4.0 Implementation Plan

This Plan section discusses the problems and issues that were identified during the Plan development process, and the goals and actions the Commission will pursue to address them. Each of the operating programs were reviewed during the planning process, and modifications to the monitoring plan, education program, and development rules and standards are described in this section and presented in more detail in appendices. This section includes a cost estimate for operations over the coming ten year period and the estimated member assessments, and a Capital Improvement Program of potential capital projects and special studies. Finally, this section concludes by summarizing the requirements for member city local water management plans and procedures for amending this Plan.

4.1 Assessment of Problems and Issues

4.1.1 Gaps Analysis

The Commission performed a Gaps Analysis and visioning exercise to identify problems and issues confronting water resources management in the watershed. Table 4.1 shows the problems/issues in four general categories, in no particular order of priority.

Table 4.1. Problems and issues identified in the Gaps Analysis.

#	Problem or Issue	Discussion
Water Quality		
1.1	Numerous impairments on the primary streams and several lakes.	Meeting state water quality and biotic integrity standards will require significant and likely costly load reductions from both urban and rural sources as well as internal lake and stream actions.
1.2	Land is transitioning from lightly-developed and agriculture to more densely developed land uses at higher imperviousness.	Land use change can create new pollutant loading and increase the volume and rate of stormwater runoff.
1.3	Erosion and sedimentation issues continue on Elm Creek and the other streams and conveyances in the watershed.	Stream instability can exacerbate other water quality issues in the streams and receiving waters.
Agricultural Impacts on Water Quality		
2.1	Need to increase the number and distribution of agricultural BMPs in the watershed.	Modeling completed for the WRAPS indicates that agricultural land uses are a source of nutrient, sediment, and bacteria loading in lakes and streams in the watershed.
2.2	Need to develop an effective mechanism to achieve voluntary adoption of BMPs	Some options are: identifying key persons to model best practices, providing financial incentives, and partnering with other agencies such as Extension.
2.3	Need more effective outreach to agricultural operators and hobbyists.	The most effective outreach is person to person, which is time and labor intensive.
Funding Needs		

#	Problem or Issue	Discussion
3.1	Additional funding is necessary to take on the actions identified in the Channel Study and WRAPS implementation study.	Competition for grant funding is fierce, and the Commission and cities have a limited ability to contribute matching funds
3. 2	Identify a sustainable funding level and sources that minimize impacts to city levies.	Are there other sources of funding that could supplement or replace the current city contributions to reduce the cost burden on the member cities?
Other Issues		
4.1	Need to expand activities for education and outreach to increase knowledge about water resources issues and create behavioral change.	Need to improve the visibility of the Commission, its responsibilities and achievements. Build a reputation as a leader in water quality.
4.2	The Commission should be realistic about its Capital Improvement Program.	The Commission and member cities should prioritize potential improvements, and focus on achieving the highest priority.
4.3	All the member cities need to be involved in watershed management.	Should the Technical Advisory Committee (TAC) meet on a semi-regular basis rather than ad hoc?
4.4	There are too many agencies involved in water management, and nothing gets done.	An ongoing and effective TAC can be a place for collaboration and cooperation.

4.1.2 TMDL and WRAPS Findings

The Elm Creek Watershed TMDL (MPCA 2015) addresses 22 impairments in the Elm Creek hydrologic watershed and two impairments in the Crow River watershed (see Table 2.13 and Table 2.15 above). These include nutrient impairments on seven lakes, and *E. coli*, dissolved oxygen (DO), and fish and macroinvertebrate community biological impairments on Elm, Rush, South Fork Rush, and Diamond Creeks. The findings are summarized below. Refer to the TMDL document (Brasch 2015) for more detail.

Nutrients. There are three sources of nutrient loading to lakes: watershed or external sources, internal sources, and atmospheric deposition. Watershed load is phosphorus carried from the land to a receiving water, or contributed from an upstream source such as an upstream lake in a chain, or by a stream. Internal load is usually the result of the release of phosphorus from lake bottom sediments. Atmospheric deposition falls directly on a lake surface, and is typically only a small component of the overall lake nutrient load. The role of watershed versus internal loading varies by lake, and thus the amount of phosphorus load reduction from each source will vary, as seen in Table 4.2.

Table 4.2. Elm Creek Watershed TMDL draft lake TP load reductions.

Lake	Current TP Load Lbs/Year	TMDL TP Allocation Lbs/Year	External Load Reduction Lbs/Year (%)	Internal Load Reduction Lbs/Year (%)
Fish	1,251.6	1,125.0	182.7 (29%)	0.2 (<1%)
Rice	12,551.1	2,307.1	8,411.7 (91%)	1,947.6 (61%)
Diamond	2,871.1	831.6	1,450.6 (73%)	630.4 (82%)
Goose	133.2	26.7	36.7 (82%)	71.2 (100%)
Cowley	844.1	94.6	336.7 (80%)	416.7 (100%)
Sylvan	1,179.3	199.9	507.5 (77%)	481.9 (100%)
Henry	908.3	183.2	631.5 (91%)	102.8 (50%)

Source: Elm Creek Watershed TMDL Draft March 2015.

E. coli. A source assessment completed for the TMDL suggests that fecal matter from livestock is the primary potential source of bacteria loading into Diamond, Rush, and South Fork Rush Creeks, while both livestock and urban sources contribute to the Elm Creek impairment. Fecal matter sources include wash-off from pastures, runoff from feedlots and domestic animals, application of manure to fields as fertilizer, direct access of livestock to streams, wildlife, and sewage treatment systems. Monitoring indicates that exceedances of the *E. coli* standard are most severe in the upper watershed, where land use is dominated by agriculture. Bacteria load reductions to meet the standard vary by stream and flow regime and by season, and range from no reduction to a 66 percent reduction.

Dissolved Oxygen (DO). Low dissolved oxygen in streams stresses aquatic life. Streams are complex systems, and there are numerous potential causes of low DO. The Stressor Identification Study completed for the biotic impairments (Lehr 2015) concluded that the likely cause of low DO in these streams is excess nutrients, which increases productivity and results in increased carbonaceous biochemical oxygen demand from breakdown of organic matter. Monitoring suggests that the DO impairment is most severe in the upstream stream reaches, and is also influenced by the numerous riparian and flow-through wetlands. Total phosphorus load reductions to meet the standard vary by stream and flow regime, and range from a 53 percent reduction to an 85 percent reduction. The numerous flow-through and riparian wetlands also affect DO dynamics in the streams.

