

Surface Water Management

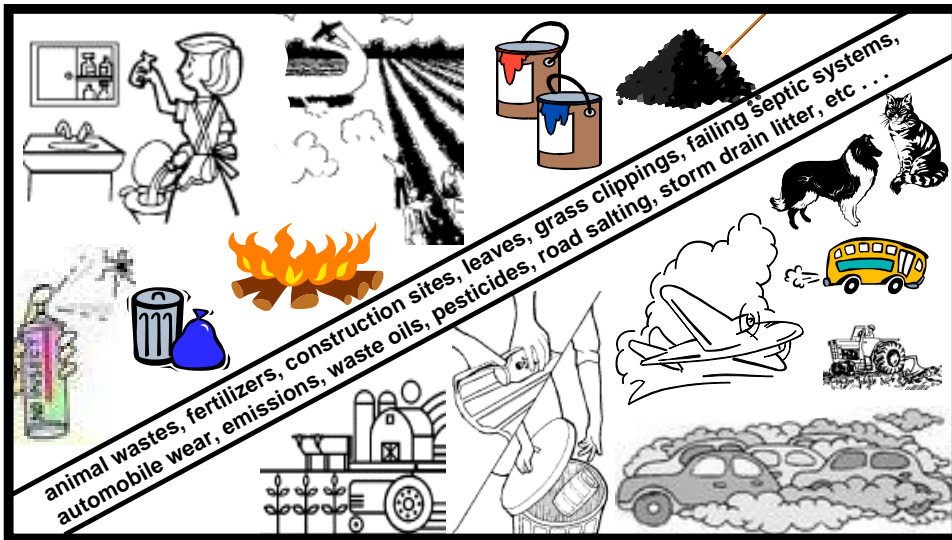


“The water quality leaving the metropolitan area is as good as the water quality entering the metropolitan area, and in compliance with federal and state regulations.”

–2030 Regional Development Framework

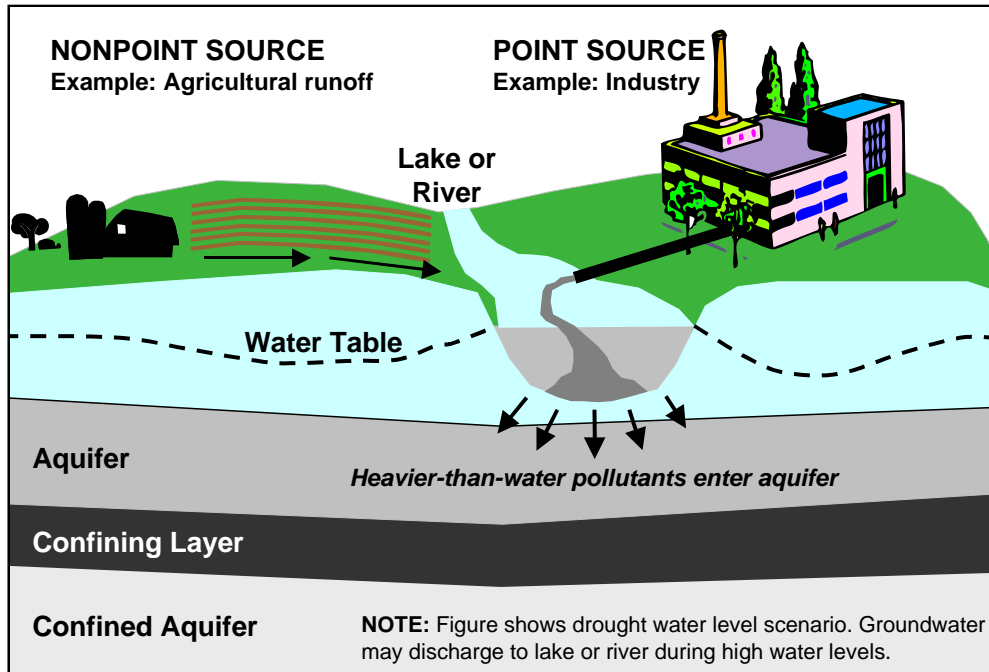
Metropolitan Council surface water management programs deal with broad land runoff (“nonpoint” source) and specific wastewater (“point” source) pollution. Point source pollution includes the discharge of treated wastewater effluent through a pipe. Nonpoint sources of pollution result from many of the everyday activities and actions of people (Figure 7). These include applying fertilizer to lawns in an amount that exceeds what the grass can use, plowing an agricultural field such that erosion results, blowing grass clippings into the street, or driving a car that exhausts improperly burned hydrocarbons or leaks oil. All these add up to major nonpoint source pollution loading of our receiving waters.

