Mississippi River – Lake Pepin Watershed: Water Plans

The Mississippi River – Lake Pepin Watershed encompasses Goodhue, Scott and Wabasha Counties. Within these counties watershed districts (WDs) and Watershed Management Organizations (WMOs) have been organized. Each county, WMO, and WD has developed a 10-year rotating comprehensive local water management plan (LWMP) in order to improve water quality within Minnesota. The water plans are comprised of a set of concerns the counties, WMOs and WDs have described as a priority, along with how they intend to effectively manage them.

This document contains two parts: (1) A comparison of management goals from each county, WMO and WD, and (2) A summary of each water plan in the watershed including priority concerns, goals and objectives, and actions related to nutrient management.

Water Plans:
Goodhue County LWMP 2010-2020
Lower Mississippi River Watershed Management Plan 2011-2020
Scott County Water Resources Management Plan 2009-2018 amended 2013
Vermillion River Watershed Plan 2005 amended 2008
Wabasha County LWMP 2008-2012

Water Plan Evaluation

Concern	Goodhue	Lower Mississippi	Scott	Vermillion	Wabasha
Coordination/Partnership					
Education					
Groundwater					
Shoreland Management					
Surface Water					
TMDL - Impaired Water					
Conservation BMPs					
Development Concerns					
Erosion Control					
Stormwater Management					
Technical/Financial Assistance					
Wetlands					
Priority Pollutants					
Sediment					
Watershed-based Approach					
Wellhead Protection					
Monitoring					
Municipal Wastewater					
Nonpoint Source Pollution					
Point Source Pollution					
SSTS/ISTS					
Water Retention					
Abandoned Wells					
Drainage Management					
Feedlot Compliance					
Manure Management Plan					
Nutrient Management					
Seek Funding					

Concerns addressed in County Water Plan associated with nutrient issues

Strong ongoing activities implemented in programs outside of the County Water Plan

Goodhue County LWMP 2010-2020

Priority Concern: Erosion and Sediment control

Goal: Limit and reduce erosion and control sediment from land use practices associated with urban development

Objective: Provide leadership, education and staff time to assist cities, townships, developers and landowners in developing and implementing environmentally sound stormwater management practices.

Actions:

- Provide information on stormwater and erosion rules and regulations to 25 landowners, 1 township, 5 city staff and 5 contractors each year.
- Offer 5 remediation techniques on erosion and sediment control issues in urban areas.
- Assist Goodhue County Public Works Department with Public Waters permits compliance on all bridges and culverts effecting stream crossing. Assist County planning staff with proper stream alignment and debris issues as they arise.
- Cooperate with municipalities in Goodhue County who administer SWPPP and offer assistance in writing and implementing plans when applicable.
- Develop 1 urban stormwater BMP demonstration site to display the water quality benefits of practices that reduce volume and rate of stormwater runoff.

Objective: Encourage maintenance on 10% of existing stormwater basins.

Actions:

- Assist City of Red Wing with inventory and inspections on 20 stormwater basins.
- Assist Goodhue County Public Works Department as well as all municipalities with stormwater detention pond maintenance needs

Objective: Provide and seek financial incentives for implementing stormwater BMPs.

Actions:

- Encourage 2 developments to incorporate Low Impact Development strategies and proper platting techniques which compliment natural resource features.
- Seek and provide funding for 5 rain garden and infiltration basin retrofits within municipalities in Goodhue County to help achieve stormwater volume and rate reduction.
- Provide funding sources for 5 streambank restoration and stabilization within municipalities in Goodhue County.

Goal: Limit and reduce erosion and control sediment from land use practices associated with agricultural practices

Objective: Establish and maintain stream and field vegetated buffers in accordance with Goodhue County Zoning Ordinance.

Actions:

- Continue to educate all township supervisors, County staff and landowners on the Shoreland Ordinance and the importance of buffers.
- Utilize GIS land use buffer layer developed by Cannon River Watershed Partnership to identify location needs of buffers on 400 acres across Goodhue County.
- Provide the Goodhue County Land Use Department with proper technical support when addressing buffer all related issues.
- Continue to provide and seek funding for financial incentives for 100 acres of buffer installations.
- Promote 50 acres of harvestable buffers to landowners who can utilize those perennial crops in buffer settings.

Objective: Increase and maintain perennial vegetation on the landscape in Goodhue County

Actions:

- Promote and establish 5 acres of cover crop practices on canning crops and silage fields each year
- Increase the amount of managed wood land on marginal row crop acres by 5 acres each year
- Partner with Pheasants Forever and other non-profit organizations to establish and maintain native grasses on interested landowners' property yearly

Objective: Preserve, enhance and increase wetland resources in the Zumbro River and Cannon River watersheds.

Actions:

- Promote and market 20 acres of wetland preservation and restoration programs such as CRP, WRP, RIM and BWSR Wetland Banks each year.
- Yearly provide and promote preservation programs to 5 wetland landowners such as Wetland Preserve Area Program and the Rural Preserve Property Tax Program in an attempt to alleviate tax burdens.
- Educate all staff, 5 contractors and 50 landowners on the values of wetland functions and the Wetland Conservation Act of Minnesota each year.

Objective: Provide technical and financial assistance to Goodhue County landowners interested in reducing erosion and sediment by implementing BMPs in an effort to improve water quality

Actions:

- Actively market local/state/federal conservation programs which provide incentives to 30 landowners interested in reducing flooding and erosion each year.
- Assist 5 landowners with establishing and demonstrating conservation tillage and rotational grazing methods that have proven to be cost effective and benefit water quality. Using the tillage transect data each year, target areas of the County that have the lowest residue amounts.
- Provide leadership and staff time to market, implement and maintain long-term conservation programs such as CREPII, WRP and RIM on 200 acres of conservation land.
- Seek increased cost-share rates (above 75%)

Priority Concern: Septic System Compliance

Goal: Improve groundwater and surface water resource in Goodhue County by using the tools available to increase septic compliance

Objective: Seek incentives from funding sources available which address septic system compliance in Goodhue County.

Actions:

- Continue to seek funding for and administer the AgBMP Loan program in the Goodhue SWCD office at least once per year.
- Apply for funding opportunities, like the Clean Water Fund, for financial assistance for fixing 5 ITPH systems and failing septic systems within Shoreland Districts each year.

Objective: Support septic system compliance efforts in Goodhue County and southeastern Minnesota.

Actions:

- Offer support and assistance to Goodhue County Land Use Department when adopting a septic system Point-of-Sale Ordinance.
- Continue to support efforts made by Southeast Minnesota Wastewater Initiative staff and the Southeast Minnesota Water Resources Board in seeking additional funding and facilitating 1 cooperative meeting each year.
- Assist Goodhue County Land Use Department with SSTS 2010 Rule Revision.
- Seek funding and provide education for 30 individual and 3 cluster septic system upgrades.

Priority Concern: Groundwater Protection

Goal: Protect the groundwater resource of Goodhue County by implementing the actions listed below:

Objective: Help support and educate source water protection efforts across Goodhue County

Actions:

- Assist participating municipality staff on Wellhead Protection Plan writing and implementation efforts.
- Promote well sealing programs within WHP areas in one town each year.
- Inspect all feedlots within DWSMAs in rotation every 4 years. Identify all SSTS systems within DWSMAs and seek funding for non-compliant systems.
- Promote existing conservation programs to one town each year and offer source water protection ideas to city council and water supply staff.
- Encourage and assist 1city each year to work with landowners and map nutrient applications in DWSMAs.
- Identify and seek funding for fixing five leaking underground storage tanks within DWSMAs.

Objective: Continue to develop a baseline of nitrate concentration in groundwater.

Actions:

- Administer and maintain the network of citizen volunteer nitrate monitors in Goodhue County.
- Collect at least 1 nitrate sample and 1 Atrazine sample from each volunteer each year to maintain baseline data.
- Share data sets with other local and state agencies involved with well data each year
- Educate 75 landowners on overall groundwater quality in Goodhue County each year.

Priority Concern: Impaired Waters

Goal: Continue to assess water bodies for impairments and take steps to repair impaired waters and watersheds

Objective: Educate urban residents on water quality impairments in Goodhue County

Actions:

- Provide 1 brochure and 1 news releases on yard waste rules and pick up days each year.
- Promote composting efforts in Red Wing every other year with 1 newspaper bulletin.
- Conduct 1 stormwater intake stamping day within municipalities in Goodhue County.

Objective: Promote new and existing rules, ordinances and BMPs within cities which contribute to impaired waters.

Actions:

- Perform a Phosphorous workshop for landowners and commercial applicators on the 'No Phosphorous' state law in Minnesota and survey compliance in each city over 5 years
- Inventory each municipality's street sweeping programs and seek funding for improved maintenance programs.