Biotic Integrity (Fish and Macroinvertebrates). The Elm Creek Watershed Stressor Identification Study used a structured assessment tool called CADDIS, developed by the EPA as a "strength of evidence" approach to evaluating potential causes of biotic impairments. Numerous potential stressors were evaluated and ruled out due to a lack of evidence. Six potential stressors were identified as being probable causes of the impairments; however, the relative impact of these stressors varies by stream reach. The six are: Altered Hydrology, Altered Physical Habitat, Excess Sediment, Excess Phosphorus, Low Dissolved Oxygen, and Excess Chlorides.

The Total Phosphorus TMDL addresses the excess phosphorus and low dissolved oxygen impairments. Total Suspended Sediment (TSS) load reductions to address the excess sediment stressor for Diamond and Elm Creeks vary by stream and flow regime. The impairment is less severe in Diamond Creek, with reductions ranging from no reduction to 47 percent reduction. In Elm Creek reductions ranging from 48 to 64 percent would be necessary to meet the TSS standard.

Altered Hydrology and Altered Physical Habitat are parameters with no numerical standard, so no TMDL can be established. However, the TMDL document identifies actions that can be taken to address these stressors. For altered hydrology, those actions should focus on reducing the rate and volume of runoff and increasing groundwater and baseflow recharge. Improvements to physical habitat such as streambank stabilization and added stream complexity would enhance the ability of the streams to support fish and macroinvertebrates and other aquatic life.

4.2 IDENTIFICATION OF PRIORITY ISSUES

Identification of priority issues was completed through ongoing discussions with the Commissioners and Technical Advisory Committee, and discussion at the joint meeting of representatives from

each member city Citizens Advisory Committee and at a meeting of City Managers and their representatives. Based on input from the Commissioners, TAC, member city staff, and CAC, the following issues have been identified as of high priority for this Management Plan.

THIRD GENERATION MANAGEMENT PLAN PRIORITIES

1. Begin implementing priority projects and actions in 2015, providing cost-share to member cities to undertake projects to achieve WRAPS lake and stream goals.
2. Use the results of the WRAPS study to establish priority areas, and complete subwatershed assessments to identify specific Best Management Practices that feasibly and cost-effectively reduce nutrient and sediment loading to impaired water resources. Convene a TAC of agencies specializing in ag outreach to help guide assessments in agricultural subwatersheds.
3. Develop a model manure management ordinance regulating the placement of new small non-food animal operations using the City of Medina ordinance as a reference, and require member cities to adopt that ordinance or other ordinances and practices that will accomplish its objectives.
4. Partner with other organizations to complete a pilot project for targeted fertilizer application and to increase and focus outreach to agricultural operators.
5. Continue participating in joint education and outreach activities with WMWA and other partners.

4.3 THIRD GENERATION MANAGEMENT GOALS AND ACTIONS

Guided by the identification and prioritization of issues in the watersheds, the Commission has developed goals that will guide activities over the coming decade. These goals were derived from the Gaps Analysis and a review of the accomplishments and unfinished business from the Second Generation Plan; discussions with Commissioners, Technical and Citizens Advisory Committee members, state agency staff, and other city staff.

The framework to achieve these goals is set forth in the Implementation Plan and Capital Improvement Program detailed in the following sections. Member cities supplement and complement these actions with additional policies and programs tailored to their unique priorities and needs. The philosophy of the Joint Powers Agreement and this Plan is that the management plan establishes certain common goals and standards for water resources management in the watershed, agreed to by the member cities, and implemented by those cities by activities at both the Commission and local levels. Successful achievement of the goals in this Plan is dependent on those member cities and their dedication to this effort.

4.3.1 Water Quantity

A statutory responsibility of watershed management organizations is to prevent and mitigate flooding. This Plan accomplishes this by ensuring that development and redevelopment does not create excessive new volumes and rates of runoff that may cause downstream flooding. A second responsibility is promoting groundwater recharge, which impacts stream baseflow and lake levels, and maintaining adequate hydrology to wetlands.

The Third Generation management goals for water quantity are focused on reducing, or at minimum achieving no increase in, the rate of runoff discharging to the streams in the watershed, to reduce potential for erosive velocities and minimize further streambank erosion and mass wasting. An additional management goal is to maintain the current flood profile of Elm Creek and tributaries.

Goal Area A. Water Quantity

Goal A.1. Maintain the post-development 2-year, 10-year, and 100-year peak rate of runoff at pre-development level for the critical duration precipitation event.
Goal A.2. Maintain the post-development annual runoff volume at pre-development volume.
Goal A.3. Prevent the loss of floodplain storage below the established 100-year elevation.
Goal A.4 Reduce peak flow rates in Elm, Diamond, and Rush Creeks and tributary streams to the Crow and Mississippi and preserve conveyance capacity.

Water Quantity Actions:

a. The Commission shall maintain Rules and Standards requiring development and redevelopment meeting certain criteria to meet runoff rate control and runoff volume and infiltration requirements.
b. Landlocked depressions that presently do not have a defined outlet and do not typically overflow may only be allowed a positive outlet provided the downstream impacts are addressed and the plan is approved by the Commission.
c. The local communities shall be responsible for removing deadfall in creek channels as appropriate provided that the deadfall is no longer attached to the land. For deadfall that remains attached to the land, it is the responsibility of the landowner to remove the deadfall. The Commission shall mediate deadfall removal issues as requested by the member communities.
d. Member cities shall adopt local controls and local stormwater management plans that are at least as stringent as the Commission Water Quantity goals and policies and the Commission Rules and Standards.
e. Crossings of watercourses for roads, driveways, or utilities must maintain the 100-year flow profile and hydraulic capacity and mimic 1- and 2-year conditions.
f. The Commission will, as necessary and requested, coordinate intercommunity stormwater runoff design and planning with the member communities.

Goal Area A. Water Quantity

Floodplain Actions:

a. The Commission adopts the current FEMA study as part of the Elm Creek floodplain for parts of Hassan (now Rogers) and Dayton that drain to the Crow and Mississippi Rivers. The Commission adopts the Elm Creek Watershed Study and its associated flood elevations.
b. The Commission requires a plan review by the local permitting authority for development or redevelopment if any part of the development is within or affects a 100-year floodplain
c. The Commission shall maintain Rules and Standards requiring development and redevelopment affecting the 100-year floodplain to meet Commission compensatory storage, low flow elevation, and timing requirements.
d. Member cities shall adopt a floodplain ordinance and any other required local controls, and local stormwater management plans that are at least as stringent as Commission Floodplain goals and policies and the Commission Rules and Standards.