Figure 7: Examples of Nonpoint Source Pollution



Nonpoint source pollution begins with the alteration of the landscape caused by agricultural production and urban development (Figure 8). The natural vegetative and drainage systems provide a low-impact course for water to follow. Alteration of these systems increases both the volume and rate of water runoff, and introduces polluting materials that can be transported by the runoff into receiving water bodies. This makes it harder to clearly identify the pollution source and effectively manage it. Appendix A-1 includes a list of common nonpoint source pollutants.

Figure 8: Point vs. Nonpoint Source Pollution



Protecting the quality of the region's water resources cannot be achieved in a cost-effective manner without addressing point *and* nonpoint sources of pollution. The region has spent several decades and made great strides in improving water quality by reducing point sources of pollution. The region has begun to make progress in improving water quality by reducing nonpoint sources of pollution as well, but it is apparent that nonpoint sources of pollution far exceed point sources of pollution to the region's and state's water resources.

To continue our success and to minimize impacts to the wastewater system from increased regulatory requirements to reduce pollution, the Council needs to encourage a combination of point and nonpoint source pollution strategies.

Local governmental units also have a role. They need to address the impacts from increased stormwater runoff as a result of increased imperviousness related to additional growth. Without local actions, projects and permits for future wastewater treatment plant expansions may be required to meet higher standards, making them more expensive.

Assessing and Protecting Regional Water Resources

Progress toward achieving any water quality goal cannot be assessed without a good database that measures change. The Council has a water quality monitoring program that measures the quality of effluent leaving metropolitan wastewater treatment facilities, ambient water quality conditions in rivers and lakes, and the quality of water leaving tributary watersheds.

The ambient river water quality monitoring program helps the Council evaluate the condition of river water quality across the region, assess whether or not water quality standards are being met, and define where attention is needed. The Council also helps communities identify appropriate point and nonpoint source pollution abatement measures.

The Council's watershed outlet monitoring program collects data about baseflow and runoff (snowmelt and rainfall) events. The data provide an accurate depiction of the water quality for the entire volume of water leaving the watershed. Monitoring sites are located and sampled by the Council and its partners across the metropolitan area. Where monitoring sites exist, data is available for local partners, watershed organizations, state agencies and others to use to help them assess the condition of streams in their area.



The Council's lake monitoring program has allowed the Council and its partners to collect data on over 150 of the region's 950 lakes. The lake data not only show current conditions in the lakes, but they help to assess the general condition of metropolitan area lakes and to see how lake conditions are changing over time. All of the Council's lake water quality data is available to the Council's partners to assess their lakes and to determine when management efforts are needed to improve water quality.

The Council has also used the lake data in conjunction with geographic information system data to complete an aquatic resources assessment. The aquatic resource assessment was one piece developed as part of the Council's Natural Resources Inventory and Assessment, completed in 2003. One result of this aquatic resources assessment was a new priority lake list (Appendix A-2). The Council uses the priority lake list to focus its limited resources. This list is also used in the environmental review process to determine which lakes need to have a nutrient budget analysis completed if they are impacted by a proposed project.

The Council conducts special studies that look at specific aspects of water quality management. For example, the Council has collected mercury data throughout the region to characterize how it occurs and behaves.

Much of the built-up inner cities and first- and second-ring suburbs developed with no runoff management practices whatsoever. If anything, water was routed away fast to get rid of it. Redevelopment in these areas presents an excellent opportunity to expose runoff to infiltration, vegetative uptake, and settling through a number of successful “best management practices” (BMPs). The Council’s *Minnesota Urban Small Sites BMP Manual* includes management practices for small development sites.

