Shingle Creek	0.3	0.2	30.8	0.0	0.0	0.0	0.0	13.9	0.0	55.3	0.0	0.0	0.0
20-020	Pipeshed	5.5	Shingle Creek	0.3	0.2	38.9	1.4	0.0	0.0	0.0	21.8	0.0	37.9	0.0	0.0	0.0
20-030	Pipeshed	8.6	Shingle Creek	0.4	0.3	62.6	0.0	0.0	0.0	0.0	22.8	0.0	14.6	0.0	0.0	0.0

Outfall Number	Watershed Type	Area Acres	Receiving Water	Percent Imperviousness	Percent Direct Imperviousness	Single Family and Duplex (Percent)	Multi Family (Percent)	Institutional (Percent)	Commercial (Percent)	Industrial (Percent)	ROW (Percent)	Golf Course (Percent)	Park, Recreation and Preserve (Percent)	Railway (Percent)	Airport (Percent)	Open Water (Percent)
20-040	Pipeshed	16.4	Shingle Creek	0.4	0.2	68.1	0.0	0.0	0.0	0.0	20.1	0.0	11.8	0.0	0.0	0.0
20-050	Pipeshed	1.4	Shingle Creek	0.4	0.2	65.0	0.0	0.0	0.0	0.0	19.4	0.0	15.6	0.0	0.0	0.0
20-060	Pipeshed	3.6	Shingle Creek	0.7	0.5	33.2	0.0	27.1	0.0	0.0	33.4	0.0	6.2	0.0	0.0	0.0
20-065	Pipeshed	1.4	Shingle Creek	0.4	0.3	48.3	0.0	0.0	0.0	0.0	33.5	0.0	18.1	0.0	0.0	0.0
20-067PRV	Pipeshed	3.6	Shingle Creek	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
20-070	Pipeshed	34.5	Shingle Creek	0.4	0.3	62.5	0.0	4.5	0.0	0.0	28.2	0.0	4.8	0.0	0.0	0.0
20-080	Pipeshed	34.4	Shingle Creek	0.4	0.3	69.9	0.5	1.6	0.0	0.0	19.1	0.0	9.0	0.0	0.0	0.0
20-090	Pipeshed	4.1	Shingle Creek	0.7	0.6	0.0	0.0	68.7	0.0	0.0	13.1	0.0	18.2	0.0	0.0	0.0
20-095	Pipeshed	0.4	Shingle Creek	0.4	0.2	65.1	0.0	0.0	0.0	0.0	0.0	0.0	34.9	0.0	0.0	0.0
20-100 (B)	Pipeshed	34.9	Shingle Creek	0.5	0.3	54.1	0.0	0.6	0.0	0.0	25.8	0.0	19.5	0.0	0.0	0.0
20-110	Pipeshed	104.0	Shingle Creek	0.6	0.5	30.7	0.0	0.0	0.9	48.0	14.9	0.0	0.4	5.1	0.0	0.0
20-125	Pipeshed	13.0	Shingle Creek	0.4	0.3	68.4	0.0	0.0	0.0	0.0	25.7	0.0	5.9	0.0	0.0	0.0
20-133	Pipeshed	1.1	Shingle Creek	0.6	0.4	38.3	0.0	0.0	0.0	0.0	26.6	0.0	35.1	0.0	0.0	0.0
20-134PRV	Pipeshed	8.1	Shingle Creek	0.7	0.7	0.0	0.0	0.0	0.0	98.8	1.0	0.0	0.1	0.0	0.0	0.0
20-135PRV	Pipeshed	59.6	Shingle Creek	0.8	0.8	0.0	0.0	0.0	0.0	83.6	0.7	0.0	0.0	15.7	0.0	0.0
20-140	Pipeshed	2.5	Shingle Creek	0.5	0.3	61.8	6.5	0.0	0.0	0.0	13.7	0.0	18.1	0.0	0.0	0.0
20-150	Pipeshed	12.7	Shingle Creek	0.4	0.2	65.4	0.0	0.0	0.0	0.0	29.6	0.0	5.0	0.0	0.0	0.0
20-170	Pipeshed	3.4	Shingle Creek	0.5	0.3	40.0	0.0	0.0	0.0	0.0	13.0	0.0	47.0	0.0	0.0	0.0
20-180	Pipeshed	45.7	Shingle Creek	0.9	0.9	3.3	6.3	0.2	0.0	11.2	4.5	0.0	3.3	71.3	0.0	0.0
20-190	Pipeshed	1.0	Shingle Creek	0.5	0.4	27.9	0.0	0.0	0.0	0.0	13.0	0.0	59.1	0.0	0.0	0.0
20-200	Pipeshed	18.9	Shingle Creek	0.4	0.3	59.5	0.0	1.6	0.0	0.0	25.4	0.0	13.5	0.0	0.0	0.0
20-210 (A)	Pipeshed	227.6	Shingle Creek	0.3	0.2	45.8	0.6	0.7	0.6	0.0	20.3	0.0	30.1	1.9	0.0	0.0
20-210 (B)	Pipeshed	0.1	Shingle Creek	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
20-215	Pipeshed	475.3	Shingle Creek	0.4	0.2	44.9	1.7	2.9	0.9	0.0	20.3	0.0	29.1	0.3	0.0	0.0
20-220	Pipeshed	29.1	Shingle Creek	0.6	0.5	38.2	1.6	0.0	4.1	21.6	27.9	0.0	6.6	0.0	0.0	0.0
20-230	Pipeshed	24.0	Shingle Creek	0.5	0.3	33.0	0.8	2.1	0.0	0.0	17.3	0.0	46.8	0.0	0.0	0.0
20-240	Pipeshed	33.8	Shingle Creek	0.5	0.4	49.2	5.5	9.6	6.8	0.0	28.5	0.0	0.4	0.0	0.0	0.0
20-250	Pipeshed	7.2	Shingle Creek	0.8	0.8	5.6	0.0	0.0	34.3	0.0	57.0	0.0	3.1	0.0	0.0	0.0
20-260	Pipeshed	6.0	Shingle Creek	1.0	1.0	0.0	0.0	0.0	10.3	71.7	18.0	0.0	0.0	0.0	0.0	0.0
20-270DOT	Pipeshed	41.7	Shingle Creek	0.5	0.3	59.9	2.6	2.1	1.0	0.0	34.4	0.0	0.0	0.0	0.0	0.0

Outfall Number	Watershed Type	Area Acres	Receiving Water	Percent Imperviousness	Percent Direct Imperviousness	Single Family and Duplex (Percent)	Multi Family (Percent)	Institutional (Percent)	Commercial (Percent)	Industrial (Percent)	ROW (Percent)	Golf Course (Percent)	Park, Recreation and Preserve (Percent)	Railway (Percent)	Airport (Percent)	Open Water (Percent)
20-280DOT	Pipeshed	8.8	Shingle Creek	0.8	0.7	0.0	0.0	0.0	0.5	2.8	94.2	0.0	2.6	0.0	0.0	0.0
20-290DOT	Pipeshed	8.6	Shingle Creek	0.8	0.7	0.0	0.0	0.0	17.2	31.2	48.6	0.0	3.1	0.0	0.0	0.0
62-010SAV	Pipeshed	25.0	Silver Lake	0.4	0.3	66.1	3.4	0.0	2.2	0.0	28.3	0.0	0.0	0.0	0.0	0.0
	Direct Watershed	10.8	Spring Lake	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	98.6	0.0	0.0	1.1
43-010	Pipeshed	11.6	Spring Lake	0.6	0.5	17.5	0.0	27.7	0.0	0.0	11.2	0.0	43.6	0.0	0.0	0.0
43-020	Pipeshed	16.8	Spring Lake	0.3	0.2	65.0	0.0	0.0	0.0	0.0	22.5	0.0	12.5	0.0	0.0	0.0
43-030	Pipeshed	10.8	Spring Lake	0.3	0.2	66.5	1.3	0.0	0.0	0.0	25.3	0.0	6.9	0.0	0.0	0.0
	Direct Watershed	0.2	Taft Lake	0.4	0.3	0.0	0.0	0.0	0.0	0.0	96.6	0.0	0.0	0.0	3.4	0.0
73-010	Pipeshed	53.2	Taft Lake	0.4	0.2	68.8	0.0	0.0	0.0	0.0	31.2	0.0	0.0	0.0	0.0	0.0
73-020	Pipeshed	85.6	Taft Lake	0.5	0.4	50.8	0.0	0.0	0.0	0.0	48.8	0.0	0.4	0.0	0.0	0.0
	Direct Watershed	4.0	Wirth Lake	0.1	0.1	2.1	0.0	0.0	0.0	0.0	0.1	0.0	97.7	0.0	0.0	0.0
42-010	Pipeshed	0.0	Wirth Lake	1.0	0.6	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0
42-030	Pipeshed	36.6	Wirth Lake	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	99.8	0.0	0.0	0.0

Appendix K – Water Resource Management Implementation Program (2019 to 2028)

Minneapolis
City of Lakes

Implementation Activities

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
Part I – Administration and City-Wide Programs and Projects					
Create/Modify City Ordinances	Review and revise ordinances as needed to meet the requirements of the City's SWMP and the BCWMC, MCWD, MWMO, and SCWMC.	The City's ordinances will be reviewed to ensure consistency with the goals and policies of this WRMP and for consistency with WMO, state, and federal rules and policies.	City Staff	2018-2019	SW Utility
Capital Improvement Program Updates	The City's Capital Improvement Program needs to be revised periodically.	The capital improvements program will be reviewed annually to include projects or programs that are necessary or recommended.	City Staff	Ongoing	SW Utility
WRMP Amendments	This WRMP may need to be amended periodically.	This WMRP will be amended as required.	As Required	As Required	SW Utility
WRMP Update/Revision	This WRMP will expire in 2028 and needs to be updated/revised to be consistent with WMO plans and policies and state and federal rules.	This WRMP will be updated to maintain compliance with state and federal rules and WMO policies.	300,000	2026-2028	SW Utility
Stormwater Public Education Activities	Implement the City's education program including educational and outreach tasks called out in the City's SWMP.	Maintain the education program to educate residents about water resource issues.	90,000 per year	Ongoing	SW Utility
Public Participation and Involvement	Continue to implement public participation and public involvement activities called out in the City's SWMP.	Tap into numerous public participation and public involvement activities to solicit input on specific stormwater-related activities and decisions.	City Staff	Ongoing	SW Utility
Illicit Discharges Investigation Program	Minimize the discharge of pollutants to the maximum extent practicable by detecting, investigating, and resolving illicit discharges.	Addressing all illegal dumping and disposal of unpermitted, non-stormwater flows in the City's stormwater drainage system including pipes, gutters, swales, and other conveyance infrastructure.	City Staff	Ongoing	SW Utility
Spill Response Program	Minimize the discharge of pollutants to lakes, creeks, wetlands, and the Mississippi River by appropriately responding to spills.	The immediate goals of response are safety, containment of the spill, recovery of hazardous materials, and collection of data for use in assessment of site impacts.	City Staff	Ongoing	SW Utility
Facilities Inspection Program	Minimize the discharge of pollutants by conducting site visits of facilities that store large quantities of regulated and hazardous materials.	Site inspections yield information about the drainage patterns to nearest storm drain inlet or waterbody, identification of the receiving waterbody and outfall locations, and handling, storage, and transfer procedures.	City Staff	Ongoing	SW Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
Source Control Education and Outreach Program	Develop education to create behavior change in ways that will improve water quality.	Reduce pollutants at the source by focusing education efforts towards target pollutants and identified audiences.	City Staff	Ongoing	SW Utility
Coordinated Staff Training Program	Delivery City-wide staff training on the stormwater management program.	Develop and conduct training related to the SWMP into all relevant parts of the business of City government in a coordinated, cost-effective way to fulfill federal and state requirements.	City Staff	Ongoing	SW Utility
Construction Site Stormwater Runoff Control for City Capital Projects	Minimize the discharge of pollutants from construction sites by requiring erosion prevention and sediment control measures.	Project design, plan review, inspection, enforcement, and staff education.	City Staff	Ongoing	SW Utility
Construction Site Stormwater Runoff Control for Development/Redevelopment	Minimize the discharge of pollutants from construction sites by requiring erosion prevention and sediment control measures.	Plan review, inspection, enforcement, and education.	City Staff	Ongoing	SW Utility
Post Construction Stormwater Management	Maintain the post construction stormwater management and SWMP tasks for development/redevelopment.	Ordinance update, design standards, plan review, and education.	City Staff	Ongoing	SW Utility
Post Construction Stormwater Management – Ongoing Compliance	Ensure ongoing compliance for private BMPs.	Inspections to ensure facilities are continuing to function as designed and approved and carrying out maintenance or rehabilitation activities as needed.	City Staff	Ongoing	SW Utility
Review and Approval for Projects Proposing to Modify MS4 System	Adding, modifying, or removing infrastructure that is part of the MS4 system.	Review and approve projects that will physically alter the MS4 system for the betterment of the system and to avoid adverse capacity, maintenance, and pollutant discharge impacts.	City Staff	Ongoing	SW Utility
Pilot Projects	Identify opportunities to improve management of pollutant loads.	Engage emerging technologies and develop and maintain a toolbox of options to improve water resource management.	100,000	Ongoing	SW Utility
City Good Housekeeping	Maintain the City pollution prevention/good housekeeping practices and related SWMP tasks including sanitary and storm sewer maintenance.	Structure clean-out, city facility operations and maintenance, training, inspections, recording, and reporting.	City Staff	Ongoing	SW Utility
Street Sweeping and Cleaning Program	Minimize the discharge of pollutants to the storm drain system and receiving waterbodies.	Remove leaf litter, sediment, and debris from streets and gutters before the materials, and pollutants attached to them, can be washed into storm drain inlets.	9,970,000 per year	Ongoing	SW Utility
Snow and Ice Control	Use salt and deicing chemicals responsibly to protect public safety and the needs of the environment.	Manage, monitor, and report on the application of chemicals for snow and ice control on streets and alleys and in storage facilities.	City Staff	Ongoing	General Fund