4.3.2 Water Quality

The Elm Creek Watershed TMDL report and the Elm Creek Watershed WRAPS plan establish water quality improvement and protection goals for several lakes and the major streams in the watershed. The Third Generation goals for water quality are focused on making progress to improve the lakes and streams in the watershed as well as protect those that are not impaired waters. The goals are aggressive; some of them will require much dedication and effort and public and private resources to achieve. However, public input received for this Plan, the WRAPS, and other sources show that achieving a high standard of water quality is a priority for the public as well as required by state statute, and the Implementation Plan includes actions to help meet these goals.

Goal Area B. Water Quality

Goal B.1. Improve Total Phosphorus concentration in the impaired lakes by 10% over the 2004-2013 average by 2024.

Goal B.2. Maintain or improve water quality in the lakes and streams with no identified impairments.

Goal B.3. Conduct a TMDL/WRAPS progress review every five years following approval of the TMDLs and WRAPS study.

Goal B.4. Identify high priority areas where the Commission will partner with cities and other agencies to provide technical and financial assistance.

Water Quality Actions:

a. The Commission adopts as water quality goals the standards for Class 2b waters in the North Central Hardwood Forest ecoregion as set forth in Minn. Rules 7050.0222.
b. The Commission shall undertake a routine lake and stream monitoring program to assess progress toward meeting these goals.
c. The Commission shall maintain Rules and Standards requiring development and redevelopment meeting certain criteria to meet water quality requirements.
d. The Commission shall maintain Rules and Standards requiring development and redevelopment meeting certain criteria to meet erosion control requirements.
e. The Commission will develop and implement a program to provide technical and financial assistance to the member cities in identifying appropriate and cost-effective nutrient and sediment load-reducing Best Management Practices in priority areas.
f. The Commission shall contribute to the cost of TMDL capital implementation projects as established in the current Cost Share policy, under the authority provided by Minn. Stat. 103B.251 Section VIII, Subd. 5, to certify for payment by the county all or part of the cost of an approved capital improvement.
g. The Commission shall work in partnership with other organizations and agencies to pursue grant and other funding to implement improvement projects and feasibility studies.
h. The Commission shall update this Plan as necessary following TMDL/WRAPS progress reviews.

Goal Area B. Water Quality

i. Member cities shall adopt local controls and local stormwater management plans that are at least as stringent as Commission Water Quality goals and policies and the Commission Rules and Standards.

j. Member cities shall adopt a manure management ordinance using the Commission's model ordinance for guidance, or adopt other standards and practices that will accomplish the objective of reducing phosphorus loading from new livestock operations.

4.3.3 Groundwater

The Commission has undertaken limited groundwater management activities in the past, primarily by encouraging projects requiring project review to infiltrate a portion of runoff. Over the past decade cities that rely on groundwater for drinking water have worked with the Minnesota Department of Health to adopt wellhead protection plans and to implement policies and official controls to protect drinking water sources. In this Third Generation Plan, the Commission has adopted a new infiltration requirement for new development and redevelopment to promote groundwater recharge and reduce runoff.

Goal Area C. Groundwater

Goal C.1. Promote groundwater recharge by requiring abstraction/infiltration of runoff from new development and redevelopment.

Goal C.2. Protect groundwater quality by incorporating wellhead protection study results into development and redevelopment Rules and Standards.

Groundwater Actions:

a. The Commission shall maintain Rules and Standards requiring development and redevelopment meeting certain criteria to meet abstraction/infiltration requirements.
b. Member cities shall adopt local controls and local stormwater management plans that are at least as stringent as Commission Groundwater goals and policies and the Commission Rules and Standards.
c. The Commission will partner with the DNR, USGS, MDH, and other agencies to educate the member cities and watershed community officials about groundwater issues and their relation to stormwater management and surface water quality.
d. The Commission shall develop and maintain a map showing the wellhead protection zones within its boundaries upon completion of a local wellhead protection plan for use in determining vulnerable areas that should be exempted from infiltration.
e. The Commission will develop and implement a program to provide technical and financial assistance to the member cities in identifying appropriate and cost-effective abstraction/infiltration and groundwater recharge Best Management in priority areas to reduce stormwater runoff.

4.3.4 Wetlands

The Commission's primary tool for managing wetlands is the Wetland Conservation Act (WCA). The Commission serves as the Local Government Unit (LGU) for WCA administration in Champlin and Corcoran, and the other five member cities administer WCA themselves. The Commission requires submittal of a functions and values assessment using the latest version of MnRAM whenever an applicant proposes wetland impacts.

Goal Area D. Wetlands

Goal D.1. Preserve the existing functions and values of wetlands within the watershed.
Goal D.2. Promote wetland the enhancement or restoration of wetlands in the watershed.

Wetland Actions:

a. The Commission shall maintain Rules and Standards requiring development and redevelopment meeting certain criteria to provide buffers adjacent to wetlands, lakes, and streams.
b. Member cities shall adopt local controls and local stormwater management plans that are at least as stringent as Commission wetland goals and policies and the Commission Rules and Standards.
c. The Commission shall act as the Local Government Unit (LGU) for the Wetland Conservation Act for those communities that choose to so designate.
d. Developers must complete a wetland delineation by a wetland professional to identify the location and extent of any wetlands present within the development site.
e. For any development or redevelopment proposing impacts to any wetlands in the watershed, a functions and values assessment using the most recent version of the MnRAM protocol must be completed and submitted to the Commission and to the respective LGU.

4.3.5 Drainage Systems

Hennepin County retains ditch authority over several jurisdictional ditches in the watershed. The primary Third Generation activity related to drainage systems is to periodically review the advantages and disadvantages of ditch authority and if requested to reconsider jurisdiction.

Goal Area E. Drainage Systems

Goal E.1. Continue current Hennepin County jurisdiction over the county ditches in the watershed.

Drainage System Actions:

a. If requested, reconsider the jurisdiction over the county ditches in the watershed.

4.3.6 Operations and Programming

These goals guide the routine programs and operations of the Commission, and include the education and outreach program; maintenance of rules and standards; the annual monitoring program; and programs and activities to stay abreast of changing standards and requirements, search for grant and other funds to supplement the regular budget, and operate a capital improvement program and share in the cost of projects.

Goal Area F. Commission Operations and Programming

Goal F.1. Identify and operate within a sustainable funding level that is reasonable to member cities.

