CHAPTER 5: SURFACE WATER MANAGEMENT

SURFACE WATER MANAGEMENT EXECUTIVE SUMMARY

Credit River has an abundance of water resources which include numerous wetlands, several lakes, wooded areas, parks, and recreational lands. Concurrently with the preparation of this 2040 Comprehensive Plan, the Town prepared its first Local Water Management Plan. Therefore, the information presented in this section is a summary of the Local Water Management Plan.

The general change in land use from agricultural and natural to more urban is the primary factor driving the need for this plan. As property develops and projects replace pervious surfaces with impervious surfaces, the characteristics of the stormwater runoff changes and the need to manage the change increases. The chapter is proposed to be a dynamic document which will undergo future updates and amendments as other water resource management issues are identified as a result of continued land use and cultural changes in a developing Township.

WATER RESOURCES RELATED AGREEMENTS

Credit River, through agreement with the Scott County Soil and Water Conservation District, participates in the Scott Clean Water Education Program (SCWEP). SCWEP is a partnership of local government organizations in Scott County that strives to educate and inform residents about ways to improve the quality of lakes and rivers. Additional information regarding SCWEP can be found at https://www.scottswcd.org/education.

The Scott Soil and Water Conservation District (Scott SWCD) also assists Credit River in the management of its erosion and sediment control program through an agreement. They inspect all active inspection sites for proper erosion and sediment control Best Management Practices (BMPs), are responsible for record keeping, and enforcement.

LAND AND WATER RESOURCE INVENTORY

Climate and Precipitation

The hydrologic cycle describes the movement of water through the environment. Beginning with precipitation as the first of four major phases of the hydrologic cycle, the other phases are infiltration, evaporation, and transpiration. Credit River and the Twin Cities area have a continental type climate because of their proximity to the geographic center of the North

American continent. The area has moderate amounts of precipitation, wide daily and seasonal temperature fluctuations, warm humid summers, and cold winters.

The freeze free period for the area is long enough that the stable crops of the area reach maturity without much danger from frost. The 50% probability of temperatures of 32º or lower can be expected later than May 12 and earlier than September 27.

Precipitation patterns are influenced by moisture from the Gulf of Mexico. Precipitation occurs as rain, freezing rain, hail, and snow. Tornadoes, severe thunderstorms, and hailstorms occur occasionally and are of short duration. Measurable precipitation of 0.01 inch occurs on about 110 days per year, 4 of which have 1 inch or more. Rainfall intensity of about 1 ½ inches an hour can be expected to recur once in 3 years. Annual normal precipitation is approximately 31 inches, of which approximately 85 percent falls between March and October, and 15 percent falls between November and February, mostly in the form of snow. Most rainfall occurs in June. The maximum annual precipitation between 1940 and 2000 was 40 inches (1965) and the minimum annual precipitation was 16.5 inches (1976).

The annual snowfall in Credit River averages approximately 54 inches. Runoff from snowmelt can occur any time during the winter. The most severe snowmelt runoff conditions usually occur in March and early April, especially when rain falls on top of the snow pack.

The prevailing winds are northwesterly in the winter and spring, and shift to east and southeasterly in summer and fall. The average annual wind speed is close to 10 miles per hour.

Topography and Landforms

The topography in Credit River was shaped by several ice advances into east-central Minnesota during the last (Wisconsin) glaciations, which occurred about 10,000 years ago. Credit River has three basic geologic units, which are as follows from top to bottom:

1. Glacial deposits
2. Bedrock formed in shallow marine sediments deposited between 480 million and 950 million years ago.
3. Bedrock of volcanic or metamorphic origin.

The material within the three units may be thought of as water bearing or as confining. The combined characteristics of the water bearing and confining geologic materials determine the location and flow of groundwater aquifers. The reworking of geologic material over time creates factors important to infiltration and recharge, affecting groundwater vulnerability. Today's topography and drainage network are the result of long acting forces that have produced features such as lakes, wetlands, streams and rivers.

Soil properties are also affected by geologic reworking. The soils we have today are the originally deposited geologic material modified by five soil forming factors: parent material, climate, biota, topography, and time. The effects of the soil forming factors on the soil vary with the soil's location in the landscape (e.g.: ridge, top, slope, toe, basin, etc,).