- Routinely assist municipalities with construction site inspections for erosion and sediment control.
- Seek funding for 1 erosion and sediment inspector to follow up on MPCA issued Stormwater

Goal: Continue to assess water bodies for impairments and take steps to repair impaired waters and watersheds

Objective: Assess surface waters in Goodhue County for their designated uses.

Actions:

- Continue to development a stream monitoring network in Goodhue County. Focus efforts on streams with little or no baseline water quality data and on parameters which we have little data for.
- Seek funding sources for 2 initial stream assessments and 1 long term monitoring site.
- Submit all water quality data collected on streams and lakes in Goodhue County into the STORET data base yearly.
- Assist with ongoing monitoring efforts in place by MPCA, CRWP, ZWP, etc. in an attempt to further understand the water resource.

Objective: Address impaired waters in watersheds which host an impairment listing.

Actions:

- Partner with local/regional/state agencies on developing TMDL studies and Implementation plans each year.
- Educate 10 landowners and 5 staff on TMDL Implementation Plan and the objectives needed to achieve load reduction goals yearly.
- Address water quality impairments by designing and installing 5 conservation practices in targeted watersheds yearly.
- Provide a summary of monitoring data in Goodhue County to give the general public a better understanding of the quality surface water each year. Make this information available on the Goodhue County SWCD Website.

Priority Concern: Feedlot Water Quality Improvement

Goal: Improve water quality by feedlot T/A and financial assistance on feedlot fixes

Objective: Provide feedlot owners and operators with proper education on feedlot compliance

Actions:

- Educate at least 30 landowners per year on MN 7020 Feedlot rules along with Goodhue County Feedlot Ordinance.

- Develop and maintain a web page illustrating available feedlot cost-share programs on the Goodhue County SWCD website.
- Provide an opportunity for 20 feedlot owner or operators to tour the latest feedlot BMPs implemented in Goodhue and surrounding Counties every other year.

Objective: Provide financial and technical assistance to feedlot owner and operators to achieve feedlot compliance.

Actions:

- Continue to solicit funding for 10 low-cost feedlot improvements on feedlots with 300 AU or less yearly.
- Sign letters of intent with at least 2 feedlot owners interested in large feedlot fixes by August of each year for CWF submittal in the fall.
- Design and offer solutions to 15 feedlot owner/operators with pollution problems on open lots yearly.
- Design and seek funding for a feedlot fix located at the 4-H Barn at the Goodhue County Fairgrounds in Zumbrota.
- Appoint 1 fulltime position per 500 feedlots in Goodhue County as recommended by MPCA to provide assistance in feedlot registration, permits and construction.

Priority Concern: Nutrient Management

Goal: Provide the resources available to County staff to landowners to help implement sound BMPs

Objective: Assist rural landowners in adopting and following comprehensive nutrient management practices.

Actions:

- Conduct fertilizer application assessments on 1 golf course and park within Shoreland District in Goodhue County each year.
- Promote and market cost-share programs that assist in nutrient management plan writing and practice installation for 5 landowners each year.
- Educate 10 feedlot owner/operators on the value of manure and the importance of record keeping.

Objective: Identify sensitive features for nutrient applicators and decision makers in various GIS formats.

Actions:

- Provide farm scale aerial maps depicting where and where not to apply nutrients and the location of sensitive features for 15 landowners each year.

- In GIS format, map all WWTF sludge application sites in Goodhue County.

Objective: Educate private and commercial land applicators on the regulations and benefits of fertilizers.

Action:

- Host a chemical/fertilizer applicators meeting each year with the 15 local cooperatives

Lower Mississippi River Watershed Management Plan 2011

Priority Concern: Water Quantity

Goal: Reduce stormwater runoff volumes by increasing infiltration and ground water recharge.

Goal: Reduce existing flood occurrences and minimize future flood potential throughout the WMO

Objective: The WMO will establish stormwater volume reduction requirements taking into consideration variable development and redevelopment conditions.

Objective: The WMO will continue to use the previously established intercommunity "design flows" (stormwater flow rates that the stormwater management system is expected to convey with fully developed conditions in the watershed) as the design parameters for downstream improvements. The WMO will also continue to use the previously established "allowable flows" (stormwater flow rate that an upstream community can discharge to a downstream community without incurring financial obligation for the stormwater system in the downstream community) as the basis for determining the financial obligation of member cities for intercommunity flooding and erosion control projects

Objective: The WMO will coordinate intercommunity stormwater runoff design and planning with the member communities

a) Reviewing the member cities' local watershed management plans for consistency with WMO goals and consistency with intercommunity planning.
b) Calculating the cost apportionment between cities for water resources projects with intercommunity participation.

Objective: The WMO will consider practicable solutions when involved with intercommunity water resources planning activities.

a) All drainage studies or feasibility studies (whether by the WMO or a city) for projects in a subwatershed with intercommunity drainage, shall consider the impact of the project and the total intercommunity project cost.
b) Any projects with intercommunity drainage issues shall not be implemented without prior completion of a feasibility study outlining improvement options and adoption of a preferred option by the WMO, except in emergencies

Actions:

- Member cities are to reduce the amount of impervious surfaces through the use of Low Impact Development (LID) techniques to the greatest extent reasonable for new development and redevelopment projects, taking into consideration land use, zoning, topography, previous site uses, and site constraints. LID techniques may include, but are not limited to, those presented on the MPCA-Low Impact Development website, http://www.pca.state.mn.us/water/stormwater/stormwaterlid.html.
- Member cities will not be allowed to use infiltration as a stormwater BMP in areas where there are known contaminants or in drinking water supply management areas/wellhead protection areas. In addition, infiltration will not be encouraged where the soils are not suitable for infiltration or in areas where there is less than three feet of separation between the bottom of the infiltration system and the groundwater or bedrock. In-situ field tests shall be required to verify the infiltration rates of on-site soils prior to the construction of infiltration BMPs
- Member cities are to provide pretreatment of stormwater prior to discharge to any new infiltration system to protect the functionality of the system. Pretreatment shall collect sediment, skim floatables, and be easily accessed for inspection and maintenance
- The level of protection along all trunk conveyors, streams, and channels and around all wetlands, ponds, detention basins, and lakes shall be based on the critical duration 100-year event, which shall be defined as the 100-year, 24-hour rainfall or the 100-year, 10-day runoff event; whichever is greater
- Design of new trunk stormwater systems should provide discharge capacity for the critical-duration runoff event that is not less than a 10-year frequency event. For open channel conveyance construction, the design criteria shall be for the critical 100-year event. Variances to this standard may apply in areas where in-place storm sewers are designed for a 5-year frequency event
- Design of new non-trunk stormwater systems should provide discharge capacity for the critical-duration runoff event that is not less than a 5-year frequency event, preferably a 10-year frequency event (level of service). Where the planned level of service would cause hardship in operation of a downstream system, the owner may design for a lesser level of service if the following circumstances are present:
    - The proposed new or replacement system will not have a longer life than that of the existing downstream system.
    - It is not practical to incorporate temporary measures into the new system to mitigate the effects of the new system on the downstream system.
- Member cities are to ensure that proposed development, redevelopment, and/or infrastructure projects will not exceed the capacity of the existing downstream stormwater drainage system
- Member cities are to incorporate emergency overflow structures (e.g. swales, spillways), where feasible, into pond outlet structure designs to prevent undesired flooding resulting from storms larger than the 100-year (one percent) event or plugged outlet conditions.