Goal F.2. Foster implementation of priority TMDL and other implementation projects by sharing in their cost and proactively seeking grant funds.

Goal F.3. Operate a public education and outreach program to supplement the NPDES Phase II education requirements for the member cities.

Goal F.4. Operate a monitoring program sufficient to characterize water quantity, water quality, and biotic integrity in the watersheds and to evaluate progress toward meeting goals.

Goal F.5. Maintain rules and standards for development and redevelopment that are consistent with local and regional TMDLs, federal guidelines, source water and wellhead protection requirements, nondegradation, and ecosystem management goals.

Goal F.6. Serve as a technical resource for member cities.

Operations and Programming Actions:

a. Annually review and adopt the budget and Capital Improvement Program.
b. Prepare and implement an annual monitoring plan and summarize the results in an annual report.
c. According to the schedules set forth in the WRAPS study, periodically evaluate progress toward meeting those water quality goals, and adjust the Implementation Plan as necessary to achieve progress.
d. Every five years or as necessary review the development rules and standards for adequacy and make revisions as necessary.

4.4 THIRD GENERATION IMPLEMENTATION PLAN AND CAPITAL IMPROVEMENT PROGRAM

To achieve the goals set forth above the Commission will operate a regulatory program, implement monitoring and education and outreach programs, and undertake capital improvement projects. The following sections summarize these programs, which are described in more detail in attached appendices. Following the descriptions,

Table 4.7 describes how the programs and projects in this Implementation Program address the Problems and Issues identified in the Gaps Analysis and subsequent public review and input and Table 4.4 details the Implementation Program and its estimated cost.

4.4.1 Rules and Standards and Project Reviews

In preparing this Third Generation Watershed Management Plan, the Commission developed modifications to its standards for new development and redevelopment, codifying them in a Rules and Standards document. The Commission chose to adopt those new standards in advance of this Plan, effective January 1, 2015. The modifications bring those standards closer to consistency with those of other jurisdictions and with state and other requirements, and provide additional nutrient and sediment load and runoff volume reductions as identified in the various TMDLs. The revised Rules and Standards are set forth in Appendix C.

Project Review Size Thresholds. The mandatory size threshold for application of water quality and water quantity standards had been either 5 or 8 acres for single-family detached projects, depending on density, and 1 acre for all other development types. Projects proposing impacts to wetlands or floodplains were also required to meet certain standards and be reviewed by the Commission. All single family residential projects that disturb more than one acre and all other non-single family residential land-disturbing projects regardless of size were required to submit erosion control plans for review.

The water quality and quantity review threshold for many other WMOs is one acre regardless of land use, with some even smaller, based on the amount of disturbed surface. During this planning process it was determined that the current review thresholds miss many smaller projects that could incorporate BMPs to provide pollutant load and volume reductions. The threshold of project size for application of Commission water quality and quantity rules and standards was lowered in the revised standards. That review threshold is now one acre, regardless of density of land use.

Member cities may now elect to take on project review responsibilities for all projects less than five acres by demonstrating that they have in place the necessary local ordinances, policies, practices, and expertise and executing a Memorandum of Understanding with the Commission. This MOU must provide for periodic performance reviews by the Commission, and a method to rescind this delegated authority should the member city be found out of compliance.

Infiltration. The standards adopted in the Second Generation Plan promoted but did not require infiltration of stormwater runoff. The new infiltration-from-net-new-impervious-surface requirement in the revised standards is 1.1 inches infiltrated within 48 hours. This is consistent with the MPCA's Minimal Impact Design Standards (MIDS) and the NPDES General and Construction Permits requirements of 1 inch, and with rules promulgated by other watershed management organizations. Where infiltration is not feasible, the revised rules require that runoff be filtered before discharge off the site. The rules include several credits toward meeting that infiltration volume requirement, including: disconnection of impervious surface; conservation of existing native vegetation; and the use of decompacted and amended soil as a BMP.

Rate Control. The standards adopted as a plan amendment to the Second Generation Plan required detention of a Channel Protection Volume to reduce the potential for erosive velocities in the streams in the watershed. Those standards were replaced in the revised standards with the new infiltration requirement.

Water Quality. The standards adopted in the Second Generation Plan required no net increase in pollutant loading from pre-development to post-development. As adopted in the revised standards, that requirement is now "the load reduction achieved by abstracting 1.1 inch from net new impervious or no net increase in TP or TSS, whichever is lower." From a practical standpoint, developers will need to calculate first, the loading from the pre-development condition, and second, the loading assuming the abstraction of 1.1 inch of impervious runoff from the post-development condition. The development must incorporate water quality BMPs to limit post-construction loading to the lesser of those two figures. Load reduction achieved by meeting the infiltration requirement can be applied toward meeting the water quality requirement.

Buffers. The Second Generation Plan required developers to provide a 50 foot buffer adjacent to Elm, Rush, North Fork Rush, and Diamond Creeks for any new or redevelopment, and encouraged property owners to provide a 20 foot buffer adjacent to wetlands, lakes, and streams. That requirement is revised in the new standards to require an average 50 foot, minimum 25 foot wide buffer adjacent to the aforementioned streams, and to require an average 25 foot, minimum 10 foot wide buffer adjacent to lakes, wetlands, PWI streams, and county ditches for any new development or redevelopment. This revised buffer requirement provides more flexibility in establishing the buffer while retaining the basic buffer functions.

4.4.2 2015-2024 Monitoring Program

The Third Generation Monitoring Program, which is set forth in more detail in Appendix D, has two organizing principles: continuation of routine flow and water quality monitoring Elm Creek and Sentinel Lakes, and rotating monitoring of other streams and lakes by the Commission and by volunteers.

The Third Generation Plan outlines a monitoring program for the next ten years. Each year the Commission will evaluate the proposed program and make modifications as necessary based on the most current data needs. The monitoring objectives guiding the Elm Creek monitoring program and the assessment of data are shown below.

MONITORING PROGRAM GOALS

1. To quantify the current status of streams and lakes throughout the watershed in comparison to state water quality standards.
2. To quantify changes over time, or trends, in stream and lake water quality in the watersheds.
3. To enhance the value of previous monitoring data by extending the period of record.
4. To track and quantify the effectiveness of implemented BMPs throughout the watersheds for the protection of water quality.
5. To evaluate progress toward meeting TMDL load reduction and other goals.