POLICY

The Council will provide technical assistance and resource assessment information to assist others in their efforts to implement practices that will protect water resources (wetlands, lakes, streams, rivers, and natural drainage courses). Best management practices help to maintain and improve water quality, control runoff rates and volumes to reduce streambank erosion and flooding, and preserve designated beneficial uses.

IMPLEMENTATION STRATEGIES

- *The Council will continue to monitor and assess lakes, streams, and rivers to measure the progress in achieving the goal of no adverse impact on water resources in the region.*
- *The Council will work with watershed organizations, local units of government, state and federal agencies, and other stakeholders to promote the protection of area lakes, wetlands, streams, and rivers with a special emphasis on priority lakes to achieve the goal of no adverse impact on water quality in the region.*
- *The Council will encourage and support the use of the most effective nonpoint source pollution reduction technologies. These include low impact development practices and best management practices aimed at protecting water quality and maintaining stormwater runoff rates and volumes at or below predevelopment conditions.*

Promoting Surface Water Management

Collectively, nonpoint and point source programs form the policy basis for achieving the no-adverse-impact goal: “The quality of water leaving the metropolitan area is as good as the water quality entering the metropolitan area, and in compliance with federal and state regulations.”

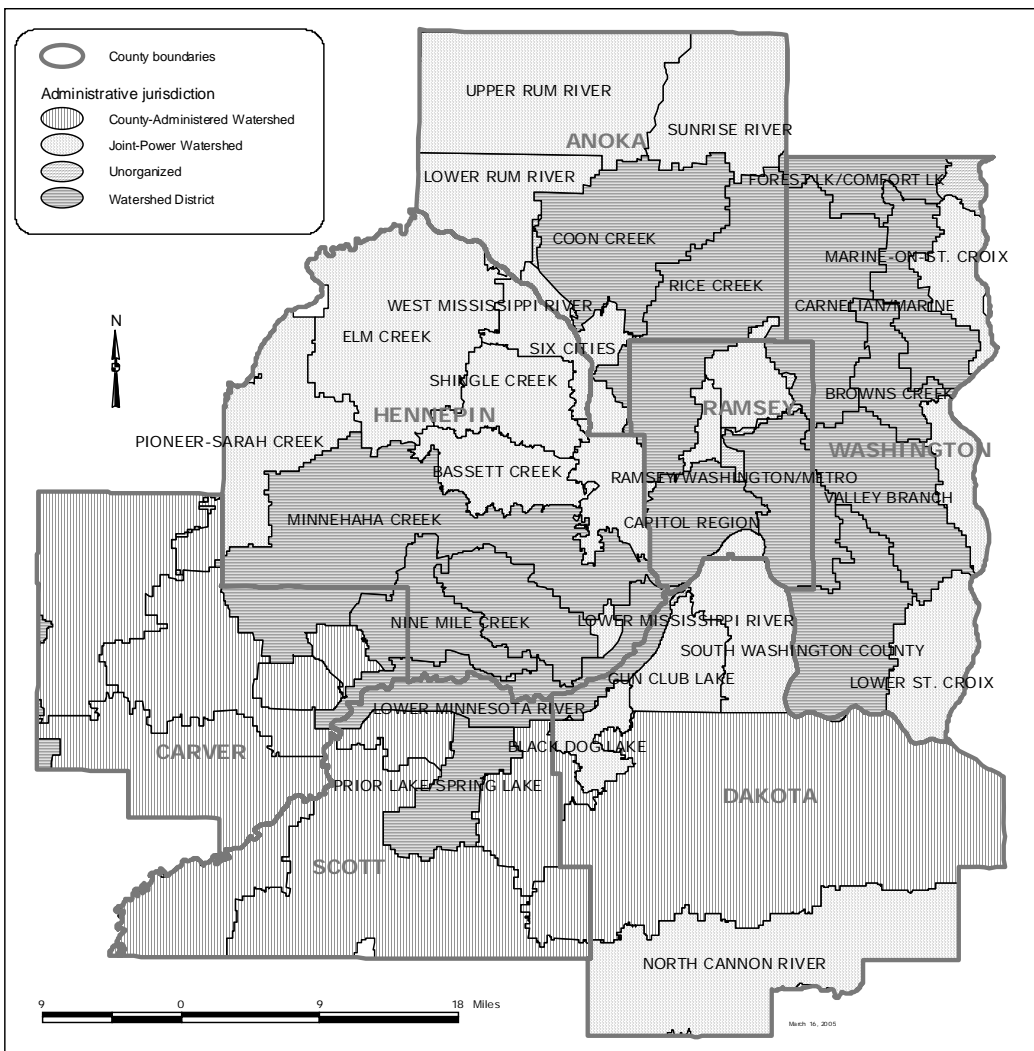
To meet this goal, the Council has made a policy decision that ties together the control of pollution from point and nonpoint sources. If a community does not have a local surface water management plan and a stormwater/erosion and sediment control ordinance as part of their comprehensive plan, the Council will determine that the plan is incomplete for review. If they have a plan and ordinance and the plan or ordinance does not meet MPCA requirements for stormwater ordinances, or Council requirements for local surface water management plans, the comprehensive plan will be determined to be more likely than not to have an impact to our system, thus requiring a plan modification. Such a finding would require that the local plan be modified.