Surficial Geology

Approximately two million years ago, the topography of Scott County, including Credit River, was formed in sedimentary rock, consisting of broad, rolling plateaus divided by sharply cut valleys. Today that landscape is buried and referred to as bedrock. It is covered by material deposited by glaciers, known collectively as glacial drift.

A series of glacial advances and retreats deposited the drift by a combination of ice and water action. The drift thickness varies, from over 300 feet thick in the southern part of Scott County to extremely thin near the City of Savage. This glacially deposited material is very heterogeneous, ranging in size from boulders and gravel to clay. The advance and retreat of glacial ice sheets, the remnants of terminal moraines, and subsequent dissection by streams and rivers has left much of the present day topography in the Township rolling to strongly rolling.

Soils

Five of the seven Scott County soil associations are found in the Credit River area. The soils are classified into the following associations, in order of their prominence (and approximated percent):

1. Hayden and Lester soils and Peat bogs Association (60 percent)
2. Burnsville, Hayden, Kingsley, Scandia Association (30 percent)
3. Webster, LeSueur, Clarion, Lester Association (5 percent)
4. Lester, Webster, Glencoe Association (4 percent)
5. Hubbard, Estherville, Waukegan, Zimmerman Association (1 percent)

Information about each of the soil series listed above is available from the Scott County Soil Survey. The following table shows the drainage characteristics of each soil series from the above associations.

Table 5-1: Soil Drainage Characteristics Credit River

Soil Series	Drainage Characteristics	Soil Type
Lester	well drained	B
Peat Bogs	poorly drained	D
Burnsville	excessively drained	B
Kingsley	well drained	B
Scandia	excessively drained	B
Webster	poorly drained	D
LeSueur	poorly drained	D
Clarion	poorly drained	D
Glencoe	poorly drained	D
Hubbard	well drained	B
Estherville	well drained	B
Waukegan	well drained	B
Zimmerman	poorly drained	D

The drainage nature of the soil is important for determining the surface water runoff from a given area. If the soil is well drained, a significant portion of the precipitation will be infiltrated into the ground, whereas, if a soil is poorly drained, most of the precipitation will flow from the site of impact.

MnDNR Protected Waters, Wetlands and Water Courses

The Minnesota Department of Natural Resources (MnDNR) has designated certain waters of the state as public waters. MnDNR "Protected Waters and Wetlands" maps show public waters within Credit River. A MnDNR permit is required for work within a designated public water. Protected waters and wetlands maps show public waters as one of the following:

- Protected waters
- Protected wetlands
- Protected watercourses

Protected waters are identified with a number and the letter "P". Protected wetlands are identified with a number and the letter "W". Protected wetlands include, and are limited to, types 3, 4, and 5 wetlands that have not been designated protected waters and are 10 acres or more in size.

Protected Wetlands

Protected waters or other basins within Credit River which have been inventoried by the Minnesota Department of Natural Resources (MnDNR) are known as public waters wetlands

and therefore their beds along with the lakes are subject to regulatory authority of the MnDNR.

Public waters wetlands mean all types 3, 4 and 5 wetlands, as defined in United States Fish and Wildlife Service Circular 39 (USDI, 1971), not included within the definition of public waters, that are ten or more acres in size.

Watercourses

Public waters also include all natural and altered watercourses with a total drainage area greater than two square miles.

Other Regulated Wetlands

In addition to the MnDNR waters discussed in Section 2.5, many additional wetlands within Credit River are included on the NWI maps but are not MnDNR water bodies. The following three characteristics make these water bodies exclusive from the MnDNR public waters and public waters wetlands.

- First, an individual basin may be dominated by wetland habitat (Types 1,2,6, and 7 [USDI, 1971] not statutorily covered by MnDNR and yet is immediately adjacent to an inventoried MnDNR basin or watercourse.
- Second, an individual isolated wetland basin may be smaller than the minimum MnDNR size (10 acres) as discussed previously.
- Third, an individual isolated wetland basin may be dominated by habitat types (Types 1,2,6, and 7) not statutorily covered by MnDNR.

Excavation, filling, grading and/or development actions which may adversely affect these resources may be subject to federal permitting authority under Sections 404 and 401 of the Clean Water Act, (33 USC 125 et. seq.) and local approval under the 1991 Wetland Conservation Act, as amended.