In general the components of the monitoring program include the following:

- Continuing routine flow and water quality monitoring on Elm Creek in partnership with the USGS.
- Periodic flow and water quality monitoring at additional upstream sites on Elm Creek (ECW and EC77); Rush Creek (RCSL); North Fork Rush Creek (RC116); and Diamond Creek (DCZ) on a rotating basis.
- Continuing the partnership with Hennepin County Environmental Services to obtain macroinvertebrate collections by volunteers each year through RiverWatch and the Stream Health Evaluation Program.
- Periodic macroinvertebrate collections on biotically-impaired streams to assess progress toward meeting those TMDLs, and periodic longitudinal dissolved oxygen surveys on those streams with a dissolved oxygen impairment. Annual monitoring of four "Sentinel Lakes:" Fish Lake, Rice Lake, Diamond Lake, and Weaver Lake. In the past this monitoring has been completed by the Three Rivers Park District under contract to the Commission.
- Continuation of the partnership with the Metropolitan Council to conduct lake surface water quality monitoring of other lakes by volunteers every two to three years through the Citizen Assisted Monitoring Program (CAMP).
- Each year Three Rivers Park District prepares a report on current water quality and trends, and reports water quality monitoring data to the state's EQuIS database.

The schedule and monitoring program set forth in Appendix D is intended to collect data sufficient to evaluate progress toward meeting TMDL goals, and is consistent with the recommendations in the draft Elm Creek Watershed TMDL.

4.4.3 2015-2024 Education and Outreach Program

Education and Public Outreach is a core function of the Elm Creek Watershed Management Organization. The Commission has conducted some education and outreach activities and has also collaborated with other organizations in Hennepin County as part of the West Metro Water Alliance (WMWA) and participated in Metro-wide education and outreach initiatives such as Blue Thumb, Watershed Partners and Northland NEMO.

This Third Generation Education and Public Outreach Program expands the Commission's education and outreach activities. The program is set forth in more detail in Appendix E. The following sections set forth the program goals and strategies.

WATERSHED EDUCATION AND PUBLIC OUTREACH PROGRAM GOALS

The goal of the Elm Creek Watershed Management Commission's Education and Outreach Program is to educate and engage everyone in the watershed by increasing awareness of water resources, and creating and supporting advocates willing to protect and preserve the resources in the watershed.

Implementation Strategies. Each year the Commission will evaluate the proposed Education and Outreach program and establish education and outreach activities for the coming year. The WRAPS study may identify additional goals and strategies to be pursued in the coming years. The

Commission will rely on the following and other strategies to implement the program and achieve the Plan's education and outreach goals:

- Participate with collaborative groups such as WMWA and Blue Thumb to pool resources to undertake activities in a cost-effective manner, promote interagency cooperation and collaboration, and promote consistency of messages.
- Use the Commission's, member cities', and educational partners' websites and newsletters, social media, co-ops, local newspapers and cable TV to share useful information to stakeholders on ways to improve water quality.
- Prominently display the Commission's logo on information and outreach items, project and interpretive signs, and other locations to increase visibility.
- Provide opportunities for the public to learn about and participate in water quality activities.
- Provide education opportunities for elected and appointed officials and other decision makers.
- Enhance education opportunities for youth.

2015-2017 Priority Areas for Education and Outreach. The following are the priority areas by stakeholder group for the first few years of the Third Generation Plan:

1. All stakeholders: use multiple strategies to deliver simple messages: "where does our water go" and "why do we manage water quality."
2. Homeowners: Disseminate education materials to all stakeholders about actions they can take to protect and improve water quality. Targeted messages:
    a. Redirect your runoff onto pervious areas.
    b. Clean up after your pets.
    c. Keep organic matter (leaves, grass clippings, seeds, etc.) out of streets, ditches, lakefronts, and storm sewers.
    d. Reduce chemical and salt use.
3. Lakeshore property owners: sponsor workshops on basics of limnology, learning about AIS, and how to undertake lakescaping.
4. Elected officials and city staff: Sponsor watershed and water resources training opportunities such as NEMO (Nonpoint Education for Municipal Officials) for the city councils and planning commissions in the member cities. Develop a mechanism to share information about BMPs between the cities and with developers.
5. Students: expand the Watershed PREP program to all elementary schools in the watershed, and begin developing a companion program for older students.
6. Agricultural producers and hobbyists: identify and work with influential persons to spread the water quality and BMP message. Undertake a demonstration project with a co-op.

4.4.4 TMDL/WRAPS Implementation

The TMDL report and WRAPS study identified very significant TP, TSS, and *E. coli* annual load reductions from watershed runoff that are summarized in Section 4.1.2 above. Implementation in the coming years will rely on three key strategies: regulation, targeted load reductions, and agricultural outreach.

Regulation. A key TMDL/WRAPS implementation strategy to reduce nutrient and sediment loading to the lakes and streams in the watershed is to maximize load and volume reductions at the time of land use change. City Comprehensive Plans indicate that about 40 percent of the area of the Elm Creek hydrologic watershed is expected to change land use by 2030. In the Crow River hydrologic watershed, 60 percent of the Cowley Lake drainage area and 79 percent of the Sylvan Lake drainage area is expected to be converted.

An assessment of the impact of potential rule changes such as an infiltration requirement was completed as part of the development of this Plan (Wenck 2013). This assessment started with estimating the change in runoff volume and nutrient loads when agricultural or undeveloped lands are converted to various types of developed uses. The change in volume and loading was then estimated assuming 1.1 inches of infiltration based on the MPCA's Minimal Impact Design Standards (MIDS). This analysis found that when hayland, cropland, pasture, and grassland land covers are converted to various types of developed land uses, infiltrating or filtering the first 1.1" of runoff on average results in a net *reduction* of unit area TP load. Only when converting woodland would the area loading rate be expected to increase (Wenck 2013).

Implementing more rigorous development and redevelopment standards, including an infiltration requirement, should over time reduce watershed loads, improving water quality in impaired waters and preventing degradation in waters that currently meet water quality standards. Recognizing the value of this regulatory tool, the Commission elected to adopt these more stringent standards in advance of the Plan and the TMDL/WRAPS, effective January 1, 2015.

Targeted Load Reductions. The Commission will partner with member cities and to undertake subwatershed assessments to identify potential retrofit BMPs. The watershed modeling completed for the TMDL/WRAPS identified subwatersheds where nutrient and sediment loading potentially occurs at higher rates than average. Detailed, subwatershed assessments and modeling will systematically focus load reduction efforts to areas where even small actions such as retrofitting existing ponds with iron-enhanced filter benches, mitigating stream erosion, enhancing stream buffers, improving individual site manure management, or adding new bioinfiltration basins are most cost-effective.