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
Stormwater Monitoring Program	Water quality monitoring and analysis to understand and improve stormwater management program effectiveness.	Monitoring of water quality BMPs to determine effectiveness and representative land use pipesheds.	224,500 per year	Ongoing	SW Utility
Annual SWPPP Update and Meeting	Make any needed updates to the City's SWMP and hold an annual public meeting to receive public input.	Involve residents in water resource issues development and implementation tasks.	City Staff	Ongoing	SW Utility
Impaired Waters Tracking and Review	Monitor impaired waters list and respond with review and implementation as needed per the SWMP.	The City will remain fully informed and responsive to impaired waters issues.	City Staff	Ongoing	SW Utility
Fleet Vehicles	Replace sanitary and stormwater program vehicles.	Maintain transportation.	-	-	SW Utility
Retrofit Plan	NPDES MS4 Program requirement.	Plan to evaluate the City's ability to implement structural stormwater BMPs in areas where there is no stormwater runoff treatment or where existing stormwater treatment could be enhanced.	City Staff	2019	SW Utility
Flood Mitigation Program H&H Model Development Feasibility Analysis and Project Prioritization	Model and inventory of flood areas throughout the City and analyze for solutions.	Develop flood model for the entire City and prioritize proposed improvements.	7,777,777+	Ongoing	SW Utility
Ongoing Water Quality Modeling	Ongoing modeling of water quality will be needed to quantify pollutant load reduction due to BMP implementation.	Update model.	City Staff	2017 to 2019	SW Utility
Sedimentation Pond Maintenance	Sedimentation ponds require frequent cleaning and maintenance.	Continue to implement program to inspect, clean, and maintain sedimentation and water quality ponds.	100,000 per year	Ongoing	SW Utility
Part II – Capital Improvements					
Infiltration and Inflow Mitigation Program					
Reduce the amount of infiltration and inflow to the sanitary sewer system including CIPP lining program and miscellaneous repairs			**3,500,000 per year**	**Ongoing**	**Sanitary Bonds Sanitary Utility**
Sanitary Tunnel and Sewer Rehabilitation Program					
Repair and rehabilitation of tunnels, pipes, lift stations, and access structures.			**8,000,000 to 16,000,000 per year**	**Ongoing**	**Sanitary Bonds Sanitary Utility**
00001.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Vincent Avenue N	715,000	2018	Sanitary Bonds Sanitary Utility
00001.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Vincent Avenue N	10,000	2018	Sanitary Bonds Sanitary Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
00002.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hoyer Heights	1,748,000	2018	Sanitary Bonds Sanitary Utility
00002.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hoyer Heights	1,000,000	2019	Sanitary Bonds Sanitary Utility
00002.4	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hoyer Heights	100,000	2018	Sanitary Bonds Sanitary Utility
00002.5	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hoyer Heights	396,000	2018	Sanitary Bonds Sanitary Utility
00003.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	3415 Central Avenue	267,000	2018	Sanitary Bonds Sanitary Utility
00004.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	2800 Pacific	100,000	2018	Sanitary Bonds Sanitary Utility
00005.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Mid-City Industrial	1,208,000	2018	Sanitary Bonds Sanitary Utility
00005.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Mid-City Industrial	3,000,000	2018	Sanitary Bonds Sanitary Utility
00005.4	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Mid-City Industrial	200,000	2018	Sanitary Bonds Sanitary Utility
00006.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Broadway Avenue NE	5,000	2018	Sanitary Bonds Sanitary Utility
00007.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Fremont Avenue N (8^{th} to 7^{th})	308,000	2018	Sanitary Bonds Sanitary Utility
00008.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Chestnut Avenue W (Vincent to Upton)	181,000	2018	Sanitary Bonds Sanitary Utility
00008.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Chestnut Avenue W (Vincent to Upton)	30,000	2018	Sanitary Bonds Sanitary Utility
00009.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hennepin Avenue (33^{rd} to 35^{th})	65,000	2018	Sanitary Bonds Sanitary Utility
00010.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	4338 Portland	232,000	2018	Sanitary Bonds Sanitary Utility
00011.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	12^{th} Avenue South (41^{st} to 42^{nd})	205,000	2018	Sanitary Bonds Sanitary Utility
00011.4	Sanitary Sewer Repair and Rehabilitation – Design and Construction	40^{th} Avenue S (28^{th} to 29^{th})	178,000	2018	Sanitary Bonds Sanitary Utility
00011.6	Sanitary Sewer Repair and Rehabilitation – Design and Construction	18^{th} Avenue (43^{rd} to 44^{th})	206,000	2018	Sanitary Bonds Sanitary Utility
00012.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	4740 Xerxes Avenue S	335,000	2018	Sanitary Bonds Sanitary Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
00012.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	4740 Xerxes Avenue S	3,500	2018	Sanitary Bonds Sanitary Utility
00013.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Xerxes Avenue S 953rd to 54th)	426,000	2018	Sanitary Bonds Sanitary Utility
00014.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Girard Avenue S (53rd to Minnehaha)	350,000	2018	Sanitary Bonds Sanitary Utility
00014.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Girard Avenue S (53rd to Minnehaha)	10,000	2018	Sanitary Bonds Sanitary Utility
00015.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Cedar Avenue S (51st to 52nd)	40,000	2018	Sanitary Bonds Sanitary Utility
00015.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Cedar Avenue S (51st to 52nd)	45,000	2018	Sanitary Bonds Sanitary Utility
00016.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Minnehaha (53rd to 54th)	192,000	2018	Sanitary Bonds Sanitary Utility
00016.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Minnehaha (53rd to 54th)	17,000	2018	Sanitary Bonds Sanitary Utility
00017.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Lyndale Avenue S and 58th Street	88,000	2018	Sanitary Bonds Sanitary Utility
00017.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Lyndale Avenue S and 58th Street	37,000	2018	Sanitary Bonds Sanitary Utility
00018.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Solomon Park	330,000	2018	Sanitary Bonds Sanitary Utility
00018.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Solomon Park	5,000	2018	Sanitary Bonds Sanitary Utility
00019.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	34th Avenue S (56th to 58th)	120,000	2018	Sanitary Bonds Sanitary Utility
00019.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	34th Avenue S (56th to 58th)	800,000	2019	Sanitary Bonds Sanitary Utility
00021.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Irving Sewer	TBD	2019	Sanitary Bonds Sanitary Utility
00021.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Irving Sewer	TBD	2020	Sanitary Bonds Sanitary Utility
00022.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	2nd Avenue N	TBD	2019	Sanitary Bonds Sanitary Utility
00022.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	2nd Avenue N	1,000,000	2019	Sanitary Bonds Sanitary Utility
00023.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hennepin Avenue S Downtown	500,000	2019	Sanitary Bonds Sanitary Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
00023.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hennepin Avenue S Downtown	4,250,000	2019	Sanitary Bonds Sanitary Utility
00023.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hennepin Avenue S Downtown	4,250,000	2020	Sanitary Bonds Sanitary Utility
00024.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	BLRT Sanitary	TBD	2019	Sanitary Bonds Sanitary Utility
00024.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	BLRT Sanitary	TBD	2020	Sanitary Bonds Sanitary Utility
00026.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Glenwood Avenue Sanitary	90,000	2018	Sanitary Bonds Sanitary Utility
00026.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Glenwood Avenue Sanitary County	TBD	2020	Sanitary Bonds Sanitary Utility
00027.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	2nd Street N and Plymouth Avenue N Sanitary	265,000	2018	Sanitary Bonds Sanitary Utility
00027.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	2nd Street N Sanitary	6,000,000	2020	Sanitary Bonds Sanitary Utility
00027.3	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Plymouth Avenue N Sanitary	100,000	2018	Sanitary Bonds Sanitary Utility
00027.4	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Plymouth Avenue N Sanitary	500,000	2019	Sanitary Bonds Sanitary Utility
00028.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hennepin Avenue S at 33rd – Construction	70,000	2018	Sanitary Bonds Sanitary Utility
00028.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Hennepin Avenue S at 33rd – Inspection	10,000	2018	Sanitary Bonds Sanitary Utility
00029.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	East River Road Sanitary	TBD	2019	Sanitary Bonds Sanitary Utility
00029.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	East River Road Sanitary	TBD	2020	Sanitary Bonds Sanitary Utility
00030.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Lake Harriet Parkway	TBD	2019	Sanitary Bonds Sanitary Utility
00030.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Lake Harriet Parkway	TBD	2020	Sanitary Bonds Sanitary Utility
00031.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	42nd	TBD	2019	Sanitary Bonds Sanitary Utility
00031.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	42nd	TBD	2020	Sanitary Bonds Sanitary Utility
00032.2	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Wenonah West Design 2	60,000	2019	Sanitary Bonds Sanitary Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
00036.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	Misc. Paving Project Sanitary Repairs	100,000	2018	Sanitary Bonds Sanitary Utility
00037.1	Sanitary Sewer Repair and Rehabilitation – Design and Construction	42nd and 19th	7,500	2018	Sanitary Bonds Sanitary Utility
Implementation of Environmental Protection Agency Stormwater Regulations					
Structural and Water Quality Improvement Projects Necessary for Total Maximum Daily Load Compliance			**250,000 per year**	**Ongoing**	**SW Utility**
Restoration and Stabilization of Historic Bassett Creek Channel	Stream Restoration within Bassett Creek Watershed	Provide erosion control and restoration within the Bassett Creek stream channel.	500,000	2022	SW Utility BCWMC
Bryn Mawr Meadows	Water Quality Improvement Project within Bassett Creek Watershed	Install water quality and volume reduction BMPs.	500,000	2020 to 2021	SW Utility BCWMC
Bassett Creek Park Water Quality Improvement Project	Water Quality Improvement Project within Bassett Creek Watershed	Install water quality and volume reduction BMPs.	500,000	2024	SW Utility BCWMC
Dredging of Accumulated Sediment in Main Stem Bassett Creek just North of Highway 55, Wirth Park	Water Quality Improvement Project within Bassett Creek Watershed	Install water quality and volume reduction BMPs.	400,000	2021	SW Utility BCWMC
Minnehaha Parkway Stormwater Management	Water Quality Improvement Project within Minnehaha Creek Watershed	Install water quality and volume reduction BMPs.	1,400,000	2020 to 2021	SW Utility MCWD
Stormwater Volume and Pollutant Load Reduction	Water Quality Improvement Project within Minnehaha Creek Watershed	Install water quality and volume reduction BMPs.	500,000	2018 to 2027	SW Utility MCWD Grants
Restoration of Eroded Riverbank Sites	River Restoration within Mississippi River Corridor	Reduce bank erosion, improve water quality and habitat along the Mississippi River.	1,000,000	2018 to 2021	MWMO
Greening within the Public Right-of-Way/8th Street Green Infrastructure Pilot	Water Quality Improvement Project within Mississippi River Watershed	8th Street road reconstruction. Addition of urban greening and green stormwater infrastructure.	1,000,000	2018 to 2019	SW Utility MWMO
Northeast Green Campus Water Quality Improvements	Water Quality Improvement Project within Mississippi River Watershed	Parking lot improvements and innovative stormwater management.	200,000	2018 to 2020	MWMO
Prospect North Partnership Water Quality Improvements	Water Quality Improvement Project within Mississippi River Watershed	Bridal Veil Creek subwatershed.	3,500,000	2018 to 2019	MWMO
Scherer Park	Water Quality, Water Conservation, and Habitat Improvements within Mississippi River Watershed	Shoreline restoration and the development of wetlands, biohavens, and a riverine island.	1,500,000	2018 to 2019	MWMO
Old Bassett Creek Tunnel	Water Quality and Water Conservation Improvements	Structural repairs and modifications to the Old Bassett Creek Tunnel, including the addition of access shafts to facilitate future removal of sediment.	2,000,000	2018 to 2020	SW Utility MWMO