County Ditches

A network of ditches was constructed in the late 1800s and early 1900s to drain surface waters from existing lakes and wetlands in order to make additional lands available for agricultural use. This network of ditches drains most of the land. Minimal maintenance has been performed on the ditches since their construction, therefore the ditch system is in poor condition and operating below design capacity.

Land use within Credit River is changing dramatically since the construction of the ditch system. Although much of the community has retained a rural character, urban cluster

development has occurred. The ditch systems within residential areas are no longer being used to beneficiate agricultural operations but have become a conveyance for urban storm water runoff.

Drainage Area Map

Credit River has completed an inventory of all major culverts within the community and has determined the hydrologic drainage divides. In general, the stormwater runoff flows from the south to the north via the Credit River. There are several wetlands and low areas which provide depressional storage. Volumes and flow rates of the drainage areas are presented in the Credit River Township Local Stormwater Management Plan. The drainage area map is presented in Figure 5-2.

Figure 5-2: - Drainage Area Map

Groundwater Resource Data

Groundwater is the primary drinking water source in Credit River Groundwater is an important water resource and can be obtained from aquifers.

Wetland Protection

This section describes the process that was used to develop a wetland management strategy. The objective of this process is to provide no net loss of wetland functions and values. Impacts to wetlands include not only direct impacts such as filling and drainage, but also indirect impacts from storm water inputs.

Wetland Susceptibility to Storm Water Input

Storm water runoff carries soil particles, nutrients, and contaminants which can change the ecological balance of the receiving water body. Changes in the volume or rate of storm water entering or discharging from the water body can also change the ecological balance. Change in the ecological balance of a wetland often results in changes in the water quality, changes in animal and fish habitat, replacement of native vegetation with invasive and tolerant plant species, and/or other impacts to the wetland's functions and values.

The state guidance document developed a methodology for determining the susceptibility of wetlands to degradation by storm water input. Wetlands such as bogs and fens can be easily degraded by changes in the storm water inflows and are designated as highly susceptible. On the other hand, floodplain forests can tolerate relatively significant changes in the chemical and physical characteristics of storm water inflow without degradation and are therefore slightly susceptible. Commonly observed shallow marshes and wet meadows dominated by cattail and reed canary grass (respectively) have a moderate susceptibility to storm water fluctuations.

Wetland management standards have been developed to determine how and when storm water should be routed through a wetland to minimize potential impacts. These standards are largely based on state and county guidance documents. These standards determine tolerable hydrologic change in terms of bounce (difference between the peak flood elevation and the wetland elevation), inundation period (time that flood waters temporarily stored in the wetland exceed the wetland elevation), and runout control (elevation of the outlet).

These standards provide guidance for the management of storm water to minimize wetland impacts. It is assumed that wetland impacts will be minimized and existing wetland functions and values will be maintained if the proposed management system and criteria meet the state

and county management standards.

Water quality protection will also be achieved through implementation of the City's Stormwater Pollution Prevention Program (SWPPP).

BACKGROUND AND ASSESSMENT OF ISSUES

Introduction

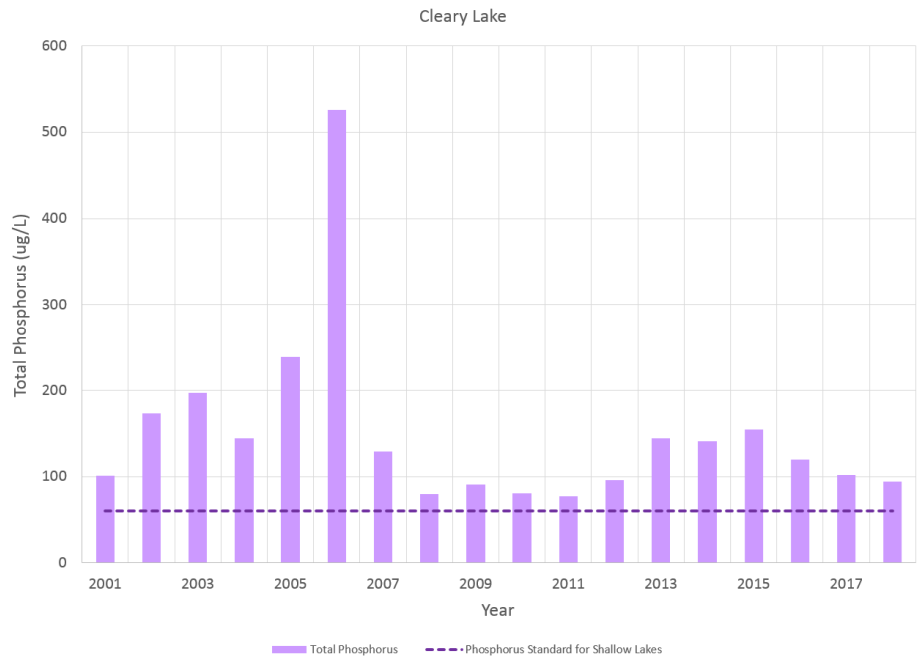
The primary focus of this section is the assessment of current issues to prevent degradation and improve the quality of Credit River's water resources. If policies are not enforced, serious consequences in the quality and quantity of water resources will result. The success of a water program is dependent upon the teamwork and communication of all parties. Therefore, education at all levels is an overall theme throughout this section.