- Member cities are to maintain ordinances or policies that allow the cities to secure easements over floodplains, detention areas, wetlands, ditches, and all other parts of the stormwater system as areas develop or redevelop.
- Member cities are to incorporate multi-stage outlets into their pond designs to control flows from smaller, less frequent storms and help maintain base flows in downstream open channels, where practicable
- Member cities are to maintain ordinances or policies that set minimum building elevations at least one foot above the critical 100-year flood elevation for structures adjacent to inundation areas. The cities should consider the effects of events larger than the 100-year flood when setting minimum building elevations. Higher minimum building elevations should be considered for structures adjacent to ponding areas with large tributary watersheds and for structures adjacent to landlocked basins.
- The WMO establishes the following policies regarding landlocked basins:
    - The flood levels established in local (city) watershed management plans shall take into consideration the effects of water level fluctuations on trees, vegetation, erosion and property values. Steeply sloped shorelines that are subject to slope failure and shoreline damage should not be in contact with flood water for extended periods of time.
    - Only the existing tributary area may discharge to a landlocked basin, unless provision has been made for an outlet from the basin, or hydrologic analysis has been completed showing additional discharge to basin is acceptable. The form of outlet may range from temporary pumps to gravity storm sewers. The outlet is to be in place before increased water levels are likely to affect vegetation, slope stability and adjacent properties.
    - If outlets from landlocked basins are needed, member cities are encouraged, where practicable, to keep outflow rates low enough to allow for as much infiltration as possible. Drawdown time to within one foot of the normal water level should not exceed 48 hours to reduce damage to upland vegetation.
    - When member cities establish high water elevations and whether outlets are needed for landlocked basins, member cities are encouraged, where practicable, to account for long duration events, such as multiple-year wet cycles and high runoff volume events (e.g. snowmelt events that last for many weeks).
    - Member cities need to consider both the water quality and flooding impacts of proposed outlets from landlocked basins on downstream water resources
- Member cities are to require developers to provide Runoff Control Plans prepared by a licensed professional engineer for projects that disturb one or more acres of land. The Runoff Control Plan shall incorporate best management practices (BMPs) and shall conform to approved local water management plans. Runoff Control Plans shall include the following:
    a) Property lines and delineation of lands under ownership of the project proposer.
    b) Delineation of the subwatersheds contributing runoff from off-site, and proposed and existing subwatersheds on-site.
    c) Location, alignment and elevation of proposed and existing stormwater facilities.

d) Delineation of existing on-site wetlands, shoreland and/or floodplain areas. Removal or disturbance of streambank and shoreland vegetation should be avoided. The plan shall address how unavoidable disturbances to this vegetation will be mitigated.
e) Existing and proposed normal, 5-year (or 10-year) and 100-year water elevations on-site.
f) Existing and proposed site contour elevations related to the North American Vertical Datum (NAVD) of 1988.
g) Construction plans and specifications of all proposed stormwater management facilities.
h) Stormwater runoff volume and rate analyses for existing and proposed conditions.
i) All hydrologic and hydraulic computations completed to design the proposed stormwater quantity and quality management facilities.
j) Provision of outlots or easements for maintenance access to detention basins, constructed wetlands and other stormwater management facilities.
k) Maintenance agreement between developer and city which addresses sweeping, pond inspection, sediment removal and disposal, etc.
l) Documentation indicating conformance with the city's existing local water management plan.
m) Inlets to detention basins, wetlands, etc. shown at or below the normal water level.
n) Identification of receiving water body.
    - Runoff Control Plans shall meet the following criteria:
        - The peak rate of stormwater runoff from the developed subwatershed of the site shall not exceed the existing peak rate of runoff for the 5-year (or 10-year) and the 100-year return frequency critical duration storm events (encouraged to maintain the runoff rate for the 2-year storm event as well).

- For the purposes of this criteria, "subwatershed" may be the project site, or may be an area of greater size for which an approved local water management plan meets this criteria (e.g. regional detention basins).
    - A hydrograph method based on sound hydrologic theory shall be used to analyze stormwater runoff for the design or analysis of flows in conveyors, streams, and channels and flows to ponds and wetlands.
    - Reservoir routing procedures and critical duration 100-year runoff events shall be used for design of detention basins and outlets.

Priority Concern: Water Quality

Goal: Evaluate and track water quality trends within the WMO

Goal: Improve intergovernmental coordination regarding water quality management within the WMO

Goal: Improve water quality within the WMO

Objective: The WMO will assist member cities in creating an equitable and cost-effective method to address the requirements of the South Metro Mississippi TMDL study and implementation plan and other TMDLs as they are completed.

Objective: The WMO will continue to focus on the water quality of intercommunity water bodies. The WMO, at the discretion of the Board, may also work with individual member cities to address water quality issues within individual city boundaries.

Objective: The WMO will investigate the possibility of coordinating joint member contracts for maintenance to achieve economies of scale. Post construction stormwater management and good housekeeping practices for MS4 stormwater facilities shall comply with MPCA/MS4 requirements.

Objective: The WMO will monitor DNR protected water bodies. Prioritization of water bodies for monitoring will be determined annually and by the WMO budget. Monitoring data from CAMP (Citizen Assisted Monitoring Program), WHEP (Wetland Health Evaluation Program), and CSMP (Citizen Stream Monitoring Program) should be taken into consideration so monitoring information is not being duplicated.

Objective: The WMO will monitor select storm sewers and streams that outlet to the Mississippi River. Prioritization of storm sewers and streams will be determined annually and by the WMO budget. Monitoring parameters should be consistent with downstream impairments and may be modified at the discretion of the Board. Possible parameters include: Total Phosphorus, PCBs (Polychlorinated biphenyls), PFOS (Perfluorooctane sulfonate), Fecal Coliform, Turbidity, and Dissolved Oxygen.

Objective: The WMO shall attempt to develop a water quality cost allocation formula for intercommunity projects by the year 2015. In the interim, the WMO will address each project individually.

Objective: The WMO requires MnDOT, Ramsey County, Dakota County, and other governmental agencies to meet the water quality treatment requirements outlined in this plan for runoff leaving their right-of-way, facilities, or easements. Regular maintenance of their stormwater facilities shall also be performed.

Objective: The WMO will recruit volunteers, through the use of its CAC, and encourage member cities to recruit volunteers to participate in the WMO's monitoring activities. Where necessary, volunteers would be provided training on MPCA-accepted protocol to ensure that the data is acceptable for the MCPA EQUIS Database.

Objective: The WMO will use a similar water body classification system to that of the MPCA.

Actions:

- Member cities shall require a 50% total phosphorus removal from runoff leaving new development and redevelopment projects that exceed one acre of land disturbance (for this

policy, mill and overlay and pavement rehabilitation projects are not considered land disturbance).

- Linear projects will be required to meet NPDES Construction Permit requirements.
- For stormwater discharge points/outfalls that did not exist prior to the adoption of this plan: member cities are to provide pretreatment of stormwater prior to its discharge to wetlands and other water resources
- For replacement discharge points/outfalls or existing stormwater discharge points/outfalls: the WMO encourages member cities to provide pretreatment of stormwater prior to its discharge to wetlands and water resources.

Priority Concern: Recreation, Fish and Wildlife Habitat

Goal: Protect and enhance fish and wildlife habitat and recreation opportunities, and maintain shoreland integrity

Objective: The WMO will promote and encourage protection of non-disturbed natural shoreland areas and restoration of disturbed shorelines and streambanks to their natural state through participation in Blue Thumb or other educational programs.

Objective: The WMO supports water quality improvements in order to maintain or improve water quality and the habitat consistent with intended use and classifications of lakes, streams, wetlands, and ponds

Objective: The WMO will encourage the appropriate development of access to water bodies for recreation and education

Actions:

- The WMO requires member cities to consider landscape designs for projects located in close proximity to natural areas or greenways to:
    - Increase beneficial habitat, wildlife and recreational uses; promote infiltration and vegetative water use; and decrease detrimental wildlife uses (such as beaver dams, goose overabundance) that damage water control facilities, shoreline vegetation, water quality or recreational facilities.
    - The WMO requires member cities to prioritize shoreland areas for restoration.
- Shoreland areas include streambanks and lakeshore areas. The cities will be required to address this issue in their local watershed management plans.
- Member cities are required to maintain a shoreland ordinance that is, at a minimum, in conformance with the requirements of the Minnesota DNR.
- The WMO requires member cities within the Mississippi River Critical Corridor Area/Mississippi National River Recreation Area (MRCCA/MNRRA) to conform to the current rules for areas within the MRCCA/MNRRA.

Priority Concern: Wetlands

Goal: Enhance or protect wetlands from the adverse impacts of development and redevelopment

Objective: A. The WMO will continue to support member city management efforts to improve wildlife habitat, aesthetic enjoyment, and other public uses of wetlands adjacent to parks.

Objective: The WMO will continue in the support of wetlands for inclusion in Wetland Health Evaluation Program (WHEP).

Actions:

- Member cities are the local governmental units (LGUs) responsible for administering the Wetland Conservation Act (WCA). MnDOT is the LGU for the WCA on its rights of-way.
- An average 15 foot buffer of natural vegetation above the 100-year High Water Level (if established) or wetted boundary is required by the WMO around lakes, streams, and wetlands, upon new or redevelopment projects that exceed one acre in land disturbance
- Member cities are to inventory, classify and determine the functions and values of wetlands, either through a comprehensive wetland management plan or for development or redevelopment projects that exceed one acre.
- The WMO requires that member cities use a wetland classification system that ranks the wetlands and sets wetland management standards based on the rank and desired level of protection (e.g. highest to lowest protection)

Priority Concern: Groundwater Protection

Goal: Protect groundwater resources within the WMO

Objective: The WMO will work to improve the quality and availability of groundwater data. In addition, the WMO will coordinate with other agencies to identify sources or potential sources of groundwater pollution.

Objective: The WMO will advocate for larger scale State monitoring and evaluation of LID (Low Impact Development) techniques on groundwater.