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
Water Works Park	Water Quality and Green Infrastructure Project	West bank of the Mississippi River just north of the Stone Arch Bridge. Installation of green infrastructure practices and a stormwater reuse system.	900,000	2018 to 2019	MWMO MPRB
Upper Harbor Terminal	Site and District-Scale Water Quality Improvements	Provide water quality treatment, improve ecosystem services, provide band and shoreline habitat restoration.	600,000	2019 to 2020	MWMO
Shingle Creek Restoration	Stream Restoration within Shingle Creek Watershed	Provide stream corridor improvements on Shingle Creek within Webber Park.	500,000	2019	SW Utility SCWMC
Shingle Creek Restoration	Stream Restoration within Shingle Creek Watershed	Provide stream corridor improvements on Shingle Creek along Lower Reach 7; USGS station at Queen Avenue to Webber Park.	500,000	TBD	SW Utility SCWMC
10-100	Water Quality Improvement	1825 acre pipeshed draining to Mississippi River.	11,310,000	TBD	SW Utility WMO Partners Grants
10-450	Water Quality Improvement	1021 acre pipeshed draining to Mississippi River.	15,640,000	TBD	SW Utility WMO Partners Grants
10-460	Water Quality Improvement	889 acre pipeshed draining to Mississippi River.	10,960,000	TBD	SW Utility WMO Partners Grants
54-100	Water Quality Improvement	1461 acre pipeshed draining to Lake Calhoun/Bde Maka Ska.	5,500,000	TBD	SW Utility WMO Partners Grants
10-295	Water Quality Improvement	851 acre pipeshed draining to Mississippi River.	13,390,000	TBD	SW Utility WMO Partners Grants
10-720	Water Quality Improvement	1239 acre pipeshed draining to Mississippi River.	10,590,000	TBD	SW Utility WMO Partners Grants
10-560	Water Quality Improvement	1021 acre pipeshed draining to Mississippi River.	4,220,000	TBD	SW Utility WMO Partners Grants
10-410	Water Quality Improvement	350 acre pipeshed draining to Mississippi River.	14,140,000	TBD	SW Utility WMO Partners Grants
52-100	Water Quality Improvement	1667 acre pipeshed draining to Cedar Lake.	450,000	TBD	SW Utility WMO Partners Grants

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
76-010	Water Quality Improvement	920 acre pipeshed draining to Lake Hiawatha.	8,840,000	TBD	SW Utility WMO Partners Grants
10-500	Water Quality Improvement	637 acre pipeshed draining to Mississippi River.	9,940,000	TBD	SW Utility WMO Partners Grants
10-680	Water Quality Improvement	667 acre pipeshed draining to Mississippi River.	9,000,000	TBD	SW Utility WMO Partners Grants
40-010	Water Quality Improvement	716 acre pipeshed draining to Bassett Creek.	6,570,000	TBD	SW Utility WMO Partners Grants
73-020	Water Quality Improvement	1152 acre pipeshed draining to Taft Lake.	1,700,000	TBD	SW Utility WMO Partners Grants
10-320	Water Quality Improvement	394 acre pipeshed draining to Mississippi River.	4,410,000	TBD	SW Utility WMO Partners Grants
10-130	Water Quality Improvement	332 acre pipeshed draining to Mississippi River.	3,480,000	TBD	SW Utility WMO Partners Grants
Mississippi River Direct	Water Quality Improvement	577 are pipeshed draining directly to Mississippi River.	880,000	TBD	SW Utility WMO Partners Grants
10-420	Water Quality Improvement	193 acre pipeshed draining to Mississippi River.	5,310,000	TBD	SW Utility WMO Partners Grants
54-080	Water Quality Improvement	954 acre pipeshed draining to Lake Calhoun/Bde Maka Ska.	2,950,000	TBD	SW Utility WMO Partners Grants
51-030	Water Quality Improvement	376 acre pipeshed draining to Brownie Lake.	970,000	TBD	SW Utility WMO Partners Grants
57-100 (A)	Water Quality Improvement	363 acre pipeshed draining to Lake Harriet.	3,540,000	TBD	SW Utility WMO Partners Grants
10-530	Water Quality Improvement	268 acre pipeshed draining to Mississippi River.	2,800,000	TBD	SW Utility WMO Partners Grants

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
10-250	Water Quality Improvement	245 acre pipeshed draining to Mississippi River.	3,200,000	TBD	SW Utility WMO Partners Grants
10-180	Water Quality Improvement	276 acre pipeshed draining to Mississippi River.	2,900,000	TBD	SW Utility WMO Partners Grants
20-215	Water Quality Improvement	480 acre pipeshed draining to Shingle Creek.	2,670,000	TBD	SW Utility WMO Partners Grants
54-040	Water Quality Improvement	233 acre pipeshed draining to Lake Calhoun/Bde Maka Ska.	3,720,000	TBD	SW Utility WMO Partners Grants
71-070 (A)	Water Quality Improvement	273 acre pipeshed draining to Diamond Lake.	3,280,000	TBD	SW Utility WMO Partners Grants
10-110 (A)	Water Quality Improvement	292 acre pipeshed draining to Mississippi River.	3,430,000	TBD	SW Utility WMO Partners Grants
70-055	Water Quality Improvement	380 acre pipeshed draining to Mississippi River.	2,400,000	TBD	SW Utility WMO Partners Grants
10-640	Water Quality Improvement	272 acre pipeshed draining to Mississippi River.	2,930,000	TBD	SW Utility WMO Partners Grants
10-570	Water Quality Improvement	219 acre pipeshed draining to Mississippi River.	2,710,000	TBD	SW Utility WMO Partners Grants
10-230	Water Quality Improvement	231 acre pipeshed draining to Mississippi River.	2,930,000	TBD	SW Utility WMO Partners Grants
10-490	Water Quality Improvement	139 acre pipeshed draining to Mississippi River.	2,500,000	TBD	SW Utility WMO Partners Grants
10-240	Water Quality Improvement	115 acre pipeshed draining to Mississippi River.	3,170,000	TBD	SW Utility WMO Partners Grants
53-160	Water Quality Improvement	193 acre pipeshed draining to Lake of the Isles.	2,460,000	TBD	SW Utility WMO Partners Grants

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
70-330	Water Quality Improvement	263 acre pipeshed draining to Minnehaha Creek.	2,520,000	TBD	SW Utility WMO Partners Grants
10-660	Water Quality Improvement	298 acre pipeshed draining to Mississippi River.	2,310,000	TBD	SW Utility WMO Partners Grants
10-170	Water Quality Improvement	168 acre pipeshed draining to Mississippi River.	2,200,000	TBD	SW Utility WMO Partners Grants
10-120 (b)	Water Quality Improvement	257 acre pipeshed draining to Mississippi River.	2,350,000	TBD	SW Utility WMO Partners Grants
54-140 (A)	Water Quality Improvement	159 acre pipeshed draining to Lake Calhoun/Bde Maka Ska.	1,070,000	TBD	SW Utility WMO Partners Grants
40-140	Water Quality Improvement	250 acre pipeshed draining to Bassett Creek.	1,880,000	TBD	SW Utility WMO Partners Grants
10-565	Water Quality Improvement	153 acre pipeshed draining to Mississippi River.	2,830,000	TBD	SW Utility WMO Partners Grants
10-150	Water Quality Improvement	148 acre pipeshed draining to Mississippi River.	1,960,000	TBD	SW Utility WMO Partners Grants
20-210 (A)	Water Quality Improvement	285 acre pipeshed draining to Shingle Creek.	1,280,000	TBD	SW Utility WMO Partners Grants
10-700	Water Quality Improvement	214 acre pipeshed draining to Mississippi River.	1,930,000	TBD	SW Utility WMO Partners Grants
63-010	Water Quality Improvement based on Total Maximum Daily Load	515 acre pipeshed draining to Crystal Lake.	5,530,000	TBD	SW Utility WMO Partners Grants
72-020	Water Quality Improvement based on Total Maximum Daily Load	21 acre pipeshed draining to Lake Nokomis.	270,000	TBD	SW Utility WMO Partners Grants
72-040 (A)	Water Quality Improvement based on Total Maximum Daily Load	149 acre pipeshed draining to Lake Nokomis.	1,980,000	TBD	SW Utility WMO Partners Grants