Cleary Lake

Cleary Lake is considered impaired for mercury, and as of 2008 it is also impaired for nutrients . There is no approved Total Maximum Daily Load (TMDL) for Cleary Lake, but there is a completion target date for 2019. Data from the MPCA's Environmental Data Access shows the phosphorus levels between 2001 and 2018 in the Figure 5-3.

Figure 5-3: Phosphorus levels in Cleary Lake

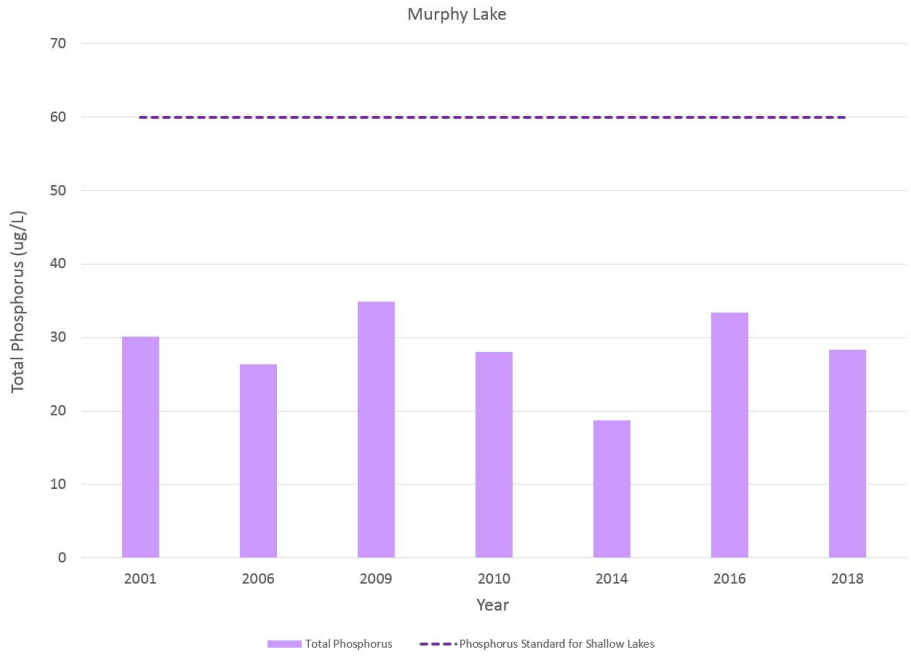
Figure ____. Phosphorus levels in Cleary Lake.



Murphy Lake

Murphy Lake is listed as impaired for mercury. There are no required TMDLs, and according to MPCA's data in Figure 5-4, there does not appear to be an issue with nutrients.

Figure 5-4: Phosphorus levels in Murphy Lake



Credit River

Credit River was delisted in 2012 for turbidity, but in 2018 Credit River was added to the proposed impaired waters for *E. coli*, chloride, fishes bioassessments, and aquatic macroinvertebrate bioassessments. There is no approved TMDL for Credit River at this time, but there is a completion target date for 2019.

Corrective Action

A TMDL report and the accompanying Watershed Restoration and Protection Strategies report are likely to be release relatively soon. The Township will look to these reports for the best approach to restore Cleary Lake and Credit River and protect Murphy Lake.