Objective: The WMO will support the policies in the Dakota County and Ramsey County groundwater plans

Actions:

- Member cities are to encourage groundwater recharge and are required to protect recharge areas from potential sources of contamination
- Member cities responsible for wellhead protection plans should follow the requirements outlined in those plans for managing groundwater within wellhead protection areas.

- The WMO encourages its member cities to use stormwater BMPs (such as grassed waterways, biofiltration, porous pavements, etc.) to maximize infiltration, where feasible and not detrimental to groundwater supplies
- Each WMO member city is to maintain updated records of all known on-site septic systems, and prohibit installation of new individual sewer systems or alteration, repair or extension of existing systems when connection can be made to the city sanitary sewer system.
- Member cities should work with their counties in effort to promote awareness of groundwater resource issues through public education and information programs
- Member cities are to support the policies in the Dakota County and Ramsey County groundwater plans.

Priority Concern: Erosion and Sedimentation

Goal: Minimize erosion, sedimentation, stream degradation, and related issues within the watershed

Objective: The WMO shall address intercommunity erosion and sediment control issues

Objective: The WMO will facilitate joint certification training for member city staff on designing and inspecting erosion control plans and inspecting erosion control measures.

Objective: The WMO will coordinate/conduct non-certification training for "other" city staff (streets, parks, building inspections) to address items in MS4 permit (e.g. mowing and erosion control)

Actions:

- Member cities must adopt, administer, implement and enforce ordinances addressing erosion and sediment control, including the permitting and inspection of such controls
- Member cities are to require erosion control plans for land development and construction work that will disturb one or more acres of land.
- Acceptable erosion in drainageways is limited to that which causes no net degradation of the watercourse or destruction of properties adjacent to the watercourse.
    - Measures to alter the natural course and meandering of streams will be discouraged, except when foreseeable erosion threatens to damage structures, utilities or natural amenities, or impair the drainage system.
    - Land use adjacent to watercourses shall be regulated to allow for the reasonably expected natural behavior of streams
- Design of stream bank stabilization and streambed control measures should consider unique or special site conditions, energy dissipation potential, adverse effects, preservation of natural processes and habitat, and aesthetics, in addition to standard engineering and economic criteria

Priority Concern: Public Participation and Education

Goal: Expand the WMO's education and public involvement efforts to provide more assistance to the member cities

Goal: Increase public awareness of human impacts on water quality and habitat and explore ways to increase active citizen involvement

Objective: The WMO will develop and use email lists to communicate WMO activities, information, and announcements.

Objective: The WMO will develop appropriate, targeted educational content regarding water resource issues to be used by member cities for distribution to and use by various citizen groups

Objective: The WMO will maintain the WMO website to communicate watershed news, events, and other water resource information.

Objective: The WMO shall seek citizen involvement to assist in the monitoring of water bodies or outlets (storm sewer or streams) to the Mississippi River

Objective: The WMO will continue to participate in the Blue Thumb Program or other similar programs

Objective: The WMO will continue to support Clean Water Minnesota Media Campaign or develop "catchy" educational information, possibly through the use of an ad agency, focusing on water quality within the community

Actions:

- Member cities' City Engineers and Public Works Officials are encouraged to attend Board Meetings to provide technical advice and information to the Board
- Member cities are to make information available to active community groups

Priority Concern: Administration

Goal: Meet the requirements set forth in the Metropolitan Surface Water Management Act regarding the management of a watershed management organization

Goal: Increase efficiency of programs throughout the WMO and provide increased economic opportunities for the WMO and its member cities

Objective: The WMO will explore opportunities to partner with other WMO/WD programs and County programs. The updates of neighboring WMO/WD plans may be an opportunity to explore these partnerships.

Objective: The WMO will continue to publish an annual newsletter summarizing its activities for public distribution

Objective: The WMO will assist member cities (including being the applicant) in pursuing/securing grants for projects contained within an individual city and those that cross city boundaries

Objective: The WMO will adhere to BWSR administrative performance standards (e.g. data practices policy, project and program expenditures, Board training, operational guidelines, water quality and watershed yield trends, and public information and education outcomes)

Objective: The WMO will utilize ad hoc subcommittees for special projects

Objective: The WMO will initiate the development of an eight to twelve member permanent CAC to serve as an ongoing advisory group

Objective: The WMO will continue to transition to an all citizen Board.

Objective: The WMO will fund updating and maintenance of its web site (for posting data, the watershed management plan, etc.) through the WMO dues.

Objective: The WMO will revise its joint powers agreement to reflect the 3rd Generation Watershed Management Plan

Objective: The WMO's cost allocation for intercommunity flooding and erosion control studies and construction projects will continue to be based on allowable flow.

Objective: The WMO will provide technical review of projects, if requested, as a service to the member cities. Costs to complete these reviews may be charged back to member cities

Objective: The WMO will finance the implementation program elements through either the WMO dues (the annual contributions of its member cities) or some form of cost sharing in accordance with the joint powers agreement

Objective: The operation and maintenance costs associated with a WMO improvement project will be apportioned according to the WMO joint powers agreement, as revised

Objective: Although the WMO will not be administering a permit program, the WMO will:

a) Review projects for consistency with the WMO plan, as requested by member cities or other governmental agencies.
b) Review and approve any proposed changes to the intercommunity stormwater system that are inconsistent with an approved local watershed management plan
c) Review and approve any changes to the approved local plan that would cause the local plan to be inconsistent with the WMO plan.
d) Review member city local plan updates for consistency with WMO Plan.

e) Review annual progress reports from the member cities and provide areas that need to be addressed to keep in compliance with the WMO plan.
f) Review member city comprehensive plan changes when revisions to their comprehensive plans affect water resource management. Stormwater management elements of the city comprehensive plans are to conform to the WMO plan

Actions:

- Member cities are to adopt new ordinances or revise existing ordinances that meet the WMO policies listed in this plan
- Member cities are to report their annual progress to the WMO

Scott County Comprehensive Water Resources Management Plan 2009-2018 amended 2013

Priority Concern: Wetland Management

Goal: To protect and enhance wetland ecosystems, and to ensure/encourage a measurable net gain of wetland functions and acreage

Objective: Preserve wetlands (no net loss) for water retention, recharge, soil conservation, wildlife habitat, aesthetics, and natural enhancement of water quality.

Actions:

- Adopt Minnesota Wetland Conservation Act (WCA) Requirements as the Basic Wetland Management Standards of the WMO.
- Operate WCA.
- Assists With Wetland Replacement Monitoring
- Assist With Opportunities to Acquire Land for Banking and Mitigation.

Objective: Protect wetlands from impacts caused by stormwater runoff

Actions:

- Erosion Control and Post Construction Stormwater Water Quality Standards.
- Wetland Buffer Standards

Objective: Enhance and restore wetlands

Actions:

- Incentives Payments.
- Coordination with Other Wetland Restoration Programs.
- Promote Public Values Incentive Program
- Targeted Wetland Restoration/Riparian Reforestation Program.

Priority Concern: Surface Water Quality

Goal: To protect and improve surface water quality

Objective: Promote sustainable systems of buffers and green infrastructure

Actions:

- Watercourse Buffer Standards
- Promoting Disconnected Stormwater Management and Low Impact Development (LID)

- Promote Public Values Incentive Program (See strategy 1.3.3 under Goal 1).
- Support Detailed Area Planning

Objective: Prevent further degradation

Actions:

- Stormwater quality Standards for New and Redevelopment (cross reference to strategy 1.2.1)
- Cost Share for Innovative Practices
- Nitrate Management Demonstrations
- Promoting Disconnected Stormwater Management and Low Impact Development (LID).

Objective: Address impaired waters and improve water quality

Actions:

- Cost Share and Incentive Program for Existing Land Uses.
- Targeted Project Implementation and Capital Improvements.
- Technical Assistance
- Promote and Enable Curly-Leaf Pondweed Control.
- Promote and Enable Rough Fish Control.
- Fish IBI Improvements.
- Sand Creek Sediment Reduction
- Lake Sediment Phosphorus Inactivation.
- Cedar Lake Watershed

Objective: Improve understanding of water quality

Actions:

- Complete Diagnostic Studies/TMDLs and Subwatershed Assessments leading to targeted implementation and monitoring
- Monitoring and Assessment Tools Development.

Objective: Promote street sweeping

Actions:

- Local Water Plan Amendment.
- Encourage the use of Regenerative Dustless Sweepers.