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
72-055 (B) PB	Water Quality Improvement based on Total Maximum Daily Load	114 acre pipeshed draining to Lake Nokomis.	970,000	TBD	SW Utility WMO Partners Grants
72-090	Water Quality Improvement based on Total Maximum Daily Load	136 acre pipeshed draining to Lake Nokomis.	920,000	TBD	SW Utility WMO Partners Grants
72-115 (A) PB	Water Quality Improvement based on Total Maximum Daily Load	149 acre pipeshed draining to Lake Nokomis.	1,360,000	TBD	SW Utility WMO Partners Grants
72-125 PB	Water Quality Improvement based on Total Maximum Daily Load	79 acre pipeshed draining to Lake Nokomis.	890,000	TBD	SW Utility WMO Partners Grants
73-010	Water Quality Improvement based on Total Maximum Daily Load	54 acre pipeshed draining to Taft Lake.	610,000	TBD	SW Utility WMO Partners Grants
76-005 (A)	Water Quality Improvement based on Total Maximum Daily Load	196 acre pipeshed draining to Lake Hiawatha.	610,000	TBD	SW Utility WMO Partners Grants
76-020	Water Quality Improvement based on Total Maximum Daily Load	88 acre pipeshed draining to Lake Hiawatha.	1,220,000	TBD	SW Utility WMO Partners Grants
76-030	Water Quality Improvement based on Total Maximum Daily Load	8 acre pipeshed draining to Lake Hiawatha.	110,000	TBD	SW Utility WMO Partners Grants
76-040	Water Quality Improvement based on Total Maximum Daily Load	3 acre pipeshed draining to Lake Hiawatha.	70,000	TBD	SW Utility WMO Partners Grants
76-050	Water Quality Improvement based on Total Maximum Daily Load	1 acre pipeshed draining to Lake Hiawatha.	40,000	TBD	SW Utility WMO Partners Grants
Combined Sewer Overflow Improvements					
Work towards separations of the sanitary and storm sewer systems where feasible and cost-effective.			**1,500,000 per year**	**Ongoing**	**SW Utility**
180	Sewer Separation Project	29th Avenue S and Franklin Avenue E	136,000	2018	SW Utility
176	Sewer Separation Project	10th Avenue N and 5th Street N	145,000	2018	SW Utility
177	Sewer Separation Project	10th Avenue N and 8th Avenue N	210,000	2018	SW Utility
001	Sewer Separation Project	22nd Avenue N and 2nd Street N	692,500	2019	SW Utility
117	Sewer Separation Project	2nd Street N and 23rd Avenue N	825,000	2019	SW Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
188	Sewer Separation Project	8th Street S and Park Avenue	180,000	2019	SW Utility
189	Sewer Separation Project	8th Street S and Park Avenue	202,500	2019	SW Utility
095	Sewer Separation Project	Alley north of 33rd Avenue N and east of Tyler Street NE	375,000	2020	SW Utility
108	Sewer Separation Project	Polk Street NE and 36th Avenue NE	960,000	2020	SW Utility
154	Sewer Separation Project	Coolidge Street NE and 19th Avenue NE	377,500	2020	SW Utility
195	Sewer Separation Project	Coolidge Street NE and 22nd Avenue NE	277,500	2020	SW Utility
138	Sewer Separation Project	Xerxes Avenue N and Lowry Avenue N	117,500	2021	SW Utility
139	Sewer Separation Project	Washburn Avenue N and Osseo Road	190,000	2021	SW Utility
158	Sewer Separation Project	24th Avenue S and 54½ Street E	52,500	2021	SW Utility
153	Sewer Separation Project	Alley south of 29th Street W and east of Colfax Avenue S	500,000	2021	SW Utility
164	Sewer Separation Project	Alley south of Spring Street NE and east of Madison Street NE	337,500	2021	SW Utility
149	Sewer Separation Project	Bryant Avenue S and 40th Street W	312,500	2021	SW Utility
165	Sewer Separation Project	South of I-94 and 1st Avenue S	307,500	2021	SW Utility
181	Sewer Separation Project	50th Street W and Aldrich Avenue S	127,500	2022	SW Utility
187	Sewer Separation Project	14th Avenue NE and Van Buren Street NE	672,500	2022	SW Utility
193	Sewer Separation Project	Main Street NE and 4th Avenue NE	352,500	2022	SW Utility
194	Sewer Separation Project	Marshall Street NE and 16th Avenue NE	430,000	2022	SW Utility
151	Sewer Separation Project	38th Street W and Dupont Avenue S	75,000	2023	SW Utility
191	Sewer Separation Project	51st Street E and 40th Avenue S	100,000	2023	SW Utility
163	Sewer Separation Project	Hennepin Avenue and Franklin Avenue W	57,500	2023	SW Utility
042	Sewer Separation Project	Stevens Avenue and Lake Street E	922,500	TBD	SW Utility
055	Sewer Separation Project	Alley west of Cedar Avenue and south of 47th Street E	612,500	TBD	SW Utility
069	Sewer Separation Project	Alley west of Pillsbury and north of 43rd Street W	572,500	TBD	SW Utility
086	Sewer Separation Project	Alley east of Grand Avenue and north of 42nd Street W	622,500	TBD	SW Utility
088	Sewer Separation Project	Alley west of Harriet Avenue and south of 46th Street W	535,000	TBD	SW Utility
089	Sewer Separation Project	Alley west of Garfield Avenue and north of 46th Street W	557,500	TBD	SW Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
109	Sewer Separation Project	Alley east of Pillsbury Avenue and south of 43rd Street W	542,500	TBD	SW Utility
121	Sewer Separation Project	Alley north of W 38th Street and east of Blaisdell Avenue S	857,500	TBD	SW Utility
133	Sewer Separation Project	Stevens Avenue S and 35th Street E	190,000	TBD	SW Utility
150	Sewer Separation Project	Stevens Avenue and 32nd Street E	232,500	TBD	SW Utility
172	Sewer Separation Project	33rd Avenue N and Irving Avenue N	580,000	TBD	SW Utility
183	Sewer Separation Project	Alley south of 47th Street W and west of Wentworth Avenue S	665,000	TBD	SW Utility
184	Sewer Separation Project	4th Avenue S and 36th Street E	367,500	TBD	SW Utility
186	Sewer Separation Project	17th Street E and 11th Avenue S	282,500	TBD	SW Utility
192	Sewer Separation Project	Monroe Street NE and 19th Avenue NE	417,500	TBD	SW Utility
Storm Drains and Tunnels Rehabilitation Program					
Repair and rehabilitate the condition and/or capacity of the storm drain and tunnel systems.			**6,000,000 per year**	**Ongoing**	**SW Bonds SW Utility**
00001.1	Storm Sewer Repair and Rehabilitation Project	Hoyer Heights	250,000	2018	SW Bonds SW Utility
00001.2	Storm Sewer Repair and Rehabilitation Project	Hoyer Heights	250,000	2019	SW Bonds SW Utility
00002.1	Storm Sewer Repair and Rehabilitation Project	61st Street W	300,000	2018	SW Bonds SW Utility
00003.1	Storm Sewer Repair and Rehabilitation Project	Mid-City Industrial (inc FA58)	186,000	2018	SW Bonds SW Utility
00004.1	Storm Sewer Repair and Rehabilitation Project	34th Avenue S	45,000	2018	SW Bonds SW Utility
00005.1	Storm Sewer Repair and Rehabilitation Project	Cedar/Longfellow Alley Drain	150,000	2018	SW Bonds SW Utility
00005.2	Storm Sewer Repair and Rehabilitation Project	Cedar/Longfellow Alley Drain	150,000	2018	SW Bonds SW Utility
00006.1	Storm Sewer Repair and Rehabilitation Project	Lyndale Outfall	160,000	2018	SW Bonds SW Utility
00006.2	Storm Sewer Repair and Rehabilitation Project	Lyndale Outfall	565,000	2018	SW Bonds SW Utility
00008.1	Storm Sewer Repair and Rehabilitation Project	Central City Tunnel Rehabilitation	650,000	2018	SW Bonds SW Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
00008.2	Storm Sewer Repair and Rehabilitation Project	Central City Tunnel Rehabilitation	650,000	2019	SW Bonds SW Utility
00009.1	Storm Sewer Repair and Rehabilitation Project	Phillips Tunnel Shaft	TBD	2018	SW Bonds SW Utility
00009.2	Storm Sewer Repair and Rehabilitation Project	Phillips Tunnel Shaft	80,000	2018	SW Bonds SW Utility
00010.1	Storm Sewer Repair and Rehabilitation Project	10th Avenue Tunnel Phase 5	165,000	2018	SW Bonds SW Utility
00010.2	Storm Sewer Repair and Rehabilitation Project	10th Avenue Tunnel Phase 5	2,900,000	2018	SW Bonds SW Utility
00011.1	Storm Sewer Repair and Rehabilitation Project	Glenwood Avenue Storm	200,000	2018	SW Bonds SW Utility
00012.1	Storm Sewer Repair and Rehabilitation Project	11th Avenue Outfall	50,000	2018	SW Bonds SW Utility
00013.1	Storm Sewer Repair and Rehabilitation Project	SCADA Construction	385,000	2018	SW Bonds SW Utility
00014.1	Storm Sewer Repair and Rehabilitation Project	Como Tunnel Drill Hole Design	65,400	2018	SW Bonds SW Utility
00017.2	Storm Sewer Repair and Rehabilitation Project	Pump Station Construction Phase I	120,000	TBD	SW Bonds SW Utility
00017.3	Storm Sewer Repair and Rehabilitation Project	Pump Station Construction Phase II	1,100,000	TBD	SW Bonds SW Utility
00018.2	Storm Sewer Repair and Rehabilitation Project	Pump Station Inspection	180,000	TBD	SW Bonds SW Utility
00020.1	Storm Sewer Repair and Rehabilitation Project	SCADA Construction Inspection	175,000	TBD	SW Bonds SW Utility
00021.1	Storm Sewer Repair and Rehabilitation Project	Storm Alley – 34th/35th and Oliver/Newton	TBD	2018	SW Bonds SW Utility
00021.2	Storm Sewer Repair and Rehabilitation Project	Storm Alley – 34th/35th and Oliver/Newton	TBD	2019	SW Bonds SW Utility
00022.1	Storm Sewer Repair and Rehabilitation Project	Storm Alley – 14th Avenue N – Upton Avenue N and Thomas Avenue N	TBD	2018	SW Bonds SW Utility
00022.2	Storm Sewer Repair and Rehabilitation Project	Storm Alley – 14th Avenue N – Upton Avenue N and Thomas Avenue N	TBD	2019	SW Bonds SW Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
00023.1	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between Washburn Avenue N and Vincent Avenue N, north of Lowry Avenue	TBD	2018	SW Bonds SW Utility
00023.2	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between Washburn Avenue N and Vincent Avenue N, north of Lowry Avenue	TBD	2019	SW Bonds SW Utility
00024.1	Storm Sewer Repair and Rehabilitation Project	Storm Alley – 43rd Street E, west of the intersection with 39th Avenue S	TBD	2018	SW Bonds SW Utility
00024.2	Storm Sewer Repair and Rehabilitation Project	Storm Alley – 43rd Street E, west of the intersection with 39th Avenue S	TBD	2019	SW Bonds SW Utility
00025.1	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between 40th Avenue S and 41st Avenue S, south of 40th Street E	TBD	2018	SW Bonds SW Utility
00025.2	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between 40th Avenue S and 41st Avenue S, south of 40th Street E	TBD	2019	SW Bonds SW Utility
00026.1	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between 40th Avenue S and 41st Avenue S, south of 43rd Street E	TBD	2018	SW Bonds SW Utility
00026.2	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between 40th Avenue S and 41st Avenue S, south of 43rd Street E	TBD	2019	SW Bonds SW Utility
00027.1	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between Snelling Avenue and Minnehaha Avenue, south of 44th Street E	TBD	2018	SW Bonds SW Utility
00027.2	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between Snelling Avenue and Minnehaha Avenue, south of 44th Street E	TBD	2019	SW Bonds SW Utility
00028.1	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between 41st Avenue S and 42nd Avenue S, north of 33rd Street E	TBD	2018	SW Bonds SW Utility
00028.2	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between 41st Avenue S and 42nd Avenue S, north of 33rd Street E	TBD	2019	SW Bonds SW Utility
00029.1	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between Irving Avenue S and James Avenue S, south of 53rd Street W	TBD	2018	SW Bonds SW Utility
00029.2	Storm Sewer Repair and Rehabilitation Project	Storm Alley – Between Irving Avenue S and James Avenue S, south of 53rd Street W	TBD	2019	SW Bonds SW Utility
I-35W Storm Tunnel Reconstruction					
Reconstruct and/or expand the I-35W tunnel systems to provide additional capacity.			**9000,000,000**	**2023 to 2025**	**SW Bonds SW Utility State Funding**
Flood Mitigation with Alternative Stormwater Management					

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
Address localized flooding and drainage problems while looking at volume, pollutant loads, and rate controls			**5,000,000 per year**	**Ongoing**	**SW Bonds SW Utility WMO Partners Grants MPRB**
Southwest Harriet Flood Mitigation – includes FA 29-30	Flood Mitigation Program	Provide flood mitigation and water quality treatment as possible.	72,000,000	Prioritized through Flood Mitigation Program	SW Utility MCWD Grants
Hiawatha Golf Course Restoration	Flood Mitigation Program	Provide flood mitigation and water quality treatment as possible.	1,940,000	2020 to 2021	SW Utility MPRB MCWD Grants
1 NE Watershed Phase I Improvements	Flood Mitigation Program	Provide flood mitigation and water quality treatment as possible.	16,000,000	2019 to 2023	SW Utility MWMO Grants SW Bonds
13th and 2nd NE	Flood Mitigation Program	Provide flood mitigation and water quality treatment as possible.	TBD	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 58 – Mid-City Pond	Flood Mitigation Program	Provide flood mitigation and water quality treatment as possible.	2,905,000	2018	SW Bonds SW Utility
FA 05- 35th Avenue N to Dowling/Washburn to Morgan	Flood Mitigation Program	Provide a new storm drain from 35th Avenue N and Vincent to Crystal Lake in Robbinsdale.	32,000,000 to 64,000,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants SCWMC
FA 06 – 30th Avenue N to 33rd/Dupont to Irving Avenue N	Flood Mitigation Program	Project substantially completed. One connection remains to be made at 33rd Avenue N.	TBD	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 08 – 3rd Street N and 23rd Avenue N	Flood Mitigation Program	Updated storm drain between 22nd Avenue N and 25th Avenue N	1,361,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
FA 13 – Clinton Avenue S, 45th Street E to 46th Street E	Flood Mitigation Program	Upgrade existing storm drains along E 46th Street between Clinton Avenue S and 5th Avenue S and on 5th Avenue S between E 46th Street and E 46th Street	6,275,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MCWD MPRB
FA 14 – E 40th Street, 4th Avenue S to 5th Avenue S	Flood Mitigation Program	Upgrade existing storm drains along E 40th Street between 5th Avenue S and Clinton Avenue S	1,039,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants State Funds
FA 15 – 22nd Street W and Garfield Avenue S	Flood Mitigation Program	Construct new storm drain on both 22nd Street E and along Lyndale Avenue S	7,280,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MnDOT
FA 17 – 43rd Street W and Wentworth Avenue S	Flood Mitigation Program	Construct relief drains along 43rd Street W, which terminate at the I-35W tunnel.	3,315,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MnDOT
FA 18 – 50th and Wentworth Avenue S	Flood Mitigation Program	Construct relief drains along 47th Street W, Pleasant Avenue S, and Garfield Avenue S which terminates at the I-35W tunnel.	8,791,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MnDOT
FA 21 – Bloomington Holding Pond	Flood Mitigation Program	Construct new storm drain to new flood ponds in Hiawatha Golf Course and new pumps.	4,924,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MCWD MPRB
FA 22 – Sibley Field	Flood Mitigation Program	Construct new storm drain on Longfellow Avenue S and a new inlet structure to Sibley Field.	5,422,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MCWD MPRB
FA 25 – W 45th Street, Nicollet to 1st	Flood Mitigation Program	Install a relief storm drain along 44th Street W and 45th Street W to the I-35W storm tunnel.	2,505,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MnDOT