Groundwater Susceptibility

As discussed in Section 2.14, the MnDNR and the Minnesota Geological Survey have developed a map that identifies the susceptibility of the water table to pollution. There are a number of

areas in the Township that have been identified as highly or very highly susceptible to aquifer impacts.

Corrective Action

The Township shall implement the groundwater policies and standards outlined within this plan through development plan review in an effort to protect existing groundwater quality. Given the proposed low-density development planned for Credit River, the potential for groundwater impacts is considered low.

Markley Lake

Markley Lake is a landlocked basin and subject to seasonal water level fluctuations.

Corrective Action:

The Township will study possible solutions for extending an outlet across municipal boundaries. In addition, for any development within the watershed, the Town will require infiltration practices to reduce the stormwater runoff directed to the lake.

SURFACE WATER MANAGEMENT IMPLEMENTATION PLAN

The zoning ordinance clearly defines when a grading permit is required. In most cases, grading permits are reviewed in conjunction with a zoning or subdivision application. Depending on the size or extent of the project, either a resource management plan or an erosion and sediment control plan is required as part of the grading permit application.

EDUCATION

Credit River and Scott County have taken measures to educate property owners, home builders, developers, contractors, realtors, and residents regarding storm water management, erosion control and wetland protection requirements. These measures include:

1. Development Review Team (DRT) Meetings – Land developers submit a sketch plan depicting a subdivision or development proposal. The sketch plan and accompanying information serves as the basis for discussions between the developer, the County's Planning, Natural Resource, Environmental Health, Public Works, and Building Inspection Departments, and Town Board representatives at a DRT meeting. This meeting is intended to provide the developer with an advisory review of the proposal.

2. Handouts and Staff Assistance – Staff are available to answer questions and assist land

developers in meeting ordinance requirements.

3. Scott Clean Water Education Program (SCWEP) – The County, in conjunction with Scott SWCD, holds workshops on the County's erosion and sediment control program. These workshops have been attended by home builders, utility installers, landscapers, contractors, and developers.

FLOOD PROTECTION

Consistent with state and federal regulations, Credit River Township requires that the level of flood protection along all ditches, detention basins, lakes, streams and wetlands be established based upon the 1 percent (100-year frequency) flood.

STORM SEWER

Storm sewer sizing shall be based upon the 10-year storm event. Inlet capacities and roadway spread at each inlet shall be determined. The maximum allowable roadway spread at any inlet shall be on-half of the traveled lane.

FLOOD PLAINS AND SHORELAND MANAGEMENT

Various levels of government are involved in regulation of surface water, wetlands and floodplain. As previously discussed, the MnDNR has inventoried and classified water bodies and wetlands in the State of Minnesota. The "protected waters and wetlands" program identifies water bodies and wetlands that require DNR permits for activities like draining, filling, dredging, and diverting of water. The MnDNR Shoreland Management Program has also established a classification system for lakes greater than 10 acres in size and rivers with a drainage area two square miles or greater. These classifications establish minimum development standards for protection by local units of government and are related to their use. The standards apply to those areas within 300 feet of a classified river and 1000 feet from a classified lake. Actual regulations may be stricter.

RECREATION, OPEN SPACE AND WILDLIFE MANAGEMENT

Through development review the Township shall encourage protection and/or preservation of wetlands and uplands that provide habitat for fish and wildlife.

GROUNDWATER MANAGEMENT

Credit River Township contains natural characteristics which result in high to very high sensitivity for groundwater contamination. The Plan contains policies and criteria which will

guide land use development to protect existing groundwater quality.
Individual Sewage Treatment Systems

A principal risk of direct contamination of groundwater comes from sewage from individual and community sewage treatment systems. Credit River Township will ensure protection of local groundwater through implementation of its ordinances regarding private on-site sewer systems. Wetlands, floodplain and shoreland areas also serve as important areas of groundwater recharge. Strategies to protect these areas are described in the previous sections.

WETLAND REPLACEMENT

When wetland impacts cannot be avoided, the applicant shall prepare a Wetland Replacement Plan. The Wetland Replacement Plan components shall conform to the requirements of Minnesota Rules 8420.0530.