Objective: Coordinate with other agencies and water quality programs

Action:

- Coordination and Meeting Attendance

Objective: Promote source protection

Actions:

- MS4 SWPPPs in Local Water Plans
- Salt and Sanding Best Management Practices in Local Water Plans
- Promote Nutrient Management Plans

Priority Concern: To Protect Groundwater Quality and Supplies

Objective: Preserve and protect groundwater resources both in quality and quantity

Actions:

- Stormwater infiltration criteria
- Promote Conservation and Wise Use of Groundwater.
- Cost share Well Decommissioning.
- Nitrate Management Demonstrations.

Objective: Improve understanding of groundwater resources

Actions:

- Groundwater Monitoring
- Regional Modeling
- Support Wellhead Protection Efforts
- Support County Detailed Area Planning

Priority Concern: Flood Management

Objective: Promoting and ensuring maintenance of drainage and stormwater systems

Actions:

- Stormwater Facility Maintenance Standards.
- Future Public Ditch Operations
- Coordination with Others on Outlet Structure Maintenance
- Coordinating with Municipal Separate Storm Sewer Systems (MS4) Permit Maintenance Requirements.

Objective: Minimize the risk of flooding by promoting a regional approach to stormwater management and maximizing upstream storage.

Actions:

- Promoting and Facilitating Regional Stormwater Management.

- Incorporating Flexibility in Standards for Regional Approaches.

Objective: Address known regional flooding concerns and problems that have cross jurisdictional implications and/or origin.

Actions:

- O'Dowd/Thole Lake Outlet Feasibility Assessment.
- Markley Lake Outlet Feasibility Assessment Coordination
- Hwy 169 Area Drainage Feasibility Assessment.
- City of Jordan Flood Damage Reduction Efforts

Objective: Local flooding concerns that do not cross jurisdictional implications and/or origin are the responsibility of LGUs to address in their Local Water Plans.

Action:

- Local Flooding Consideration in Local Water Plan Preparation.

Objective: Improve understanding of flooding risks in the WMO.

Action:

- Technical Advisory Committee Input
- Digital Terrain Modeling

Priority Concern: Increase Public Participation and Land and Water Stewardship

Objective: Assist and enable MS4 education efforts

Action:

- Lead Coordination and Implementation of the Scott County Stormwater Education Plan

Objective: Encourage public participation

Actions:

- Maintain and Enable the Watershed Planning Commission
- Engage and Utilize Volunteers
- Provide Opportunities for Public Input.
- Provide Opportunities for Public Participation in Stewardship Events
- Provide Education and Marketing to Foster Sustainable Behaviors and Environmental Stewardship
- Make Scientific Studies and Products of the Scott WMO Readily Available to the Public

- Specific Information and Education Materials.
- Promote a Variety of Education Programs
- Use Multiple Outlets to Distribute Information
- Small Acreage Outreach.

Priority Concern: Improve Communication

Objective: Improve communication with other agencies and jurisdictions

Actions:

- Coordinate with and involve LeSueur and Rice counties in studies and management actions
- Continue Technical Advisory Committee meetings
- Routinely share data and information.
- Quarterly WMO & BWSR Meetings.

Objective: Inform and involve the public

Actions:

- Maintain and enable the Watershed Planning Commission
- Keep public informed.
- Assist public with understanding the complexities of water management locally and at the State

Priority Concern: Optimize Public Expenditures

Objective: Minimize public expenditures

Actions:

- Partner with Public Works Departments
- Linear Project Flexibility.
- Assess Feasibility of Brokering Pollutant Trading.

Objective: Maintain consistency of the WMO's standards with other standards and regulations.

Action:

- Use Existing Regulations as the Basis for WMO Standards.

Objective: Minimize redundancy and improve jurisdictional boundaries.

Actions:

- Emphasize LGU Implementation Through Local Water Plans.
- Consider Boundary Change with the Prior Lake – Spring Lake Watershed District (PLSLWD)

Objective: Streamline Local Water Plan requirements

Action:

- Utilize Existing Approved Local Water Plans.

Objective: Regularly assess programs and progress

Actions:

- Periodic Assessments and Program Reviews
- Use Long Term and Short Term Metrics to Measure Progress.

Objective: Promote equitable distribution of project and program costs.

Actions:

- Expect Local and Land Owner Participation.
- Regulate in Proportion to Impact.
- Tax/Assess Affected Parties for Larger Capital Improvements.
- Share Costs with LGUs for Projects with Inter-jurisdictional Benefits and/or Impacts.

Objective: Engage volunteers

Actions:

- Volunteer Monitors.
- Volunteer Stewards and Educators

Vermillion River Watershed Plan 2005 amended 2008

Priority Concern: Surface Water Quality

Goal: Protect and enhance surface water quality in the Vermillion River Watershed

Objective: Work with the MPCA and other agencies to develop and implement Total Maximum Daily Load (TMDL) studies on all impaired water bodies, including, but not limited to those included on the 303(d) list

Actions:

- Actively participate in the TMDL process (e.g., study sponsorship, participation in public meetings, education, liaison activities, and assistance in seeking and providing funding).
- Determine appropriate responsibilities in implementing load reduction measures identified in TMDL studies.

Objective: Continue and improve the water quality monitoring program for the Vermillion River and its major tributaries.

Actions:

- Expand and enhance water quality monitoring in the Watershed.
- Collect, organize, and interpret water quality monitoring data.
- Continue to fund the Vermillion River Watch program.
- Collect information on the location of agricultural drainage installations (tile systems) and the effect of these systems on downstream waters.
- Monitor runoff from urban and agricultural areas, and determine the sources of pollutants of concern.
- Make water quality monitoring data available via website or other means and summarize data for public information purposes

Objective: Establish implementation programs on a subwatershed basis through establishing water quality goals and evaluating the effectiveness of management activities on affected water bodies.

Actions:

- Coordinate with cities, townships, and other agencies and groups to conduct an inventory of existing and desired uses for major water bodies within the Watershed.
- Analyze monitoring data, identify trends, identify data gaps, and target areas or subwatersheds with water quality issues.

- Develop a management framework for water bodies, based on existing statutory classifications, desired uses, existing conditions, and the priorities of the VRWJPO.
- Where water quality does not support desired uses, prepare and implement subwatershed plans to meet required water quality.
- Implement a program to establish buffers along major waterways wetlands, and other water bodies.
    - Inventory, map, and prioritize water features with existing buffers and those in need of buffers.
    - Determine appropriate buffer locations and widths according to: priorities within each subwatershed, type of waterbody, and adjacent land use.
    - Coordinate buffer configuration and acquisition efforts with the Dakota County Farmland & Natural Areas Program, the Scott County SWCD buffer program, and similar or related local, state, or federal programs.
    - Implement the buffer program through cost sharing with other voluntary programs and through requirement of local ordinances that mandate creation of buffers as part of approval of developments and land-disturbing activities

Objective: Monitor management of recreational lakes

Actions:

- Identify and prioritize recreational lakes that are to be the responsibility of the VRWJPO.
- Review the status of lake water quality and management plans on at least a five-year basis as part of VRWJPO planning.
- Work with local units of government to develop management framework that assigns roles and responsibilities for implementation of lake management projects.
- If problems or shortcomings exist, work with affected municipalities to address problems through regulation, education, and/or implementation of capital projects.
- Collaborate with Soil and Water Conservation Districts (SWCD), federal, State and local programs to cost share for lake shore restoration projects undertaken by landowners.
- Collaborate with cities and townships to monitor lakes, including participation in citizen volunteer monitoring efforts such as CAMP and CLMP.

Objective: Minimize water quality impacts (including thermal impacts) from land disturbing activities, including new development and redevelopment (urban/rural), road construction, agricultural production, and other rural uses.

Actions:

- Review federal, State, and local agency programs and designations related to water quality and identify where additions or changes are needed.
- Develop Watershed standards as a minor amendment to this Plan
- Develop and adopt official rules to implement the standards

    - During the interim period between VRWJPO rule adoption (March 2007) and local government adoption of ordinances and controls, the VRWJPO will, in LGUs without Local Water Plans approved by the VRWJPO:
        - Work with local governments to revise/adopt their ordinances and other controls to incorporate the VRWJPO standards.
        - Assist the townships in developing a model ordinance that incorporates the VRWJPO standards.
        - Require that local governments submit proposed land alteration plans to the VRWJPO for review and comment, prior to the local government issuing a permit, if the plans include any of the following conditions:
            1. Variances from the local government's ordinances that affect surface water or impact surface water/groundwater interactions
            2. Diversions
            3. Intercommunity flows (to or from)
            4. Project site size of 40 acres or more
            5. Other proposed activities, as identified in the VRWJPO rules.
- Require city and township stormwater plans to include documentation adequate to ensure that urban runoff will meet VRWJPO water quality standards and not adversely affect the Vermillion River, its major tributaries and other waterbodies.
- Require cities and townships to develop stormwater plans and ordinances that ensure that the costs of constructing, operating, and maintaining stormwater management systems for new development are fairly allocated so as not to unduly burden local governments or the VRWJPO (development pays for itself).
- Monitor emerging technologies for protecting the cold-water fishery, including reducing thermal impacts to streams from stormwater runoff, and constructing or sponsoring construction of demonstration or research projects that show promise to protect the cold-water fishery.
- Develop and implement an incentive program to encourage implementation of additional (beyond what is required) BMPs.