The premise behind this requirement is that the Council will not be able to obtain permits from the MPCA for our projects if these items are not satisfactorily completed.

Nonpoint source pollution management begins with the surface water management process in place within the region. Some form of watershed management organization (WMO) covers the entire region (Figure 9). Under state law, WMOs are charged with the preparation of a plan to manage surface water. Watershed programs are intended to: effectively protect and improve surface and groundwater quality; establish uniform local policies and official controls for surface and groundwater management; prevent the erosion of soil into surface waters; promote groundwater recharge; and minimize public capital expenditures needed to correct flooding and water quality problems.

Once WMO plans are prepared, local governments must prepare local surface water plans that meet the standards and requirements of the applicable WMO plans. Local surface water management plans are required under state law and as part of the Metropolitan Land Planning Act. Appendix B2-b includes more information on the requirements for local surface water management plans. Most local units of government and WMOs have criteria that must be met for activities that would generate nonpoint source pollution. For example, erosion and sediment control ordinances require developers to use various best management practices to control erosion from construction sites.

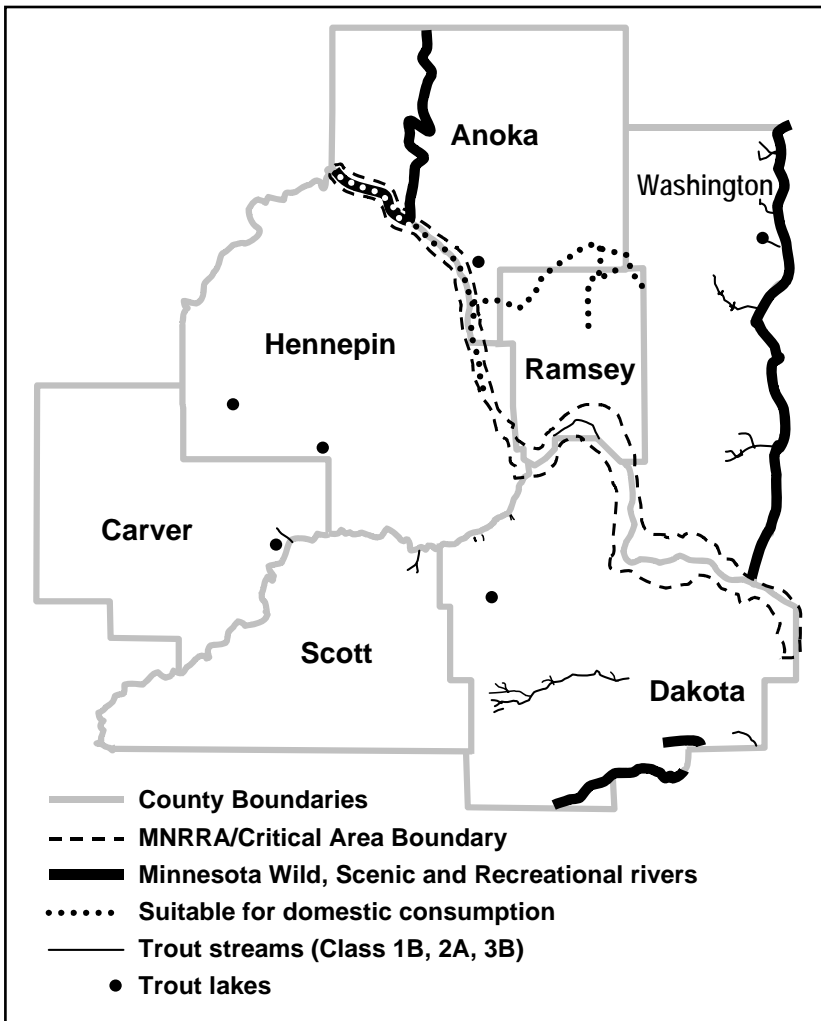
Figure 9. Secondary Watersheds in Twin Cities Metropolitan Area