Figure 4.1 shows the estimated TP loading rate (left figure) and annual load (right figure) as modeled for the Elm Creek TMDL/WRAPS. The subwatersheds in darker blues and reds, which are generally the headwaters of Rush Creek and North Fork Rush Creek have the potential to contribute higher amounts of TP to those impaired waters, and monitoring data confirms that exceedances of the state water quality standards are most severe in the upper watershed. The Commission will prioritize those areas for subwatershed assessment in the first five years of Plan implementation.

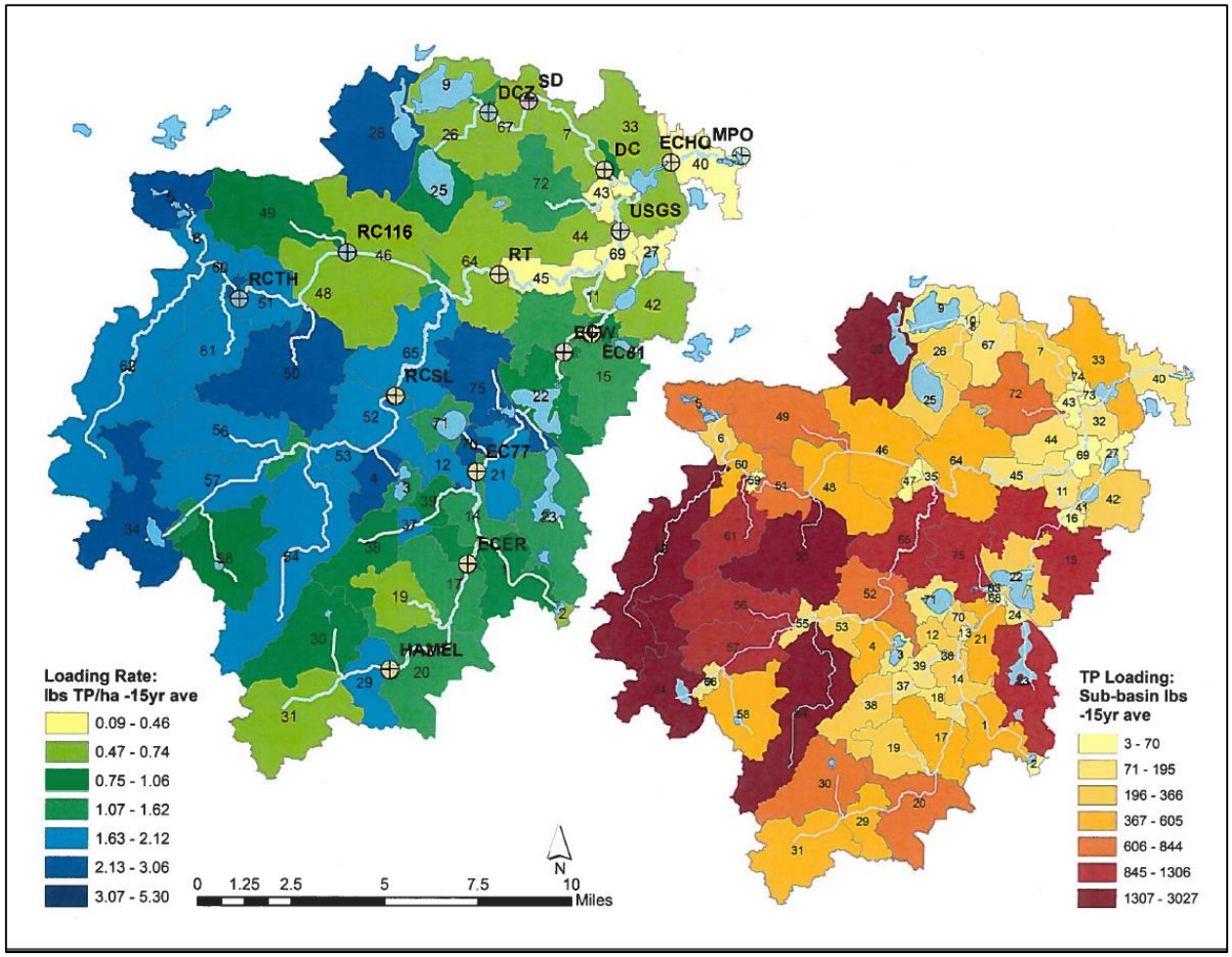

Figure 4.1. Modeled TP loading by subwatershed.
Source: Elm Creek TMDL.

Agricultural Outreach. There are significant agricultural operations in the watershed, ranging from row crop production to horse hobby farms. The TMDL/WRAPS identified sources of agricultural loading, not only nutrients and sediment but also sources of bacteria. The Commission will periodically convene an agricultural TAC comprised of federal, state, and local specialists from U of M Extension, Minnesota Department of Agriculture, BWSR, Hennepin County, and other interested parties to craft partnerships in specialized education and other programs and BMPs such as targeted fertilizer application, erosion and sediment control, and manure management. This TAC will also advise the Commission as it completes subwatershed assessments in the agricultural parts of the watershed. The TAC will help identify appropriate implementation actions, and focus their technical expertise and resources on high-loading locations in subwatersheds of focus.

The TMDL identifies eight general strategies for the achievement of the TMDL load reduction goals. Table 4.3 shows how those strategies have been incorporated into this Plan.

Table 4.3. Actions in this Plan addressing Elm Creek Watershed TMDL implementation strategies.

Strategy	Actions in 3rd Generation Plan
Maintain stringent stormwater mitigation standards to maximize load reductions during development and redevelopment.	More stringent standards, including a new infiltration requirement, were adopted effective January 1, 2015, and are included in Appendix C.