EROSION AND SEDIMENT CONTROL

Surface water quality can be compromised as a result of land uses and development practices that increase the amount of surface water flow. In addition, surface water quality can be compromised when the increased runoff causes erosion and sedimentation. Careful planning and regulation related to conservation of soils, water, and natural vegetation can reduce erosion, runoff, and sedimentation. The Scott County Zoning Ordinance No. 3 includes provisions for erosion and sediment control and have standards that require grading permits, and resource management plans or erosion and sediment control plans that include storm water rate control, detention storage for water quality, storm water volume control and that the facilities must be designed and installed consistent with the current Best Management Practices (BMP).

Ponds are one mechanism to alleviate these impacts by controlling the rate of runoff. Currently infiltration is the best means for permeant stormwater. Developments are required to infiltrate 1” of water over all additional impervious surface. Methods such as mulch layers or silt fences are identified in the environmental policies as means to reducing the amount of runoff entering the pond by increasing infiltration through the soil. In addition, all projects are inspected, a certificate of compliance is issued and applicants (or their successors) are responsible for the maintenance of the erosion and sedimentation control measures. At the time of completion, those structures, measures and systems located within public easements shall be permanently maintained by the Township after official acceptance by the Township Board.

LAKE AND STREAM MONITORING

The MPCA and Metropolitan Council administer lake and watershed outlet monitoring programs, but not all of the County's lakes and streams are currently being monitored. The County will assist the WMO with coordinating citizen monitoring programs for taking simple measurements such as water clarity to get an awareness of the condition of the surface water.

INSPECTION, COMPLIANCE, AND ENFORCEMENT

The zoning ordinance includes provisions for reviewing, approving, inspecting and enforcing storm water management, erosion control and wetland protection requirements.

1. Review Process - All grading permits (which will require either a resource management plan or an erosion and sediment control plan) are reviewed to determine compliance with the technical and performance standards.

2. Financial Guarantee - Upon approval of the grading permit, Credit River requires the applicant to provide a financial guarantee in the form of a letter of credit or cash deposit in favor of the Township equal to 125% of site grading and erosion/sediment control costs necessary to ensure the satisfactory installation, completion, and maintenance of the measures and procedures as required in the approved grading permit.

3. Inspection – Credit River has contracted with Scott SWCD to inspect an applicant's progress of implementing best management practices to minimize erosion and sedimentation. If it is determined that insufficient progress or non-compliant activity is occurring, they notify the applicant or landowner of the problem and demand compliance. If compliance is not followed, the Scott SWCD can draw on the financial guarantee to ensure protection of public soil and water resources.

4. Compliance – After all of the required measures and procedures as described in the approved grading permit have been executed to the satisfaction of Credit River, they shall issue a certificate of compliance to the applicant and release the remaining financial guarantee.

5. Maintenance – The applicant or successors are responsible for the installation and maintenance of any temporary or permanent measures identified in the approved grading permit. At the time of completion of the development, those structures, measures and systems within public easements shall be permanently maintained by Credit River after official acceptance by local officials.

COORDINATION WITH OTHER UNITS OF GOVERNMENT

Scott County

In compliance with state law, the role of Scott WMO is to set the standards for water resources management that are consistent with state requirements. The local agencies, such as Credit River, then prepare local surface water management plans that are consistent with the WMO's plan.

Minnesota Board of Water and Soil Resources (BWSR)

BWSR is a state agency that assists local governments to manage and conserve their irreplaceable water and soil resources. BWSR provides local governments with guidelines, training, and technical assistance in developing and administering resource management plans and programs and provides state funding for water and soil management carried out by local government. Through legislative initiative, the Board of Water and Soil Resources seeks policies supportive of soil and water resource management and encourages implementation of those policies through local units of government. BWSR oversees WMOs, WDs, SWCDs, and administers the rules for the Minnesota Wetland Conservation Act.

Minnesota Department of Natural Resources (MnDNR)

The mission of the Minnesota Department of Natural Resources is to work with citizens and local government to protect and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. The DNR has many divisions, however the Waters division is responsible for issues such as local water planning, the Protected Waters Inventory, groundwater (including water appropriation), floodplains, shoreland areas, and dam safety. In addition the Division of Ecological Services collects and disseminates ecological information to provide decision makers with tools for making informed resource decisions.