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
FA 29 and 30 -50th to 51st, Zenith to York Avenue S, 51st Street W and Abbot Avenue S	Flood Mitigation Program	Upgrade existing storm drain to Lake Harriet.	15,975,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 32 – E 49th Street and Stevens Avenue S	Flood Mitigation Program	Construct new outlet to MnDOT system at E 49th Street and Stevens Avenue S.	1,154,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MnDOT
FA 36 – Victory Memorial Parkway and Xerxes Avenue	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 39 – 46th Avenue S, 36th Street E to 37th Street E	Flood Mitigation Program	Upgrade existing storm drains to the Mississippi River when area streets are reconstructed or renovated.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 40 – W 38th Street and Kings Highway	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MPRB
FA 41 – 27th Avenue NE and Stinson Boulevard	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 42 – 10th Avenue S and E 27th Street (Abbott Hospital)	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MPRB
FA 44 – 29th Avenue NE and Tyler Street NE	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	2,585,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 45 – W 33rd Street and Girard Avenue S	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	2,585,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 47 – W 22nd Street and Emerson Avenue S	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
FA 48 – 2nd Street NW and Lowry Avenue NE	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	4,707,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 49 – 32nd Avenue NE and Garfield	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	2,585,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 50 – 3542 Polk Street NE and 3547 Tyler Street NE Alley	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	2,585,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 51 – 34th Avenue NE and Central Avenue NE	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	2,585,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 52 – 35th Avenue NE and 5th Street NE	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	2,585,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 53 – 27th Avenue NE and Randolph Street NE	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	2,585,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 54 – Shoreham Yards (Lake Sandy)	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	2,585,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 55 – 16xx Lyn-Park Avenue N	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 56 – 56xx Xerxes Avenue S	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 57 – 44xx Chowen Avenue S	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
FA 58 – Summer Street NE and McKinley Place	Flood Mitigation Program	New storm sewer has been installed. Certify the status of this area and update its status in the project file.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 59 – Lyndale Avenue S, 26th Street E to 27th Street E	Flood Mitigation Program	CSO and alley flooding issue. Needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 60 – 2129 Emerson Avenue S	Flood Mitigation Program	Intersection is low point. Needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 61 – E 40th Street, Van Nest to I-35W	Flood Mitigation Program	Identified during I-35W Tunnel Study.	2,020,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants MnDOT
FA 62 – 6th Avenue SE at 7th Street SE	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 63 – 28th Avenue S and Humboldt Avenue S	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
FA 64 – 2900 Upton, part of Logan Pond watershed	Flood Mitigation Program	See Figure 6.6 – Historically Identified Flood Project Areas for project location – needs detailed Hydrologic and Hydraulic Analysis.	6,102,000	Prioritized through Flood Mitigation Program	SW Bonds SW Utility Grants
Central City Parallel Storm Tunnel					
Design and construction of a new tunnel in the Central City area to address increases in the rate and volume of stormwater in downtown tunnels.			**33,000,000**	**2020 to 2022**	**SW Bonds SW Utility State Funds Grants**
Central City Parallel Tunnel	Stormwater tunnel design and construction project.	Design	641,000	2018	SW Bonds SW Utility
Central City Parallel Tunnel	Stormwater tunnel design and construction project.	Design	1,000,000	2018	SW Bonds SW Utility

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
Central City Parallel Tunnel	Stormwater tunnel design and construction project.	Construction	9,500,000	2020	SW Bonds SW Utility State Funds Grants
Central City Parallel Tunnel	Stormwater tunnel design and construction project.	Construction	9,500,000	2021	SW Bonds SW Utility State Funds Grants
Central City Parallel Tunnel	Stormwater tunnel design and construction project.	Construction	9,500,000	2022	SW Bonds SW Utility State Funds Grants
Reimbursable Storm Drain Construction					
Stormwater Utility upgrades needed as part of street reconstruction projects. Cost estimate is for total reconstruction.			**2,000,000 per year**	**Ongoing**	**SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA**
PV054	Street Reconstruction	8th Street S, Hennepin Avenue to Chicago Avenue.	18,474,000	2019	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV095	Street Reconstruction	4th Street N and S, 2nd Avenue N to 4th Avenue S.	14,220,000	2019	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV125	Street Reconstruction	33rd Street E and 35th Street E, Hiawatha to Minnehaha and Railroad Tracks to Dwight Avenue.	2,840,000	2019	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
PV135	Street Reconstruction	North Loop Paving.	9,365,000	2019	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV118	Street Reconstruction	Hennepin Avenue, Washington Avenue to 12th Street S.	22,960,000	2020	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV139	Street Reconstruction	18th Avenue NE, Johnson to Stinson.	4,965,000	2020	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV147	Street Reconstruction	Girard Avenue S, Lake to Lagoon.	1,295,000	2020	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV141	Street Reconstruction	Grand Avenue S, Lake to 48th.	14,575,000	2021	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV113	Street Reconstruction	29th Street W, Phase II.	2,115,000	2021	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV142	Street Reconstruction	Downtown East Paving.	3,120,000	2021	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
PV137	Street Reconstruction	29th Avenue NE, Central to Stinson.	8,575,000	2021	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV152	Street Reconstruction	Plymouth Avenue, Washburn to Penn.	5,440,000	2021	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV156	Street Reconstruction	Johnson Street NE, 18th Avenue NE to Lowry Avenue NE.	4,499,000	2021	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV122	Street Reconstruction	Dowling Avenue N, I-94 to 1st Street N.	3,340,000	2022	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV123	Street Reconstruction	Logan Park Commercial.	6,650,000	2022	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV143	Street Reconstruction	North Industrial.	5,640,000	2022	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV154	Street Reconstruction	Franklin Avenue, Hennepin to Lyndale.	2,055,000	2022	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
PV146	Street Reconstruction	9th Street SE, 6th Avenue SE to 9th Avenue SE.	2,460,000	2022	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV092	Street Reconstruction	Technology Drive, 37th Avenue NE to Marshall Street NE.	1,025,000	2022	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV138	Street Reconstruction	26th Street E, 29th Avenue S to Minnehaha Avenue.	4,510,000	2022	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV140	Street Reconstruction	13th Avenue NE, Sibley Street NE to Washington Street NE.	7,575,000	2022	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV150	Street Reconstruction	1st Avenue N, Washington Avenue to 10th Street N.	12,135,000	2023	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV126	Street Reconstruction	Bryant Avenue S, Lake Street W to 50th Street W.	18,390,00	2023	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV127	Street Reconstruction	37th Avenue NE, Central to Stinson.	10,240,000	2023	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA

Project Name/Location	Description	Proposed Improvement	Cost Estimate ($)	Proposed Year	Funding Source
PV158	Street Reconstruction	Hennepin Avenue, Lake Street to Douglas Avenue.	18,585,000	2023	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV153	Street Reconstruction	Sunrise/60th/58th, Xerxes to Aldrich.	11,025,000	2024	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV132	Street Reconstruction	1st/Marquette, 12th Street S to Lake Street E.	14,555,000	2024	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV149	Street Reconstruction	4th Avenue S, 3rd Street S to 10th Street S.	9,905,000	2024	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV151	Street Reconstruction	4th Street NE, Broadway to Lowry.	6,010,000	2024	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
PV157	Street Reconstruction	33rd Avenue NE, Central Avenue to Stinson Boulevard NE.	11,250,000	2024	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA
BR117	Street Reconstruction	1st Street N, Bridge over Bassett Creek.	1,380,000	2020	SW Bonds SW Utility Assessment Bonds Net Debt Bonds MSA

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Timelines and Annual Costs

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
Part I – Administration and City-Wide Programs and Projects												
Create/Modify City Ordinances	City Staff	City Staff	-	-	-	-	-	-	-	-	-	-
Capital Improvement Program Updates	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
WRMP Amendments	As Required	As Required	As Required	As Required	As Required	As Required	As Required	As Required	As Required	As Required	As Required	-
WRMP Update/Revision	-	-	-	-	-	-	-	-	-	150,000	150,000	-
Stormwater Public Education Activities	150,000	150,000	150,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	-
Public Participation and Involvement	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Illicit Discharges Investigation Program	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Spill Response Program	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Facilities Inspection Program	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Source Control Education and Outreach Program	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Coordinated Staff Training	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Construction Site Stormwater Runoff Control for City Capital Redevelopment	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Construction Site Stormwater Runoff Control for Development/Redevelopment	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Post Construction Stormwater Management	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Post Construction Stormwater Management – Ongoing Compliance	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Review and Approval for Projects Proposing to Modify MS4 System	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Pilot Projects	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	-
City Good Housekeeping	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Street Sweeping and Cleaning Program	9,866,000	9,972,000	10,271,000	10,580,000	10,900,000	11,230,000	11,571,000	11,923,000	12,287,000	12,663,000	13,052,000	-

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
Snow and Ice Control	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Stormwater Monitoring Program	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	225,000	-
Annual SWPPP Update and Meeting	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Impaired Waters Tracking and Review	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Retrofit Plan	-	City Staff	City Staff	-	-	-	-	-	-	-	-	-
Flood Mitigation Program H&H Model Development, Feasibility Analysis, and Project Prioritization	2,010,000	1,953,000	1,448,000	1,183,000	1,183,000	160,000	160,000	160,000	160,000	160,000	160,000	-
Ongoing Water Quality Modeling	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	City Staff	-
Sedimentation Pond Maintenance	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	-
Part II – Capital Improvement Projects												
* Refer to the City's Public Works Capital Improvement Projects (CIP) webpage for additional project detail and staff contact information for all projects contained in the adopted 5-year CIP. http://www.ci.minneapolis.mn.us/cip/WCMSP-178520 ** All programs and costs after 2023 are not budgeted in the City's CIP. *** Costs presented are total cost which includes City local costs plus anticipated cost-share and grants by other organizations.												
Infiltration and Inflow Mitigation Program	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	3,500,000	-
Sanitary Tunnel and Sewer Rehabilitation Program												
Overall Program Budget (after 2023, assumed)	16,000,000	16,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	8,000,000	-
00001.2	715,000	-	-	-	-	-	-	-	-	-	-	-
00001.3	10,000	-	-	-	-	-	-	-	-	-	-	-
00002.2	1,748,000	-	-	-	-	-	-	-	-	-	-	-
00002.3	-	1,000,000	-	-	-	-	-	-	-	-	-	-
00002.4	100,000	-	-	-	-	-	-	-	-	-	-	-
00002.5	396,000	-	-	-	-	-	-	-	-	-	-	-
00003.2	267,000	-	-	-	-	-	-	-	-	-	-	-
00004.2	100,000	-	-	-	-	-	-	-	-	-	-	-
00005.2	1,208,000	-	-	-	-	-	-	-	-	-	-	-
00005.3	-	3,000,000	-	-	-	-	-	-	-	-	-	-
00005.4	200,000	-	-	-	-	-	-	-	-	-	-	-

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
00006.3	5,000	-	-	-	-	-	-	-	-	-	-	-
00007.2	308,000	-	-	-	-	-	-	-	-	-	-	-
00008.2	181,000	-	-	-	-	-	-	-	-	-	-	-
00008.3	30,000	-	-	-	-	-	-	-	-	-	-	-
00009.2	65,000	-	-	-	-	-	-	-	-	-	-	-
00010.2	232,000	-	-	-	-	-	-	-	-	-	-	-
00011.2	205,000	-	-	-	-	-	-	-	-	-	-	-
00011.4	178,000	-	-	-	-	-	-	-	-	-	-	-
00011.6	206,000	-	-	-	-	-	-	-	-	-	-	-
00012.2	335,000	-	-	-	-	-	-	-	-	-	-	-
00012.3	3,500	-	-	-	-	-	-	-	-	-	-	-
00013.3	426,000	-	-	-	-	-	-	-	-	-	-	-
00014.2	350,000	-	-	-	-	-	-	-	-	-	-	-
00014.3	10,000	-	-	-	-	-	-	-	-	-	-	-
00015.1	40,000	-	-	-	-	-	-	-	-	-	-	-
00015.2	45,000	-	-	-	-	-	-	-	-	-	-	-
00016.2	192,000	-	-	-	-	-	-	-	-	-	-	-
00016.2	17,000	-	-	-	-	-	-	-	-	-	-	-
00017.2	88,000	-	-	-	-	-	-	-	-	-	-	-
00017.3	37,000	-	-	-	-	-	-	-	-	-	-	-
00018.2	330,000	-	-	-	-	-	-	-	-	-	-	-
00018.3	5,000	-	-	-	-	-	-	-	-	-	-	-
00019.1	120,000	-	-	-	-	-	-	-	-	-	-	-
00019.2	-	800,000	-	-	-	-	-	-	-	-	-	-
00021.1	-	TBD	-	-	-	-	-	-	-	-	-	-
00021.2	-	-	TBD	-	-	-	-	-	-	-	-	-
00022.1	-	TBD	-	-	-	-	-	-	-	-	-	-
00022.2	-	1,000,000	-	-	-	-	-	-	-	-	-	-
00023.1	-	500,000	-	-	-	-	-	-	-	-	-	-
00023.2	-	4,250,000	-	-	-	-	-	-	-	-	-	-
00023.3	-	-	4,250,000	-	-	-	-	-	-	-	-	-
00024.1	-	TBD	-	-	-	-	-	-	-	-	-	-