Objective: Ensure stormwater management systems are maintained.

Action:

- Establish stormwater management system maintenance standards for cities and townships within the Watershed.

Objective: Monitor individual NPDES permits for point source discharges in the Watershed

Actions:

- Inventory individual NPDES point source permits in the Watershed. Identify the permits the VRWJPO should monitor.

- Review water quality standards for the identified NPDES permits. Determine if there are gaps between the permit standards and what the VRWJPO believes is needed to protect Watershed water resources.
- If there are gaps, develop recommendations and/or options for addressing the gaps/deficiencies, such as new water quality standards (e.g., thermal standards) to apply to these point sources.
- Review NPDES permit applications, renewals, revisions, etc. and comment on aspects of the permit application that impact the water resources in the Watershed. Suggest additional or modified standards to MPCA, when/if appropriate.
- Review annual monitoring reports of wastewater discharge facilities within the Vermillion River Watershed

Priority Concern: Surface Water Quantity

Goal: Manage the rate and volume of runoff entering rivers, streams, lakes and wetlands within the Watershed

Objective: Advance the understanding of the hydrology of the Vermillion River.

Actions:

- Monitor and document the surface water origins of Vermillion River flows, based on actual flows from treatment plants and River tributaries (Note: groundwater origins are addressed in Section 4.3 – Groundwater).
- Seek funding for monitoring network.
- Monitoring data will be used, when needed, to calibrate and refine hydrologic models.
- Develop and implement a program to monitor streambank stability along the Vermillion River and its major tributaries (North Creek, South Creek, Middle Creek, South Branch, and Etter Creek).

Objective: Minimize impacts of runoff from land disturbing activities including new development and redevelopment (urban/rural), road construction, agricultural production, and other rural uses and preserve a viable cold-water fishery by developing stormwater rate and volume control techniques

Actions:

- Provide funding for staff time or contracted services to provide oversight and guidance to assist developers in planning and designing onsite water management practices to meet VRWJPO standards.
- Develop Watershed standards as a minor amendment to this Plan
- Compile design and guidance documents for stormwater management within the Watershed.
- Develop and adopt official rules to implement the standards

- Require city and township stormwater plans to include documentation adequate to ensure that urban runoff will meet VRWJPO water quality standards and not adversely affect the Vermillion River, its major tributaries and other waterbodies.
- Develop and implement an incentive program to encourage implementation of additional (beyond what is required) BMPs

Objective: Mitigate and reduce the impact of past increases in stormwater discharge on downstream conveyance systems

Actions:

- Identify River corridor reaches for streambank erosion reduction projects, and restore damaged stream banks at priority locations, taking advantage of partnerships and cost-sharing whenever possible.
- Collaborate with Soil and Water Conservation Districts (SWCD), federal, State and local programs to cost share for streambank restoration projects undertaken by landowners.
- Complete a feasibility study that identifies sources of sedimentation in the Vermillion River and its major tributaries. Implement sediment removal projects based on results of feasibility study.
- Seek opportunities to retrofit existing developments with low impact development techniques, in partnership with cities and other units of government.

Objective: Reduce soil erosion (sheet and rill, wind erosion, gully and streambank erosion) on rural land to the recommended "T" value (the maximum rate of soil erosion that will maintain a high level of long-term crop production) or below by requiring implementation of rural best management practices (BMPs).

Actions:

- Promote participation in existing local, State, and federal agriculture and conservation programs [e.g., Environmental Quality Incentives Program (EQIP), Conservation Reserve Enhancement Program (CREP), Reinvest in Minnesota (RIM), MN Cost Share Program, Dakota County Farmland & Natural Areas Program, Conservation Security Program, Wildlife Habitat Incentives Program (WHIP), Farm and Ranch Lands Protection Program, Conservation Reserve Program (CRP)] and to identify rural areas needing the most assistance.
- Collaborate with other agencies to provide best management practices (BMPs) information in targeted rural areas.

Objective: Address known flooding/erosion problems that cross jurisdictional boundaries and address other boundary issues (e.g., inflows from Goodhue County into Ravenna and Douglas Townships, boundary issues with Gun Club Lake WMO, Lower Mississippi River WMO, and other WMOs, Lebanon Hills Park/Minnesota Zoo), and diversion/alteration of watershed flows in local water management plans.

Actions:

- Document intergovernmental hydrology.
- Establish a workgroup to study issues.
- Establish agreements and funding to address priority issues.

Objective: Address gully erosion problems in the Watershed.

Actions:

- Identify, inventory, and prioritize gully erosion problems in the Watershed (e.g., gully erosion within communities directly tributary to the Mississippi and Vermillion Rivers below the falls in Hastings).
- Work cooperatively with other government entities to address identified gully erosion problems in the Watershed.

Priority Concern: Groundwater

Goal: Protect groundwater quality and quantity to preserve it for sustainable and beneficial purposes

Objective: Continue monitoring and research on the Vermillion River Watershed groundwater system and development of groundwater management strategies.

Actions:

- Collaborate with other agencies to develop and implement a groundwater monitoring system along the Vermillion River to better understand surface water/groundwater interactions.
- Collaborate with other agencies to develop and implement a groundwater monitoring system throughout the Watershed to monitor changes in groundwater levels and contaminants.
- Assess nitrogen application rates in high infiltration areas of the watershed and strive for nitrogen application rate reductions, starting in the targeted areas.
- Collect information on the location of agricultural drainage installations and their effects on nitrate concentrations (and other pollutants of concern) in surface water and groundwater resources.
- Identify natural and unnatural conduits from the ground surface to the groundwater (e.g., Karst features) that have the potential to introduce pollutants into drinking water and develop management strategies to protect groundwater in these areas.
- Use collected data, identify needed research, and seek partnerships with other entities to develop and implement collaborative groundwater projects and programs [e.g., Hastings Area Nitrate Study (HANS) future phases, Vermillion River Headwaters Groundwater Study].
- Provide annual budget funding to leverage other funds and collaborate with other entities.

Objective: Avoid reductions in the base flow of the River and its tributaries, and reductions in "normal" water levels of lakes and wetlands, due to increased appropriations

Actions:

- Review current water conservation standards and practices and develop standards for the Watershed by 2005.
- Collaborate with other agencies to develop a water conservation guidance document and provide this guidance document to cities and agriculture-related agencies and groups.
- Implement an educational campaign to distribute Watershed water conservation standards and monitoring requirements to public and non-public water suppliers by 2006.
- Encourage public and non-public water suppliers to institute phased water conservation techniques through education, monitoring, and development and implementation of standards by 2008. VRWJPO will provide assistance to public and non-public water suppliers to develop standards by 2007.
- Develop a program to determine the most effective water conservation techniques for water supplies and local waters.
- Encourage development of local water conservation plans as required by the Minnesota Land Planning Act.
- Work with the Minnesota Department of Natural Resources (MDNR) and Southwest Metro Groundwater Workgroup to address well interference and water appropriation issues in the Watershed.
- If requested, provide education to local governments and residents regarding the hydrologic cycle, groundwater, groundwater/surface water interactions, groundwater recharge areas, and groundwater conservation.

Objective: Eliminate discharges of fecal coliform bacteria and minimize discharges of nitrate and other pollutants to groundwater and surface waters of the Watershed.

Actions:

- Encourage local governments and rural subdivision developers to install community wells and septic systems, when feasible, as a method to reduce pollution potential and increase groundwater resource management; include educating developers and local government representatives as a part of this action.
- Work with the Minnesota Pollution Control Agency (MPCA) and local governments to develop watershed standards and requirements for community wells and septic systems.
- Work with LGUs and others to develop an information piece about wells and septic systems to distribute to developers and well and septic contractors.
- Educate land use authorities about community wells and septic systems.
- Develop a model zoning ordinance to promote community wells and septic systems.
- Require communities to adopt and implement an inspection program for septic systems within the Watershed

- Support the counties' efforts to inventory failing and non-compliant septic systems and jointly prioritize areas for septic system upgrades.
    - Consider alternatives to upgrade non-compliant septic-systems, including:
        - Support of focused enforcement of ISTS requirements, in potential partnership with other units of government; and/or
        - Utilization or development of a cost-share or loan program to implement septic system upgrades within the Watershed, in potential partnership with the counties, Community Development Agencies, MPCA, etc.
- Support Minnesota Department of Health (MDH) development of standards for pesticide degradates and mixtures.
- Inventory abandoned wells in key/sensitive areas for potential groundwater contamination.
- Provide cost-share funding to seal abandoned wells in key/sensitive areas for potential groundwater contamination.