In addition to WMO and local programs to reduce nonpoint source pollution and improve water quality, several state programs are designed to improve water quality. Figure 10 illustrates the stream classification system of the State of Minnesota. Specific water quality standards exist for each of these classifications. Pollutant discharge levels from point sources of pollution are designed to meet these in-stream standards. Reaches of stream where water quality levels are not maintained, either from point or nonpoint source inputs, are identified by the Minnesota Pollution Control Agency (MPCA) and put on an “impaired waters” list for attention.

The “Section 303(d)” (of the Clean Water Act) listing sets the stage for determination of a Total Maximum Daily Load (TMDL), which is a calculation determining the allowable pollution load that can be discharged into the impaired water such that the water is not impaired. Information on the MPCA’s TMDL program can be found at their web site, located at www.pca.state.mn.

Figure 10: State Classification of Surface Waters in the Twin Cities Metropolitan Area



In recent years, some overlap between nonpoint and point source pollution occurred when the U.S. Environmental Protection Agency (EPA) began a program of permitting certain nonpoint source activities. The current National Pollutant Discharge Elimination System (NPDES) Phase I nonpoint source program, implemented in Minnesota through

the MPCA, issues permits for certain activities that generate pollution, such as construction on sites greater than five acres, uncovered storage of chemicals, and unprotected industrial equipment that could contribute toxic material when exposed to precipitation. Phase I applied to cities with large populations, including the Cities of Minneapolis and St. Paul.

Phase II of this program increases coverage to essentially all of the urbanized and urbanizing parts the metropolitan area, and will cover construction activity that disturbs an area equal to or greater than one acre. Operators of “municipal separate storm sewers systems” and small construction activity are required to apply for NPDES permit coverage and to implement best management practices for stormwater. NPDES Phase II permit coverage began in 2003. A list of metropolitan area cities required to meet NPDES Phase II permit requirements is included in Appendix A-3.

In 1990, the Minnesota Legislature charged the Metropolitan Council (Minn. Stat. 473.157) with the preparation of “target pollution loads for watersheds in the metropolitan area.” Target pollution loads will be used by the Council to identify current water quality of the sub-watershed outlets to the Mississippi, Minnesota and St. Croix rivers, and to set goals for future water quality that are aimed at having no adverse impact on the rivers as water passes through the metropolitan area. The Council’s target pollution loads will be available to the MPCA to aid in their efforts and development of Total Maximum Daily Load (TMDL) for metropolitan area water bodies and the NPDES Phase II permit program for nonpoint sources of pollution.

POLICY

The Council will review local comprehensive plans, watershed management plans, local surface water management plans, local stormwater ordinances, environmental permits and other environmental documents to ensure that the local units of government are fulfilling their nonpoint source reduction requirements and therefore not impacting the metropolitan disposal system.

IMPLEMENTATION STRATEGIES

- *The Council will review environmental documents to ensure that actions of others are not causing a wastewater system impact.*
- *The Council will develop target pollution loads for the major watershed basins by 2008 and work in conjunction with the MPCA in the development of Total Maximum Daily Loads (TMDLs) to reduce the effects of nonpoint source pollution on the region’s wetlands, lakes, streams and rivers.*