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
00024.2	-	-	TBD	-	-	-	-	-	-	-	-	-
00026.2	90,000	-	-	-	-	-	-	-	-	-	-	-
00026.3	-	-	TBD	-	-	-	-	-	-	-	-	-
00027.1	265,000	-	-	-	-	-	-	-	-	-	-	-
00027.2	-	-	6,000,000	-	-	-	-	-	-	-	-	-
00027.3	100,000	-	-	-	-	-	-	-	-	-	-	-
00027.4	-	500,000	-	-	-	-	-	-	-	-	-	-
00028.1	70,000	-	-	-	-	-	-	-	-	-	-	-
00028.2	10,000	-	-	-	-	-	-	-	-	-	-	-
00029.1	-	TBD	-	-	-	-	-	-	-	-	-	-
00029.2	-	-	TBD	-	-	-	-	-	-	-	-	-
00030.1	-	TBD	-	-	-	-	-	-	-	-	-	-
00030.2	-	-	TBD	-	-	-	-	-	-	-	-	-
00031.1	-	TBD	-	-	-	-	-	-	-	-	-	-
00031.2	-	-	TBD	-	-	-	-	-	-	-	-	-
00032.2	-	60,000	-	-	-	-	-	-	-	-	-	-
00036.1	100,000	-	-	-	-	-	-	-	-	-	-	-
00037.1	7,500	-	-	-	-	-	-	-	-	-	-	-
Implementation of Environmental Protection Agency Regulations												
Overall Program Budget (after 2023, assumed)	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	-
Restoration and Stabilization of Historic Bassett Creek Channel	-	-	-	-	500,000	-	-	-	-	-	-	-
Bryn Mawr Meadows	-	-	250,000	250,000	-	-	-	-	-	-	-	-
Bassett Creek Park Water Quality Improvement Project	-	-	-	-	-	-	500,000	-	-	-	-	-
Dredging of Accumulated Sediment in Main Stem Bassett Creek just North of Highway 55, Wirth Park	-	-	-	400,000	-	-	-	-	-	-	-	-
Minnehaha Parkway Stormwater Management	-	-	700,000	700,000	-	-	-	-	-	-	-	-
Stormwater Volume and Pollutant Load Reduction	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	-	-

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
Restoration of Eroded Riverbank Sites	250,000	250,000	250,000	250,000	-	-	-	-	-	-	-	-
Greening within the Public Right-of-Way/8th Street Green Infrastructure Pilot	500,000	500,000	-	-	-	-	-	-	-	-	-	-
Northeast Green Campus Water Quality Improvements	66,000	66,000	66,000	-	-	-	-	-	-	-	-	-
Prospect North Partnership Water Quality Improvements	1,750,000	1,750,000	-	-	-	-	-	-	-	-	-	-
Scherer Park	750,000	750,000	-	-	-	-	-	-	-	-	-	-
Old Bassett Creek Tunnel	660,000	660,000	660,000	-	-	-	-	-	-	-	-	-
Water Works Park	450,000	450,000	-	-	-	-	-	-	-	-	-	-
Upper Harbor Terminal	-	300,000	300,000	-	-	-	-	-	-	-	-	-
Shingle Creek Restoration	-	500,000	-	-	-	-	-	-	-	-	-	-
10-100	-	-	-	-	-	-	-	-	-	-	-	11,310,000
10-450	-	-	-	-	-	-	-	-	-	-	-	15,640,000
10-460	-	-	-	-	-	-	-	-	-	-	-	10,960,000
54-100	-	-	-	-	-	-	-	-	-	-	-	5,500,000
10-295	-	-	-	-	-	-	-	-	-	-	-	13,390,000
10-720	-	-	-	-	-	-	-	-	-	-	-	10,590,000
10-560	-	-	-	-	-	-	-	-	-	-	-	4,220,000
10-410	-	-	-	-	-	-	-	-	-	-	-	14,140,000
52-100	-	-	-	-	-	-	-	-	-	-	-	450,000
76-010	-	-	-	-	-	-	-	-	-	-	-	8,840,000
10-500	-	-	-	-	-	-	-	-	-	-	-	9,940,000
10-680	-	-	-	-	-	-	-	-	-	-	-	9,000,000
40-010	-	-	-	-	-	-	-	-	-	-	-	6,570,000
73-020	-	-	-	-	-	-	-	-	-	-	-	1,700,000
10-320	-	-	-	-	-	-	-	-	-	-	-	4,410,000
10-130	-	-	-	-	-	-	-	-	-	-	-	3,480,000
Mississippi River Direct	-	-	-	-	-	-	-	-	-	-	-	880,000
10-420	-	-	-	-	-	-	-	-	-	-	-	5,310,000
54-080	-	-	-	-	-	-	-	-	-	-	-	2,950,000
51-030	-	-	-	-	-	-	-	-	-	-	-	970,000

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
57-100 (A)	-	-	-	-	-	-	-	-	-	-	-	3,540,000
10-530	-	-	-	-	-	-	-	-	-	-	-	2,800,000
10-250	-	-	-	-	-	-	-	-	-	-	-	3,200,000
10-180	-	-	-	-	-	-	-	-	-	-	-	2,900,000
20-215	-	-	-	-	-	-	-	-	-	-	-	2,670,000
54-040	-	-	-	-	-	-	-	-	-	-	-	3,720,000
71-070 (A)	-	-	-	-	-	-	-	-	-	-	-	3,280,000
10-110 (A)	-	-	-	-	-	-	-	-	-	-	-	3,430,000
70-055	-	-	-	-	-	-	-	-	-	-	-	2,400,000
10-640	-	-	-	-	-	-	-	-	-	-	-	2,930,000
10-570	-	-	-	-	-	-	-	-	-	-	-	2,710,000
10-230	-	-	-	-	-	-	-	-	-	-	-	2,930,000
10-490	-	-	-	-	-	-	-	-	-	-	-	2,500,000
10-240	-	-	-	-	-	-	-	-	-	-	-	3,170,000
53-160	-	-	-	-	-	-	-	-	-	-	-	2,460,000
70-330	-	-	-	-	-	-	-	-	-	-	-	2,520,000
10-660	-	-	-	-	-	-	-	-	-	-	-	2,310,000
10-170	-	-	-	-	-	-	-	-	-	-	-	2,200,000
10-120 (b)	-	-	-	-	-	-	-	-	-	-	-	2,350,000
54-140 (A)	-	-	-	-	-	-	-	-	-	-	-	1,070,000
40-140	-	-	-	-	-	-	-	-	-	-	-	1,880,000
10-565	-	-	-	-	-	-	-	-	-	-	-	2,830,000
10-150	-	-	-	-	-	-	-	-	-	-	-	1,960,000
20-210 (A)	-	-	-	-	-	-	-	-	-	-	-	1,280,000
10-700	-	-	-	-	-	-	-	-	-	-	-	1,930,000
63-010	-	-	-	-	-	-	-	-	-	-	-	5,530,000
72-020	-	-	-	-	-	-	-	-	-	-	-	270,000
72-040 (A)	-	-	-	-	-	-	-	-	-	-	-	1,980,000
72-055 (B) PB	-	-	-	-	-	-	-	-	-	-	-	970,000
72-090	-	-	-	-	-	-	-	-	-	-	-	920,000
72-115 (A) PB	-	-	-	-	-	-	-	-	-	-	-	1,360,000
72-125 PB	-	-	-	-	-	-	-	-	-	-	-	890,000

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
73-010	-	-	-	-	-	-	-	-	-	-	-	610,000
76-005 (A)	-	-	-	-	-	-	-	-	-	-	-	601,000
76-020	-	-	-	-	-	-	-	-	-	-	-	1,220,000
76-030	-	-	-	-	-	-	-	-	-	-	-	110,000
76-040	-	-	-	-	-	-	-	-	-	-	-	70,000
76-050	-	-	-	-	-	-	-	-	-	-	-	40,000
Combined Sewer Overflow Improvements												
Overall Program Budget (after 2023, assumed)	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	-
180	136,000	-	-	-	-	-	-	-	-	-	-	-
176	145,000	-	-	-	-	-	-	-	-	-	-	-
177	210,000	-	-	-	-	-	-	-	-	-	-	-
001	-	692,500	-	-	-	-	-	-	-	-	-	-
117	-	825,000	-	-	-	-	-	-	-	-	-	-
188	-	180,000	-	-	-	-	-	-	-	-	-	-
189	-	202,500	-	-	-	-	-	-	-	-	-	-
095	-	-	375,000	-	-	-	-	-	-	-	-	-
108	-	-	960,000	-	-	-	-	-	-	-	-	-
154	-	-	377,500	-	-	-	-	-	-	-	-	-
195	-	-	277,500	-	-	-	-	-	-	-	-	-
138	-	-	-	117,500	-	-	-	-	-	-	-	-
139	-	-	-	190,000	-	-	-	-	-	-	-	-
158	-	-	-	52,500	-	-	-	-	-	-	-	-
153	-	-	-	500,000	-	-	-	-	-	-	-	-
164	-	-	-	337,500	-	-	-	-	-	-	-	-
149	-	-	-	312,500	-	-	-	-	-	-	-	-
165	-	-	-	307,500	-	-	-	-	-	-	-	-
181	-	-	-	-	127,500	-	-	-	-	-	-	-
187	-	-	-	-	672,500	-	-	-	-	-	-	-
193	-	-	-	-	352,500	-	-	-	-	-	-	-
194	-	-	-	-	430,000	-	-	-	-	-	-	-
151	-	-	-	-	-	75,000	-	-	-	-	-	-
191	-	-	-	-	-	100,000	-	-	-	-	-	-

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
163	-	-	-	-	-	57,500	-	-	-	-	-	-
042	-	-	-	-	-	-	-	-	-	-	-	922,500
055	-	-	-	-	-	-	-	-	-	-	-	612,500
069	-	-	-	-	-	-	-	-	-	-	-	572,500
086	-	-	-	-	-	-	-	-	-	-	-	622,500
088	-	-	-	-	-	-	-	-	-	-	-	535,000
089	-	-	-	-	-	-	-	-	-	-	-	557,500
109	-	-	-	-	-	-	-	-	-	-	-	542,500
121	-	-	-	-	-	-	-	-	-	-	-	857,500
133	-	-	-	-	-	-	-	-	-	-	-	190,000
150	-	-	-	-	-	-	-	-	-	-	-	232,500
172	-	-	-	-	-	-	-	-	-	-	-	580,000
183	-	-	-	-	-	-	-	-	-	-	-	665,000
184	-	-	-	-	-	-	-	-	-	-	-	367,500
186	-	-	-	-	-	-	-	-	-	-	-	282,500
192	-	-	-	-	-	-	-	-	-	-	-	417,500
Storm Drains and Tunnels Rehabilitation Program												
Overall Program Budget (after 2023, assumed)	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	-
00001.1	250,000	-	-	-	-	-	-	-	-	-	-	-
00001.2	-	250,000	-	-	-	-	-	-	-	-	-	-
00002.1	300,000	-	-	-	-	-	-	-	-	-	-	-
00003.1	185,740	-	-	-	-	-	-	-	-	-	-	-
00004.1	45,000	-	-	-	-	-	-	-	-	-	-	-
00005.1	150,000	-	-	-	-	-	-	-	-	-	-	-
00005.2	150,000	-	-	-	-	-	-	-	-	-	-	-
00006.1	160,000	-	-	-	-	-	-	-	-	-	-	-
00006.2	565,000	-	-	-	-	-	-	-	-	-	-	-
00008.1	650,000	-	-	-	-	-	-	-	-	-	-	-
00008.2	-	650,000	-	-	-	-	-	-	-	-	-	-
00009.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00009.2	80,000	-	-	-	-	-	-	-	-	-	-	-
00010.1	165,000	-	-	-	-	-	-	-	-	-	-	-