Strategy	Actions in 3rd Generation Plan
Adopt new standards governing siting and management of new non-production livestock operations.	This Plan requires member cities to develop and enforce such an ordinance, using the City of Medina's ordinance as a guide.
Increase outreach to existing agricultural operations to identify and implement projects and target existing and new agricultural management resources.	The general operating budget includes funding to enhance education and outreach programs. The Commission will prioritize areas of the watershed and will partner with other agencies and organizations to target outreach.
Prioritize areas for the completion of subwatershed assessments to systematically identify and prioritize loading and volume management BMPs and other management practices.	The general operating budget includes funding to cost-share completion of subwatershed assessments. The Commission will use the monitoring and modeling completed for the TMDL to prioritize areas for assessments, and will convene a TAC of agency representatives specializing in ag BMPs and other interested parties to focus outreach and resources in agricultural areas.
Incorporate BMPs into road and highway projects, and other public projects as opportunities arise.	The Plan requires member cities to demonstrate how they will meet the load reductions in the TMDL, including identifying known upcoming projects such as street or highway reconstruction projects that will provide opportunities to include load and volume reduction BMPs.
Identify areas where increased infiltration would most beneficially enhance stream baseflow, and implement projects.	The Commission will use the monitoring and modeling completed for the TMDL and partner with the DNR, USGS, and other agencies to identify priority infiltration areas.
Incorporate habitat enhancements into stream stabilization and other projects.	The Commission will provide review and guidance to member cities to incorporate habitat enhancements on all projects impacting the streams in the watershed, and other projects that will protect and improve biotic integrity in the watershed's natural resources.

4.4.5 Capital Improvement Projects

The Commission's Joint Powers Agreement authorizes the Commission to undertake capital improvement projects. Those projects may be funded entirely by a member city, by the benefitting cities with the shares determined as set forth in the JPA or as agreed to by those cities, or by certifying for payment by the county all or any part of the cost of the capital improvement as set forth in Minn. Stat. 103B.251.

Capital projects that have been identified for inclusion in the Commission's Capital Improvement Program will be funded in accordance with the Commission's most current Capital Improvement Program Cost Share Policy. The Commission will actively pursue grant funding to supplement member city and cost-share funds for high priority projects.

This CIP will be amended from time to time as necessary to incorporate new projects, provide more detail for the "Other Projects" placeholder projects, and to provide specificity for the period 2020-2024.

Table 4.4. Elm Creek Third Generation Plan Implementation Plan estimated cost.

	2014 Approved	2015 Approved	2016	2017	2018	2019	2020	2021	2022	2023	2024
GENERAL OPERATING BUDGET											
Expenses											
Administrative	90,000	89,000	90,780	92,600	94,450	96,340	98,270	100,240	102,240	104,280	106,370
Watershed-wide TMDL Admin	8,000										
Grant Writing		5,000	5,100	5,200	5,300	5,410	5,520	5,630	5,740	5,850	5,970
Website	4,000	5,000	5,100	5,200	5,300	5,410	5,520	5,630	5,740	5,850	5,970
Legal Services	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Audit	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Insurance	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Miscellaneous	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Subtotal	***113,500***	***110,500***	***112,480***	***114,500***	***116,550***	***118,660***	***120,810***	***123,000***	***125,220***	***127,480***	***129,810***
Project Reviews											
Technical HCEED	72,000	77,500	79,050	80,630	82,240	83,880	85,560	87,270	89,020	90,800	92,620
Technical Support Consultant	3,000	3,000	3,060	3,120	3,180	3,240	3,300	3,370	3,440	3,510	3,580
Admin Support	8,000	8,000	8,160	8,320	8,490	8,660	8,830	9,010	9,190	9,370	9,560
Subtotal	***83,000***	***88,500***	***90,270***	***92,070***	***93,910***	***95,780***	***97,690***	***99,650***	***101,650***	***103,680***	***105,760***
Wetland Conservation Act											
WCA Expense HCEED	8,000	12,500	12,750	13,010	13,270	13,540	13,810	14,090	14,370	14,660	14,950
WCA Expense Legal	500	500	500	500	500	500	500	500	500	500	500
WCA Expense Admin	3,000	2,000	3,100	3,100	3,100	3,250	3,250	3,250	3,250	3,250	3,250
Subtotal	***11,500***	***15,000***	***16,350***	***16,610***	***16,870***	***17,290***	***17,560***	***17,840***	***18,120***	***18,410***	***18,700***
Monitoring											
Stream Monitoring											
Stream Monitoring USGS	21,000	21,700	22,000	22,000	22,000	22,000	22,000	22,500	22,500	22,500	22,500
Stream Monitoring TRPD		7,000	7,140	7,280	7,430	7,580	7,730	7,880	8,040	8,200	8,360
Macroinvertebrate: River Watch	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Gauging Station Elec Bill	190	190	190	190	190	190	190	190	190	190	190
Rain Gauge Network	100	100	100	100	100	100	100	100	100	100	100
Lake Monitoring											
Lake Monitoring CAMP	1,750	1,650	1,650	1,100	1,650	1,100	1,650	1,100	1,100	1,650	1,650
Lake Monitoring TRPD	3,600	4,240	4,410	4,120	4,590	4,680	4,370	4,870	4,970	5,070	5,930
Wetland Monitoring WHEP	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Stream Health SHEP	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Subtotal	***42,640***	***50,880***	***51,490***	***50,790***	***51,960***	***51,650***	***52,040***	***52,640***	***52,900***	***53,710***	***54,730***
Education											
Education City/Citizen Programs	5,000	5,500	6,000	6,500	6,500	7,000	7,000	8,000	8,000	8,000	8,000
WMWA General Admin	3,750	4,000	4,080	4,160	4,240	4,320	4,410	4,500	4,590	4,680	4,770
WMWA Implementation Activities	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Rain Garden Workshops	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000

	2014 Approved	2015 Approved	2016	2017	2018	2019	2020	2021	2022	2023	2024
Education Grants	3,000	3,0 00	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Ag Specialist	5,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Subtotal	***25,750***	***23,500***	***24,080***	***24,660***	***24,740***	***25,320***	***25,410***	***26,500***	***26,590***	***26,680***	***26,770***
Special Projects											
Special Projects General	0	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
BMP Implementation Program	0	0	0	0	0	0	0	0	0	0	0
South Metro Miss TMDL	0	0	0	0	0	0	0	0	0	0	0
Upper Miss Bacteria TMDL	0	2,000	0	0	0	0	0	0	0	0	0
CIPs/Studies/Project Identification	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Subtotal	***13,500***	***37,000***	***35,000***	***35,000***	***35,000***	***35,000***	***35,000***	***35,000***	***35,000***	***35,000***	***35,000***
Contingency	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Subtotal	***3,000***	***3,000***	***3,000***	***3,000***	***3,000***	***3,000***	***3,000***	***3,000***	***3,000***	***3,000***	***3,000***
Total Operating Expense	***$289,390***	***$328,380***	***$332,670***	***$336,630***	***$342,030***	***$346,700***	***$351,510***	***$357,630***	***$362,480***	***$367,960***	***$373,770***
Project Review Fees	52,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000
Water Monitoring TRPD Coop Agreement	5,500	5,500	5,610	5,720	5,830	5,950	6,070	6,190	6,310	6,440	6,570
WCA Fees	1,500	4,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Membership Dues	203,000	209,000	215,360	221,820	228,470	235,320	242,380	249,650	257,140	264,850	272,800
Interest Income	100	100	100	100	100	100	100	100	100	100	100
From (To) Cash Reserves	27,290	29,190	30,100	27,490	26,130	23,830	21,460	20,190	17,430	15,070	12,800
Total Operating Revenue	***$289,390***	***$328,380***	***$332,670***	***$336,630***	***$342,030***	***$346,700***	***$351,510***	***$357,630***	***$362,480***	***$367,960***	***$373,770***