Minnesota Pollution Control Agency (MPCA)

The MPCA was established in 1967. Its purpose is to protect Minnesota's environment through monitoring environmental quality and enforcing environmental regulations. The MPCA administers, among other things, the NPDES permit program, the Storm water Phase II NPDES rules, the NPDES General Construction Storm water permit program, ISTS regulations, feedlot regulations, and composes the list of the state's impaired waters for the EPA.

Minnesota Department of Health (MDH)

The MDH administers several water-related programs including wellhead protection, well

management, and drinking water protection.

Minnesota Department of Agriculture (MDA)

The MDA's mission is to work toward a diverse agricultural industry that is profitable as well as environmentally sound; to protect the public health and safety regarding food and agricultural products; and to ensure orderly commerce in agricultural and food products. MDA helps farmers and homeowners by developing guidelines for soil amendments and nutrient management to prevent excessive applications. MDA samples well water to check for pesticides and contamination and tests soils to analyze their composition.'

Environmental Quality Board (EQB)

The EQB at Minnesota Planning draws together five citizens and the heads of 10 state agencies that play a vital role in Minnesota's environment and development. The Board develops policy, creates long-range plans and reviews proposed projects that would significantly influence Minnesota's environment. The EQB administers Minnesota's environmental review program including Environmental Assessment Worksheets (EAW) and Environmental Impact Statements (EIS).

U.S. Army Corps of Engineers (COE)

The mission of the COE is to provide quality, responsive engineering services to the nation including planning, designing, building and operating water resources and other civil works projects (navigation, flood control, environmental protection, disaster response, etc.). The COE administers Section 10 of the Rivers and Harbors Act permit program and Section 404 of the Clean Water Act (wetlands permit program).

U.S. Environmental Protection Agency (EPA)

EPA's mission is to protect human health and to safeguard the natural environment — air, water, and land — upon which life depends. EPA works closely with other federal agencies, state and local governments, and Indian tribes to develop and enforce regulations under existing environmental laws. EPA is responsible for researching and setting national standards for a variety of environmental programs and delegates to states and tribes responsibility for issuing permits, and monitoring and enforcing compliance. Where national standards are not met, EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality. The Agency also works with industries and all levels of government in a wide variety of voluntary pollution prevention programs and energy conservation efforts.

Adequacy of Protection for Surface Water Resources

Initiatives such as the EPA's TMDLs, which is a program administered by the MPCA, as well as the NPDES Phase II program are aimed at managing surface water better. In addition, the WCA, MnDNR Shoreland rules, MnDNR Protected Waters Rules, and other federal, state and local regulations have made dramatic progress in the protection of wetlands and reducing adverse impacts on water quality.

Storm Water Pollution Prevention Program

Credit River Township, along with Scott County, have been identified by the MPCA as NPDES Phase I and II Municipal Separate Storm Sewer System (MS4) communities. The goal of the Storm water Pollution Prevention Program (SWPPP) is to reduce the discharge of pollutants into receiving waters to the Maximum Extent Practicable (MEP). A SWPPP is a requirement of the NPDES General Permit No. MNR040000, which authorizes MS4 operators to discharge storm water.

The County worked with the Township during the development of the SWPPP's by sharing resources. However, the Township is responsible for the material contained within their SWPPP. The Township has designated a responsible party to ensure the minimum control measures are implemented in accordance with the SWPPP. The County does not enforce the implementation of the Township's SWPPP. In cases where the County does have involvement pertaining to the Township's MS4 SWPPP there shall be a written agreement between the two parties.

The MPCA has reviewed and approved the Township's SWPPP's. The Storm water Pollution Prevention Program has been implemented. There are six minimum control measures outlined below that are required to be included in the Storm water Pollution Prevention Program under the requirements of the permit. Within each of the six minimum control measures, there are a number of Best Management Practices (BMP's) that are required for each minimum control measure. The six minimum control measures are as follows:

1. Public Education and Outreach on Storm water Impacts

Public education and outreach is a major component of the SWPPP. Through education and outreach programs the operator of a MS4 can reduce the impacts on the receiving waters. There are ten BMP's that are required to address this component of the program, which are outlined in the BMP summary sheets (BMP ID No. 1A through 1E).

2. Public Participation/Involvement

Public participation is encouraged to receive input from the public on the SWPPP. Public

input may be used as a gauge to determine the effectiveness of the SWPPP and associated BMP's. Based on public input, the Township may modify components of the SWPPP if deemed beneficial. See BMP ID No. 2A through 2C for the required Best Management Practices for Public Participation/Involvement.