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
00010.2	2,900,000	-	-	-	-	-	-	-	-	-	-	-
00011.1	200,000	-	-	-	-	-	-	-	-	-	-	-
00012.1	50,000	-	-	-	-	-	-	-	-	-	-	-
00013.1	385,122	-	-	-	-	-	-	-	-	-	-	-
00014.1	65,400	-	-	-	-	-	-	-	-	-	-	-
00017.2	-	-	-	-	-	-	-	-	-	-	-	120,000
00017.3	-	-	-	-	-	-	-	-	-	-	-	1,100,000
00018.2	-	-	-	-	-	-	-	-	-	-	-	180,000
00020.1	-	-	-	-	-	-	-	-	-	-	-	175,000
00021.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00021.1	-	TBD	-	-	-	-	-	-	-	-	-	-
00022.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00022.2	-	TBD	-	-	-	-	-	-	-	-	-	-
00023.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00023.2	-	TBD	-	-	-	-	-	-	-	-	-	-
00024.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00024.2	-	TBD	-	-	-	-	-	-	-	-	-	-
00025.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00025.2	-	TBD	-	-	-	-	-	-	-	-	-	-
00026.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00026.2	-	TBD	-	-	-	-	-	-	-	-	-	-
00027.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00027.2	-	TBD	-	-	-	-	-	-	-	-	-	-
00028.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00028.2	-	TBD	-	-	-	-	-	-	-	-	-	-
00029.1	TBD	-	-	-	-	-	-	-	-	-	-	-
00029.2	-	TBD	-	-	-	-	-	-	-	-	-	-
I-35W Storm Tunnel Reconstruction												
Overall Program Budget (after 2023, assumed)	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000	-
Southwest Harriet Flood Mitigation – includes FA 29/30	-	-	-	-	-	-	-	-	-	-	-	72,000,000

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
Hiawatha Golf Course Restoration	-	-	970,000	970,000	-	-	-	-	-	-	-	-
1NE Watershed Phase I Improvements	-	3,200,000	3,200,000	3,200,000	3,200,000	3,200,000	-	-	-	-	-	-
13th and 2nd NE	-	-	-	-	-	-	-	-	-	-	-	TBD
FA 58 – Mid-City Pond	2,905,000	-	-	-	-	-	-	-	-	-	-	-
FA 05 – 30th Avenue N to Dowling/Washburn to Morgan	-	-	-	-	-	-	-	-	-	-	-	32,000,000 to 64,000,000
FA 06 – 30th Avenue N to 33rd, Dupont to Irving Avenue N	-	-	-	-	-	-	-	-	-	-	-	TBD
FA 08 – 3rd Street N and 23rd Avenue N	-	-	-	-	-	-	-	-	-	-	-	1,360,000
FA 13 – Clinton Avenue S, 45th to 46th Street E	-	-	-	-	-	-	-	-	-	-	-	6,280,000
FA 14 – E 40th Street, 4th to 5th Avenue S	-	-	-	-	-	-	-	-	-	-	-	1,040,000
FA 15 – 22nd Street W and Garfield Avenue S	-	-	-	-	-	-	-	-	-	-	-	7,280,000
FA 17 – 43rd Street W and Wentworth Avenue S	-	-	-	-	-	-	-	-	-	-	-	3,310,000
FA 18 – 50th and Wentworth Avenue S	-	-	-	-	-	-	-	-	-	-	-	8,790,000
FA 21 – Bloomington Holding Pond	-	-	-	-	-	-	-	-	-	-	-	4,920,000
FA 22 – Sibley Field	-	-	-	-	-	-	-	-	-	-	-	5,420,000
FA 25 – W 45th Street, Nicollet to 1st	-	-	-	-	-	-	-	-	-	-	-	2,510,000
FA 29 and 30 – 50th to 51st, Zenith to York Avenue S, 51st Street W and Abbott Avenue S	-	-	-	-	-	-	-	-	-	-	-	15,970,000
FA 32 – E 49th Street and Stevens Avenue S	-	-	-	-	-	-	-	-	-	-	-	1,150,000
FA 36 – Victory Memorial Parkway and Xerxes Avenue	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 39 – 46th Avenue S, 36th to 37th Street E	-	-	-	-	-	-	-	-	-	-	-	6,100,000

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
FA 40 – W 38th Street and Kings Highway	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 41 – 27th Avenue NE and Stinson Boulevard	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 42 – 10th Avenue S and E 27th Street (Abbott Hospital)	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 44 – 29th Avenue NE and Tyler Street NE	-	-	-	-	-	-	-	-	-	-	-	2,580,000
FA 45 – W 33rd Street and Girard Avenue S	-	-	-	-	-	-	-	-	-	-	-	2,580,000
FA 47 – W 22nd Street and Emerson Avenue S	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 48 – 2nd Street NW and Lowry Avenue NE	-	-	-	-	-	-	-	-	-	-	-	4,710,000
FA 49 – 32nd Avenue NE and Garfield	-	-	-	-	-	-	-	-	-	-	-	2,580,000
FA 50 – 3542 Polk Street NE/3547 Tyler Street NE (Alley)	-	-	-	-	-	-	-	-	-	-	-	2,580,000
FA 51 – 34th Avenue NE and Central Avenue NE	-	-	-	-	-	-	-	-	-	-	-	2,580,000
FA 52 – 35th Avenue NE and 5th Street NE	-	-	-	-	-	-	-	-	-	-	-	2,580,000
FA 53 – 27th Avenue NE and Randolph Street NE	-	-	-	-	-	-	-	-	-	-	-	2,580,000
FA 54 – Shoreham Yards (Lake Sandy)	-	-	-	-	-	-	-	-	-	-	-	2,580,000
FA 55 – 16xx Lyn-Park Avenue N	-	-	-	-	-	-	-	-	-	-	-	2,580,000
FA 56 – 56xx Xerxes Avenue S	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 57 – 44xx Chowen Avenue S	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 58 – Summer Street NE and McKinley Place	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 59 – Lyndale Avenue S, 26th to 27th Street E	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 60 – 2129 Emerson Avenue S	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 61 – E 40th Street, Van Nest to I-35W	-	-	-	-	-	-	-	-	-	-	-	2,020,000
FA 62 – 6th Avenue SE at 7th Street SE	-	-	-	-	-	-	-	-	-	-	-	6,100,000

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
FA 63 – 28th and Humboldt Avenue S	-	-	-	-	-	-	-	-	-	-	-	6,100,000
FA 64 – 2900 Upton, part of Logan Pond Watershed	-	-	-	-	-	-	-	-	-	-	-	6,100,000
Central City Parallel Storm Tunnel												
Design	641,420	-	-	-	-	-	-	-	-	-	-	-
Design	-	1,000,000	-	-	-	-	-	-	-	-	-	-
Construction	-	-	9,500,000	-	-	-	-	-	-	-	-	-
Construction	-	-	-	9,500,000	-	-	-	-	-	-	-	-
Construction	-	-	-	-	9,500,000	-	-	-	-	-	-	-
Reimbursable Storm Drain Construction Related to Street Reconstruction (Total Reconstruction Cost Listed)												
Overall Program Budget (after 2023, assumed)	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	-
PV054	-	18,474,000	-	-	-	-	-	-	-	-	-	-
PV095	-	14,220,000	-	-	-	-	-	-	-	-	-	-
PV125	-	2,840,000	-	-	-	-	-	-	-	-	-	-
PV135	-	9,365,000	-	-	-	-	-	-	-	-	-	-
PV118	-	-	22,960,000	-	-	-	-	-	-	-	-	-
PV139	-	-	4,965,000	-	-	-	-	-	-	-	-	-
PV147	-	-	1,295,000	-	-	-	-	-	-	-	-	-
PV141	-	-	-	14,575,000	-	-	-	-	-	-	-	-
PV113	-	-	-	2,115,000	-	-	-	-	-	-	-	-
PV142	-	-	-	3,120,000	-	-	-	-	-	-	-	-
PV137	-	-	-	8,575,000	-	-	-	-	-	-	-	-
PV152	-	-	-	5,440,000	-	-	-	-	-	-	-	-
PV156	-	-	-	4,499,000	-	-	-	-	-	-	-	-
PV122	-	-	-	-	3,340,000	-	-	-	-	-	-	-
PV123	-	-	-	-	6,650,000	-	-	-	-	-	-	-
PV143	-	-	-	-	5,640,000	-	-	-	-	-	-	-
PV154	-	-	-	-	2,055,000	-	-	-	-	-	-	-
PV146	-	-	-	-	2,160,000	-	-	-	-	-	-	-
PV092	-	-	-	-	1,025,000	-	-	-	-	-	-	-
PV138	-	-	-	-	4,510,000	-	-	-	-	-	-	-

Project Name/Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	TBD
PV140	-	-	-	-	7,575,000	-	-	-	-	-	-	-
PV150	-	-	-	-	-	12,135,000	-	-	-	-	-	-
PV126	-	-	-	-	-	18,390,000	-	-	-	-	-	-
PV127	-	-	-	-	-	10,240,000	-	-	-	-	-	-
PV158	-	-	-	-	-	18,585,000	-	-	-	-	-	-
PV153	-	-	-	-	-	-	11,025,000	-	-	-	-	-
PV132	-	-	-	-	-	-	14,555,000	-	-	-	-	-
PV149	-	-	-	-	-	-	9,905,000	-	-	-	-	-
PV151	-	-	-	-	-	-	6,010,000	-	-	-	-	-
PV157	-	-	-	-	-	-	11,250,000	-	-	-	-	-
BR117	-	-	1,380,000	-	-	-	-	-	-	-	-	-

Appendix L – Minnehaha Creek Watershed District Coordination Plan

Minneapolis
City of Lakes

Coordination Plan

The Minnehaha Creek Watershed District (MCWD) Watershed Management Plan (2018) indicates a desire to coordinate subwatershed planning with partners and align investments to improve water resources as development and redevelopment occurs. The City of Minneapolis (City) and MCWD have a history of partnership. The past successes have largely been the result of strong working relationships that promote regular conversations.

In 2017, the City, the Minneapolis Park and Recreation Board (MPRB), and the MCWD initiated a Memorandum of Understanding (MOU) to share responsibility for improving environmental quality within the Minnehaha Creek subwatershed of the City and recognize the benefit of working in close partnership at the intersection of the vision and mission of the respective organizations.

The goals of the MOU are to work together to coordinate and align policies, plans, and capital improvements to improve the natural and built environments within the Minnehaha Creek subwatershed in the City, and to work together to identify multi-jurisdictional initiatives to achieve complex water resource goals, such as:

- Reducing flooding.
- Achieving regional pollutant load reductions identified in total maximum daily loads (TMDLs).
- Reducing discharge volumes to, and peak flows within Minnehaha Creek.
- Eliminating combined sewer overflows and reducing inflow and infiltration to the sanitary sewer.

As articulated in the MOU, the City and the MCWD are committed to working together to integrate natural resource goals across disciplines to intersect with planned recreation improvements, infrastructure improvements, development, etc., to reduce cost and maximize public benefit.

The City and the MCWD will achieve the desired integration through the use of a predictable and repeatable annual work plan, identifying opportunities to establish shared agency priorities that can be subsequently incorporated into budgets, capital improvement plans, policy development, master planning efforts, and other agency-specific plans and initiatives.

These shared agency priorities are intended to benefit from collaborative planning, cost sharing, and the development of investment strategies that will attract additional outside funding, through the coordinated pursuit of grant funds, legislation, and other partnerships.

To better maintain awareness of needs and opportunities and to implement programs and project that meet the goals of the MCWD and the City, the partners will implement the following integrated planning process:

- The parties commit to working together by designating staff representatives to a Planning Team who are well informed about all respective agency goals, plans, and budgets.
- The Planning Team will collaborate at least quarterly to identify opportunities for shared agency priorities and be responsible for jointly recommending to policy-makers the alignment of policies,

long-range planning efforts, master plans, feasibility studies, capital improvement plans, and the operational and project budgets to support them.