Objective: Use Dakota County Well Management database and Scott County well index database in plan and permit reviews, and provide education (e.g., landowner outreach).

Action:

- Assist counties in developing and distributing general well and well sealing information, or distribute existing information pieces, and identify opportunities to make landowners aware of general well information and well sealing programs

Objective: Implement or assist in implementing the VRWJPO's priority strategies and objectives from the Dakota and Scott County Groundwater Protection Plans by 2009

Actions:

- Identify priority strategies and objectives in both County Groundwater Protection Plans (e.g., defining groundwater recharge areas).
- Develop a strategy/action that supports or corroborates the implementation of County Plan objectives, but that does not duplicate County efforts, and implement these actions (e.g., model ordinance to protect recharge areas).

Objective: Support the Minnesota Department of Health (MDH) and other State, regional and local agencies in implementing wellhead protection programs and plans within the Watershed through policies and actions contained in this Plan.

Actions:

- Encourage communities in the Watershed to – within five years – assure that non-compliant Individual Sewage Treatment Systems (ISTS) located in wellhead protection areas are upgraded.
- Support the implementation of best management practices (BMPs) for wellhead protection areas.

Objective: Distribute (and develop or assist in developing, if necessary) educational materials or support programs that provide information on groundwater and how land use impacts our drinking water supply.

Actions:

- Develop (or assist in developing) and distribute groundwater protection areas information. The VRWJPO will use existing information and modify/create new information only if necessary.
- Research the issue of infiltration impacts on groundwater and develop a consistent approach to protecting areas sensitive to groundwater contamination.

Objective: Support and assist in groundwater research, regulation and education.

Actions:

- Collaborate with State and local agencies to provide groundwater monitoring data/information and use the data/information to develop targeted educational messages.
- Work with partners to develop a distribution strategy to get the right information to the right public and private sector groups.
- Encourage cities and townships to work with the Minnesota Department of Health (MDH) and Dakota and Scott Counties to periodically assess the vulnerability of groundwater used for drinking water supplies.

Priority Concern: Wetlands and Habitat

Goal: Maintain and enhance, where possible, the functions and values of existing wetlands and habitats within the Watershed.

Goal: Promote the restoration and/or creation of wetlands.

Objective: Require local governments to develop and implement Comprehensive Wetland Management Plans.

Action:

- Support and/or assist local governments in the development and implementation of Comprehensive Wetland Management Plans.

Objective: Require local governments to adopt land use and development ordinances to complement existing wetland protection regulations.

Action:

- Support and/or assist local governments in the development of the above ordinances.

Objective: Identify and pursue wetland restoration opportunities within the Watershed

Actions:

- Identify priority wetland restoration project opportunities.
- Explore and implement partnership opportunities and implement priority restoration projects. As part of the funding process, the VRWJPO will provide incentives to landowners and local governments for restoration projects.

Priority Concern: Floodplains

Goal: Manage and protect the floodplains of the Watershed from encroachment.

Objective: Require adoption of shoreland and floodplain ordinances that are compatible with existing County and State ordinances

Actions:

- Review the status of local floodplain and shoreland ordinances.
- Work with local governments that lack adequate ordinances to develop and adopt ordinances compatible with VRWJPO, County, and State requirements.

Objective: Require local governments to identify and protect Watershed floodplains

Actions:

- Encourage local participation in the National Flood Insurance Program.
- Require local stormwater management plans to identify 100-year floodplains for all water bodies, and be consistent with the counties' revised FEMA floodplain maps.
- Require local governments to establish minimum building elevations for any structures allowed in the floodplain.
- Require cities and townships to obtain flood and drainage easements and easements for maintenance access and over emergency overflow routes during development and/or building permit processes.
- Coordinate with responsible government units to ensure that structures are properly located relative to the floodplain before permits are issued.
- Conduct an inventory of "grandfathered structures" within floodplain setbacks.
- Assist local governments in developing, if necessary, and distributing educational materials regarding floodplain locations, protection, and floodplain land use and land alteration restrictions.

Objective: Limit floodplain alterations in order to obtain "no net loss" of floodplain storage, and including the preservation, restoration and management of floodplain wetlands.

Actions:

- Ensure that local governments require compensatory storage for future filling or structures within the floodplain.
- Create a policy to guide the proportion of local and Watershed financial contributions to flood storage projects (e.g., Farmington basin that would serve more than one community).
- Establish a funding program to obtain easements within floodplains to prevent and minimize flood damages, preserve the thermal integrity of the stream, and reduce and prevent sedimentation.

Priority Concern: Land Use Management

Goal: Protect and conserve water resources by promoting sustainable growth, integrated land use and land use planning, rural land conservation methods that reduce non-point sources of pollution from agricultural lands, and water resource management.

Objective: Require land disturbing activities including new development and redevelopment (urban/rural), road construction, agricultural production, and other rural uses within the Watershed to address impacts on water resources, including cumulative impacts.

Actions:

- While conducting environmental reviews [e.g., Environmental Assessment Worksheets (EAW), Alternative Urban Area Reviews (AUAR) and Environmental Impact Statements (EIS)] and reviewing local plan amendments, the VRWJPO will evaluate the impacts of proposed and existing land uses on surface water and groundwater resources in the Watershed.
- Assist local governments within the Watershed in developing criteria to consider potential off-site impacts (e.g., how far downstream to evaluate, what types of problems to look for).
- Require development plans to consider impacts on local natural resources and corresponding receiving waters.
- Work with local governments to:
    - Inventory road crossings
    - Identify opportunities for flood control, water quality improvement, and channel/stream restoration initiatives
    - Set standards for managing stormwater and culvert flows on road and other public improvement projects.

Objective: Coordinate the implementation of the Vermillion River Watershed Management Plan with the implementation of the Dakota and Scott County Comprehensive Plan updates.

Objective: Reduce non-point source pollution from agricultural activities through education, incentives and initiatives.

Actions:

- Encourage Dakota and Scott Counties to update and maintain their feedlot inventories.
- Assist Dakota and Scott Counties, where appropriate, in implementing/administering their delegated county feedlot permitting programs.
- Assist State and local agencies in providing technical assistance to feedlot operators and other agricultural landowners whose operations are causing pollution problems. Assist agencies and/or feedlot operators and other agricultural landowners in obtaining grants to correct/mitigate pollution problems.
- Assist State and local agencies in the distribution of research data, information and case studies showing how to reduce non-point source pollution from agricultural land by implementing best management practices (BMPs).
- Coordinate with State, local and federal agencies to identify tiled farmland and potential point and non-point pollution sources.
- The VRWJPO will identify the resource-based voids/gaps in existing local, State and federal agricultural/rural incentive and regulatory programs, and will seek to build on and fill voids in these programs
- Develop standards for agricultural/rural lands to fill identified resource-based voids/gaps in existing agricultural/rural programs and regulations.
- Develop and adopt official rules to implement the standards
- Work with State and local agencies to provide local, State and federal cost-share money to landowners implementing BMPs.
- Along with appropriate State and local agencies, work with livestock owners to eliminate direct access by livestock to natural waterbodies (e.g., lakes, wetlands, rivers, streams). [Minnesota Rules, Chapter 7020 only prohibits livestock from standing in lakes.]
- Work with State and local agencies to educate landowners regarding the potential liabilities associated with continuing to maintain fencing across public waters (e.g., Vermillion River and tributaries).
- Promote participation in local, State and federal conservation programs [e.g., Reinvest in Minnesota (RIM), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), Environmental Quality Incentives Program (EQIP), Dakota County Farmland & Natural Areas Program, MN Cost Share Program, Conservation Security Program, Wildlife Habitat Incentives Program (WHIP), Farm and Ranch Lands Protection Program].

Priority Concern: Education

Goal: Offer programs, educational opportunities, and information that facilitate an understanding of watershed principles and objectives.

Objective: Develop an educational program related to each goal area in the Plan that includes marketing and other efforts to educate and motivate the target audience (e.g., elected officials, general public).

Objective: Provide information to the public, and provide opportunities for public involvement and input on Watershed policies and programs.

Actions:

- Use the VRWJPO web page to provide pertinent information about the Watershed.
    - Post all agendas, background materials and meeting minutes to web.
    - Post all major proposed plans and projects to web and request public comment through published notices and news releases.
- Regularly publish VRWJPO newsletters.
- Publish articles about the Watershed in other organizations' publications (e.g. the Scott County Scene and Dakota County Update).
- Recruit volunteers for monitoring efforts (e.g., stream and lake sampling) and involvement in other VRWJPO programs and projects.
- Provide or support formal volunteer training for Watershed projects and programs.
- Develop and implement a recognition program for volunteers.
- Publish Watershed map and handbook.