3. Illicit Discharge Detection and Elimination

A major component of illicit discharge detection and elimination is the storm sewer map. The storm sewer map will assist the Township in detecting non-storm sewer discharges (illegal dumping). The Township is required to prohibit non-storm water discharges to the extent allowable under law, through ordinance or other regulatory mechanism. See the BMP summary sheets for BMP ID No. 3A though 3D for the required Best Management Practices for Illicit Discharge Detection and Elimination.

4. Construction Site Storm Water Runoff Control

The Township will develop an ordinance or other regulatory mechanism to reduce pollutants in storm water runoff from construction activities. All construction activities which disturb greater than one acre of land, and construction activities which disturb less than one acre but are part of a larger common plan of development or sale will be controlled. See the BMP summary sheets for BMP ID No. 4A through 4F for the required Best Management Practices for Construction Site Storm Water Runoff Control.

5. Post-Construction Storm water Management in New Development and Redevelopment

The Township will implement and enforce an ordinance or other regulatory mechanism to address post construction storm water management in new development and redevelopment. See the BMP summary sheets for BMP ID No. 5A through 5C for the required Best Management Practices for Post-Construction Storm Water Management in New Development and Redevelopment.

6. Pollution Prevention/Good Housekeeping for Municipal Operations

The Township will operate and maintain the storm sewer system in a manner so as to reduce the discharge of pollutants to the maximum extent practicable. See the BMP summary sheets for BMP ID No. 6A through 6B for the required Best Management Practices for Pollution Prevention/Good Housekeeping for Municipal Operations.

Governmental Oversight

Local government's (County, City, and Township) most effective tool for enforcing erosion control plans, storm water management plans, and wetland conservation plans is the platting/plan review process, through the enforcement of local ordinances. Local, state, and federal regulations related to storm water management, erosion control, open space dedications, wetland conservation, tree preservation, are addressed when new developments are platted. Developers are required to follow design specifications and standards once a plat has been officially approved. However, during the construction of the development, contractors hired by the developer may not be aware of plat conditions or are negligent in carrying out the specified requirements. In addition to direct water quality and quantity impact that may occur if plat requirements are not followed, secondary impacts such as wetland sedimentation, sheet and gully erosion, loss of trees due to injury and disease, etc. may occur. LGUs that have adopted a policy of low tolerance for plat violations of wetlands, erosion control, or tree ordinances indicate that compliance increases with enforcement oversight. The County needs to continue to be vigilant in the enforcement of platting requirements and wetland protection and erosion control ordinances. Additional training of local officials, developers, and their contractors, as well as funding may be necessary to provide for additional inspections and enforcement.

OFFICIAL CONTROLS

The Town does not currently have the official controls in place to implement their Local Water Management Plan. After approval of the plan, the Town shall adopt and implement its plan within 120 days and shall create the necessary official controls within 180 days.

AMENDMENT PROCEDURES

This plan will be reviewed at five to ten-year intervals to determine whether updates are required to meet changing legal or physical conditions. Amendments may be either minor or major.

Minor amendments are amendments that do not change the goals, policies, management strategies, and management processes. Minor amendments include, but are not limited to the following:

1. Updates to the storm drainage system based on construction or to correct errors or omissions.
2. Changes to watershed divides provided they do not affect major watershed divides.
3. Minor amendments as defined by Minn. Rules 8410.0020, Subp. 10 which reads as follows:

   ". . . items such as recodification of the plan, revision of a procedure meant to streamline administration of the plan, clarification of the intent of a policy, the

inclusion of additional data not requiring interpretation, or any other action that will not adversely affect a local unit of government or diminish a water management organizations' ability to achieve the plan's goals or implementation program."

Minor amendments will be submitted to the Scott WMO.

Major amendments will include:

1. Modifications to the watershed divides or storm drainage system that change the projected rates and volume of flow.
2. Modifications to the goals and policies.
3. Major amendments, when required, will involve the same steps as approval of the original document.

Amendments will also be required within two years of the adoption of a watershed plan by a Watershed District or Watershed Management Organization, consistent with Minn. Rules 8410-0160.

CAPITAL IMPROVEMENTS

Development of a Capital Improvement Program is listed as an implementation item in this plan.