- The City of Minneapolis prepared budget requests for the Capital Long Range Improvement Committee (CLIC) in the first quarter of each calendar year to establish capital project and program priorities for five years.
- The MCWD begins budget forecasting in the first quarter of each calendar year and produces a draft 2 to 3 year capital improvement plan, which it distributes for review in June of each calendar year.
- On or before March of each year, the Planning Team will produce a draft 2 to 5 year Partnership Plan and Investment Strategy. The Plan will inform and be informed by the CLIC process and the development of the MCWD capital improvement plan. The Plan will identify opportunities for integrating planning, policy, and capital project initiatives across agencies. The Plan will include, but not necessarily be limited to:
  - A brief initiative/project description.
  - Estimated upfront costs, capital costs, and long-term operation and maintenance costs.
  - Potential cost sharing opportunities across the agencies.
  - Supporting outside funding and financing (grants, appropriations, bonding, etc.).
  - Timelines for implementation including quarterly milestones.
- The parties agree that this Partnership Plan is intended as a planning guide for coordinated project planning and implementation but does not formally obligate any party to implementation of any specific project; such commitments are to be addressed in specific project agreements.
- On or before June 30 each year, the partners will present the Plan for review and a resolution of support by each party's governing board or council. For the City, the CLIC process and development and presentation of the annual budget will satisfy this provision. The Plan will inform the respective agencies' budget priorities.
- Following review and support of the Plan by each agency, the Planning Team will jointly develop a project specific implementation plan to be memorialized into a project specific agreement. Project specific implementation plans will detail roles and responsibilities for further feasibility studies, design, bidding, construction management and oversight, and long-term operations and maintenance.

In addition, the City will:

- Transmit the annual NPDES MS4 report to the MCWD.
- Notify the MCWD of:

- Institution and completion of small area plans and other focused development or redevelopment planning within the MCWD.
- Significant alterations within the City's MS4 system.
- Partnership opportunities for public communications and education.

Coordination Plan Meeting Framework

Consistent with the MOU, quarterly Planning Team meetings will occur. To ensure coordinated progress, one of the quarterly Planning Team meetings will be dedicated to annual reporting on progress towards WRMP implementation. The meeting will include the City's Director of Surface Water and Sewers, Water Resources Regulatory Coordinator, Project Engineer responsible for development/redevelopment reviews, Project Managers for specific projects of interest, CPED Director of Long Range Planning or their designee, and the Minneapolis Park and Recreation Board's Director of Environmental Management. The City will accommodate reasonable requests from the MCWD for additional meetings and communication. Specific communication plans and schedules will be made for discrete projects or programs that arise that need more detailed accounting. The City's Water Resources Regulatory Coordinator will facilitate communication among appropriate parties based on the scope of the item.

Opportunities for Regulatory Coordination

The City is eager to continue and expand cooperative work with MCWD in the following areas:

- CIP and Budget Planning: The City's process for this is described in more detail in Section 6 of the WRMP.
- Private Development and Redevelopment: The City will share known upcoming projects at the annual meeting. The City will inform permit applicants of the potential need for a MCWD permit and, when one is required, will not issue a City permit until the MCWD permit application has been made.
- Public Development and Redevelopment: Because of our strong working relationship with the MCWD, the City is continually seeking opportunities for coordination. This occurs through informal conversations as opportunities arise. Any future efforts including small area plans, rezoning studies, resiliency plans, or other planning activity will be shared at the annual meeting.
- Operation and Maintenance: The City will inform the MCWD of illicit discharges in a timely manner and share a summary of the illicit discharge detection and elimination (IDDE) program at each annual meeting. Additionally, the City will share its MS4 inspection results through its NPDES MS4 Annual Report and at each annual meeting. If the MCWD discovers an illicit discharge in the City, they will notify the City in a timely manner, so action can be taken to address the issue.
- Addition of link to MCWD permitting website and/or handouts explaining District permitting to the development services website with a map of watersheds in the City.
- City Planners will inform applicants at the time of PDR application that permits may be required from the District and provide them with the necessary information to contact District staff.

District staff will be notified when development/redevelopment applications are distributed for staff review and comment.

- District staff will be notified when PW-SWS staff has approved a development/redevelopment plan.
- Existing and new City Planners assigned to areas within the District will receive guidance on the role of the District in development review and the desire of the District to work in partnership with private developers to achieve greater natural resource benefits.

Capital Improvement Program Planning

The City will work closely with the MCWD to identify and implement water resource related partnership projects. Some upcoming opportunities for partnership include:

- Federal Emergency Management Agency (FEMA) Flood Repairs to Minnehaha Creek: The MCWD has been awarded monies from the FEMA to repair sections of streambank on Minnehaha Creek, damaged during the 2014 flooding. This work intersects with the clean water and recreation goals of the MPRB that has planned investments in trail improvements within areas of identified damage to Minnehaha Creek, is undertaking an ecosystems services plan for MPRB land, and has interest in developing a shared vision for the Minnehaha Creek corridor through the City of Minneapolis (discussed below). This work also intersects with the clean water and infrastructure management goals of the City that has planned storm sewer improvements within the areas of identified damage to Minnehaha Creek.
- Minnehaha Parkway Regional Trail Master Plan: The master plan will be prepared between 2018 and 2019 in a three-agency collaboration between MPRB, the City, and the MCWD. This master plan will set the vision for the Minnehaha Parkway Regional Trail which encompasses 253 acres with 5.3 miles of parkway and includes most of the corridor along Minnehaha Creek. The MCWD has also been awarded monies from the Clean Water Legacy Fund to integrate the planning of FEMA damage repair (noted above) with opportunities to address water quality issues associated with stormwater discharges into Minnehaha Creek. Together, these efforts will improve the ecological integrity of the Minnehaha Creek corridor and reduce pollutant loading to Lake Hiawatha, and impaired water. The parties have a mutual interest in collaboratively planning this work to identify opportunities for the intersection of streambank improvements, stormwater management improvements, infrastructure improvements, recreation investments, ecosystems, and corridor plans. Together, these three agencies will prepare a master plan that will set a vision and priorities for future park improvements and management along the Minnehaha Creek corridor for the next 20 to 30 years.
- Hiawatha Golf Course: The MPRB is working with a Community Advisory Committee to identify potential land use changes that support the reduced groundwater pumping scenario endorsed by the MPRB commissioners. Future changes will prioritize methods of addressing TMDL levels at Lake Hiawatha, water and habitat quality at Lake Hiawatha and Minnehaha Creek, localized flooding, local stormwater infrastructure function and capacity, and enhanced or expanded public recreation opportunities.

- Southwest Harriet Flood Mitigation in the Vicinity of Fulton, Linden Hills, and Lynnhurst Neighborhoods of the City: There is a need to integrate planning and implementation actions to address localized flooding southwest of Lake Harriet. The City completed the feasibility study in August 2018 in coordination with MCWD and the MPRB. Future selection of individual projects to mitigate flooding and improve water quality will be done recognizing programmed neighborhood park improvements and aligning with MCWD efforts to minimize pollutants and minimize peak flows to connect downstream waters.

- Outfall Repair along Minnehaha Creek: High priority reaches have been identified along Minnehaha Creek where stream restoration could improve streambank stability. Many of these reaches contain a number of storm sewer outfalls that require repair or improvement. There are opportunities to partner with planned transportation and park restoration projects to repair storm sewer outfalls, reduce erosion, improve the quality of the riparian area through bioengineering and native vegetation plantings, and improve fish and macroinvertebrate habitat.

- Minnehaha Creek Bacterial Source Identification Study: Due to elevated levels of fecal coliform bacteria and exceedances of the *E. coli* water quality standards, the entire length of Minnehaha Creek is listed as impaired. The City has initiated a bacterial source identification study to identify the sources of *E. coli* within the City. To-date, this study has determined what the major sources of *E. coli* are, if they are human sources, if bacterial regrowth in the Creek and storm sewer system contributes to *E. coli* levels, and if groundwater is a source. The next steps of this study are to develop, study, and begin to implement bacteria management BMPs with the assistance of the MCWD and MPRB.

Public and Private Project Coordination

The Minneapolis Development Review (MDR) is a service center administered by Community Planning and Economic Development (CPED). This service center receives private development and redevelopment project proposals and carries out the preliminary development review (PDR) process. Most development and redevelopment project proposals are routed through the PDR process. This process precedes issuance of building and other types of permits.

Public Works Surface Water and Sewers (PW-SWS) staff is involved in the PDR process to review sanitary sewer connections to public infrastructure, site drainage, and adherence to the City's Stormwater Management Ordinance. PW-SWS staff refer applications to the MCWD for all development and redevelopment projects within the watershed. The MCWD will carry out its own review and issue and enforce permits or approvals.

CPED staff review development and redevelopment proposals with the guidance of the City's Comprehensive Plan and Zoning Ordinances. The City of Minneapolis 2040 Comprehensive Plan includes the policies, principals, and goals that guide development across the City. Minneapolis 2040 has 17 policies that directly address Environmental Systems within the City. These policies related to water resource management include:

- Manage the City's surface waters, groundwaters, stormwater, wastewater, and drinking water equitably and sustainably, while minimizing the adverse impacts of climate change.

- Manage natural areas in and around surface waters, as well as stormwater ponds and other stormwater treatment facilities, as areas supportive of aquatic and terrestrial ecosystems.
- Integrate water resource management into public and private projects in order to benefit natural systems.
- Ensure City infrastructure and residents are resilient to the shocks and stresses of climate change.
- Establish environmental justice frameworks for policy and regulation.
- Protect and improve soil health to sustain and promote plant, animal, and human health.
- Improve the tree canopy and urban forest.
- Require landscaping in conjunction with new development and that complements its surroundings and enhances the built environment.
- Improve the ecological functions of the natural environment in the urban context through planning, regulation, and cooperation.

Policies guiding management of environmental systems and impacts, including City operations, water resources, waste management and recycling, air quality, brownfields cleanup, and energy are implemented on a short- to long-term planning schedule. Implementation activities and opportunities to coordinate with MCWD are noted below:

Term	Activity	Department
Short-term	**Water Resources** – Continue to fund and implement programs per the management plan to maintain and improve sanitary sewer and stormwater infrastructure and protect water resources in the City.	▪ Public Works Department ▪ Projects within the MCWD watershed will be discussed by the Planning Team and progress reviewed at quarterly meetings. ▪ City and MCWD resiliency planning will be discussed by the Planning Team and evaluated at annual meetings.
Short-term	**Service Provision** – Continue to provide high quality City services to the community, including but not limited to public safety, water, sanitation, and health.	▪ Community Planning and Economic Development (CPED) ▪ Public Works Department ▪ Regulatory Services ▪ Health Department ▪ Fire Department ▪ Police Department ▪ Communications Department ▪ Coordinate with MCWD to make short-term infrastructure repairs to outfalls and provide operations and maintenance to best management practices.
Short-term	**Technical Assistance, Grant, and Loan Programs** – Continue to use and expand the portfolio of tools and programs linked to economic competitiveness goals such as grants for brownfield cleanups.	▪ CPED ▪ Public Works will coordinate with MCWD if/when projects may be eligible for funding by MCWD to improve water quality or meet other shared goals.

Term	Activity	Department
Long-term	**Environmental Impacts of Transportation** – The City will work to encourage bicycle and transit use to reduce environmental impacts created from single-occupancy trips. The progress made on achieving climate action goals in the comprehensive plan will be tracked and measured as part of City climate goals.	▪ CPED ▪ Public Works Department ▪ Health Department ▪ City Coordinator's Office ▪ Coordinate with MCWD on transportation projects that may have an impact on water quality of may offer an opportunity for water quality improvement.

Small Area Plans outline a long-range vision for land use and development in very specific areas of the City. A list of completed Small Area Plans is available in the Minneapolis 2040 Plan at: https://minneapolis2040.com/small-area-plans/

Information on approved plans including the Minneapolis Plan for Sustainable Growth, Citywide and Multi-Sector Plans, and Rezoning Studies along with maps of current planning and development activities and all current planning applications can be found at: http://www.ci.minneapolis.mn.us/cped/planning/index.htm

For projects that propose changes to the City's publicly-owned infrastructure (streets, lights, public utilities, etc.), the Public Works Department coordinates the Capital Projects Task Force (CPTF) process of review for compliance with the City's requirements for working within the public right-of-way. PW-SWS staff will refer City Project Managers to MCWD for all public projects within the watershed. The MCWD will carry out its own review and issue and enforce permits or approvals.

PW-SWS staff will communicate with MCWD at quarterly meetings about development and redevelopment projects and public infrastructure projects that span jurisdictions and include stormwater BMPs.