Wabasha County LWMP 2008-2012

Priority Concern: Soil Erosion

Goal: Reduce soil erosion from agricultural fields

Objective: Use BMP's to reduce erosion

Actions:

- Annually spot check 20% of the county for the next five years for farm plan compliance
- Send letters to each new farm plan highlighting practices that would further reduce soil erosion past the minimum
- Promote BMP's that reduce soil erosion to tolerance levels through farm plan spot checks and new farm plan letters
- Pursue additional funding for producers to install soil erosion BMP's
- Partner with watershed groups to hold demonstration days to promote various conservation tillage technology
- Provide educational handouts to producers when they certify their crops on how BMPS can be cost effective

Objective: Change marginal row cropped acreage to perennial cover

Actions:

- Encourage the reenrollment of CRP acres
- Promote long term conservation programs such as CRP, CCRP etc.
- Send letters and hold field days to promote livestock farming to increase perennial cover such as Alfalfa/Hay in crop rotations
- Pursue funding for incentives to encourage livestock farming to increase perennial crops (such as hay and pasture) in crop rotations
- Objective: Focus on areas of high need
- Target sensitive areas, including highly erodible and riparian areas.
- Increase funding to protect critical areas
- Promote conservation buffer strips and stream bank stabilization

Goal: Reduce soil erosion from construction sites

Objective: Work with other agencies to educate about construction runoff

Actions:

- Provide annual professional workshops for contractors to address soil loss from building sites
- Hold demonstration days for county residents to promote proper use of erosion control BMP's

- Partner with the highway department to demonstrate the correct installation of erosion control BMP's
- Provide informational pamphlets to new construction applicants on the impacts of development, particularly in sensitive areas.
- Meet annually with city councils to set education opportunities in each city

Objective: Implement and Review Wabasha County Ordinances

Actions:

- Provide landowners with shoreland buffer ordinance information through Planning and Zoning
- Review and promote shoreland and bluffland ordinances with planning and zoning, the planning commission and the county commissioners every other year

Goal: Protect and Restore Bank and Shoreline Erosion

Objective: Educate and promote landowners on current protection efforts

Actions:

- Use GIS to identify areas of high need
- Use existing ordinances with state and federal programs to increase stream buffers by 50 % over the next five years
- Pursue additional funding for riparian buffer strip implementation
- Partner with conservation groups such as Trout Unlimited to restore the banks of trout streams

Priority Concern: Nutrient and Manure Management

Goal: Reduce nutrient loading of surface waters from agriculture

Objective: Ensure proper manure management procedures are practiced throughout Wabasha County.

Actions:

- Calibrate manure spreaders and educate farmers on the economic benefits of proper manure management
- Encourage producers under 300 animal units to obtain appropriate Nutrient Management Plans, either a Mini Manure Management Plan or Comprehensive Nutrient Management Plan.
- Spot Check 5% of nutrient management plans to make sure they are being followed.
- Provide each livestock producer with a copy of the publication "Applying Manure in Sensitive Areas" from MPCA when feedlots are re-registered

Objective: Provide education on ways to improve water quality

Actions:

- Provide informational handouts on methods to reduce field runoff of applied manure and the economic benefits to farmers during manure spot checks
- Include feedlot runoff reduction worksheet with permitting information
- Educate new feedlot owners about feedlot rules and method, of reducing runoff from their lot
- Work with producer groups to hold annual manure/nutrient management workshops
- Participate in ag waste workshops with U of M extension
- Hold field days to demonstrate small feedlot fixes, and make farmers aware of current cost share opportunities.

Objective: Reduce runoff of Commercial fertilizers from agriculture fields

Actions:

- Target non livestock producers to obtain a nutrient management plan through FSA newsletter
- Host annual meetings with fertilizer sales representatives in the area on application rates
- Hold producer meetings and send mailings encouraging commercial fertilizer setbacks from sensitive areas
- Work with producer groups and Extension to conduct nutrient management workshops on the economic benefits of soil testing

Goal: Reduce Nutrient Loading of Surface Waters from Urban Residents

Objective: Educate homeowners about backyard conservation

Actions:

- Educate on the importance of keeping sewer drains free of trash and lawn litter through mailings
- Work with municipalities to promote alternative management practices of roof water
- Hold backyard conservation demo days to promote conservation practices

Objective: Provide homeowners with information and opportunities to implement backyard conservation.

Actions:

- Encourage homeowners to direct runoff to pervious areas.
- Promote the use of rain barrels and rain gardens through demonstration sites and fact sheets.
- Work with lawn care businesses and residents to reduce amount of herbicides used on lawns by homeowners.

- Partner with lawn care business to make soil testing before fertilizer application, standard procedure.

Objective: Assist with implementing urban BMP's

Actions:

- Pursue funding to provide homeowners cost share dollars and incentive payments for backyard conservation.
- Provide technical assistance to homeowners to install conservation practices.
- Partner with city planners to leverage time to increase BMP installations.

Priority Concern: SSTS/Ground Water Protection

Goal: Protect ground water drinking water sources

Objective: Manage wellhead protection areas

Actions:

- Support development of wellhead protection plans.
- Target landowners in the wellhead protection areas to use BMP are to prevent groundwater contamination.
- Reduce the use of commercial fertilizers and chemicals in the wellhead protection areas.
- Use GIS to develop maps of wellhead protection area and its sensitive features.
- Consider wellhead protection areas in land use decisions.
- Objective: Educate and assist private well owners with well protection
- Educate well owners on setbacks from contamination sources through newsletters
- Educate landowners on well drilling code requirements for all well construction when permit is issued
- Inform private well owners of the importance of regular well testing

Objective: Promote the proper sealing of abandoned wells

Actions:

- Identify and locate abandoned wells with GPS as they are found on site visits and provide the landowner information on well sealing
- Seek funding for cost share programs for sealing costs
- Educate homeowners on the importance of sealing abandoned wells

Goal: Encourage proper management of new and existing onsite treatment systems

Objective: Promote SSTS updates and management

Actions:

- Perform inspection of all new SSTS installation
- Keep a system inventory of all SSTS installations
- Inspect a percentage of existing systems for compliance
- Work with pumping companies to notify homeowners of pumping requirements every 3 years
- Provide training programs for designers and installers
- Give homeowners SSTS maintenance information at time of installation
- Pursue the possibility of a county low interest loan program for new SSTS installations
- Goal: Assist with community treatment systems
- Objective: Encourage the installation of treatment facilities
- Partner with regional Coordinators to provide wastewater education to unsewered communities
- Assist unsewered communities with installing waste treatment facilities
- Provide technical assistance to communities to get 2 communities adequate waste treatment facilities
- Work with community leaders to pursue funding for the facilities

Priority Concern: Pasture and Forest Land Management

Goal: Improve quality and quantity of current pasture conditions

Objective: Promote and assist landowners to change to grazing management

Actions:

- Increase sustainable rotational grazing systems by 25%, with priority on those near riparian areas.
- Educate Producers on the economic and environmental benefits of rotational grazing.
- Conduct a survey on pasture use and management and use the information to contact landowners and encourage a change from continuous to controlled grazing to improve conditions.
- Collaborate with the Grazing Land Conservation Initiative (GLCI) and hold grazing workshops to educate interested producers and the general public the benefits of grazing and to create a positive image of livestock producers throughout the county.
- Work with other South Eastern Soil and Water Conservation Districts to hire an area grazing specialist.

Goal: Improve quality of forest land and increase forest management awareness

Objective: Educate and promote proper forest management

Actions:

- Educate landowners on the economic and environmental benefits of proper forest land management
- Partner with DNR forestry to educate citizens on invasive species and how to properly manage
- Provide information to homeowners on windbreaks and shelterbelts through FSA newsletters

Priority Concern: Impaired Waters

Goal: Address impaired surface waters in Wabasha County

Objective: Identify impaired surface waters

Actions:

- Assist with developing and implementing TMDL plans
- Provide technical assistance for TMDL studies
- Participate in TMDL efforts within the County
- Address the surface water according to its impairment
- Use long-term water quality and fisheries data collected on West Indian Creek to model baseline watershed conditions and potential improvements that can be attained through changes in land use within the watershed.

Objective: Target surface waters to remove from the impaired waters list

Actions:

- Market available programs to landowners
- Partner with municipalities and other agencies
- Target sub watersheds of the impaired surface water
- Develop an inventory and target area of the watershed by using GIS
- Make public aware of impaired waters and educate them of ways to improve the conditions of the water