	2014 Approved	2015 Approved	2016	2017	2018	2019	2020	2021	2022	2023	2024
Membership Dues	$209,000	$215,360	$221,820	$228,470	$235,320	$242,380	$249,650	$257,140	$264,850	$272,800	$209,000
Per Capita	$2.23	$2.30	$2.37	$2.44	$2.51	$2.59	$2.66	$2.74	$2.83	$2.91	$2.23
Per $100,000 market value	$2.30	$2.37	$2.44	$2.52	$2.59	$2.67	$2.75	$2.83	$2.92	$3.01	$2.30
% Increase	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Dollar Increase	$6,000	$6,360	$6,460	$6,650	$6,850	$7,060	$7,270	$7,490	$7,710	$7,950	$6,000
Increase per Capita	$0.06	$0.07	$0.07	$0.07	$0.07	$0.08	$0.08	$0.08	$0.08	$0.08	$0.06
Increase per $100,000 Market Value	$0.07	$0.07	$0.07	$0.07	$0.08	$0.08	$0.08	$0.08	$0.08	$0.09	$0.07
Contribution from Reserves		29,190	30,100	27,490	26,130	23,830	21,460	20,190	17,430	15,070	12,800
Reserves End of Year Cash Balance (est)	$282,685	$253,495	$223,395	$195,905	$169,775	$145,945	$124,485	$104,295	$86,865	$71,795	$58,995

2010 Estimated Population: 93,700
2013 Estimated Market Value: $9,072,723,913

Table 4.5. Elm Creek Third Generation Plan Capital Improvement Program.
See Appendix G for project descriptions.

Description	Location	Priority	Estimated Project Cost	Partners	Funding Source(s)	Estimated Commission Cost					
						2015	2016	2017	2018	2019	2020-2024
Special Studies											
TMDL implementation special study	Watershed	H	50,000	Cities, HCEED	Operating budget	0	25,000	25,0000	25,000	25,000	125,000
Stream segment prioritization	Watershed	H	10,000	Cities, HCEED, TRPD	Operating budget	10,000	0	0	0	10,000	0
High Priority Stream Restoration Projects				Cities, TRPD	Cities, TRPD, county levy, grants						
Elm Cr Reach E	Plymouth	H	1,086,000			250,000	0	0	0	0	0
Fox Cr, Creekview	Rogers	H	150,000			0	37,500	0	0	0	0
Mississippi Point Park Riverbank Repair	Champlin	M	300,000			0	75,000	0	0	0	0
Elm Creek Dam	Champlin	H	7,001,220			0	187,500	0	0	0	0
Tree Thinning and Bank Stabilization Project	Watershed	H	50,000			0	50,000	0	50,000	50,000	250,000
Fox Cr, Hyacinth	Rogers	M	360,000			0	0	90,000	0	0	0
Fox Cr, South Pointe, Rogers	Rogers	M	90,000			0	0	22,500	0	0	0
Other High Priority Stream Project	Watershed	H	500,000			0	0	0	125,000	125,000	250,000
High Priority Wetland Improvements				Cities	Cities, commission						
DNR #27-0437	Maple Grove	L	75,000			0	0	0	0	0	18,750
Stone's Throw Wetland	Corcoran	M	450,000			0	0	112,500	0	0	0
Other High Priority Wetland Projects	Watershed	L	100,000			0	0	0	0	0	25,000
Lake TMDL Implementation Projects				Cities, lake assns.	Cities, Commission, grants, owners						
Mill Pond Fishery and Habitat Restoration	Champlin	H	5,000,000			0	0	250,000	0	0	0
Other Priority Lake Internal Load Projects	Watershed	M	100,000			0	0	0	0	0	25,000
Urban BMPs				Cities, HCEED	Cities, commission						
Stonebridge	Maple Gr	M	200,000			0	50,000	0	0	0	0
Rain Garden at Independence Avenue	Champlin	L	300,000			0	75,000	0	0	0	0
Mill Pond Rain Gardens	Champlin	M	400,000			0	0	100,000	0	0	0
Other Priority Urban BMP Projects	Watershed	L	200,000			0	0	0	0	0	50,000
Other											
Livestock Exclusion, Buffer & Stabilized Access	Watershed	M	50,000	Cities, owners, Extension, NRCS	Cities, owners, commission, NRCS	0	0	0	50,000	0	50,000
Agricultural BMPs Cost Share	Watershed	H	50,000	Cities, owners, Extension, NRCS	Cities, owners, commission, NRCS	0	50,000	50,000	0	50,000	100,000
Hydrologic & Hydraulic Modeling	Watershed	L	25,000	HCEED	Commission	0	0	0	25,000	0	0
Fourth Generation Plan	Watershed	H	70,000		Commission	0	0	0	0	0	$70,000
TOTAL			**$16,617,220**			**$260,000**	**$550,000**	**$875,000**	**$275,000**	**$260,000**	**$963,750**

Note: Plan amendment(s) will be required to provide more detail for the 2020-2024 period, and for the projects titled "Other Projects."

4.4.6 Commission Self-Assessment

A periodic robust and frank self-assessment is necessary to ensure that organizations stay on track to achieve goals. During this Third Generation Plan, the Commission will annually review progress towards goals. This self-assessment will use a matrix such as Table 4.6 below to systematically review and evaluate progress towards goals. This matrix will also be used to set each year's work plan as well as provide a "heads up" to member cities about future years' needs. This self-assessment will become part of the Commission's Annual Report.

Table 4.6. Conceptual self-assessment matrix.

Goal	Actions Taken this Past Year	Actions Taken to Date	Additional Actions to Achieve Goal	Schedule, Responsible Party(ies), Cost and Funding
Goal 1	*To be completed annually*	*To be completed annually*	*To be completed annually*	*To be completed annually*
Goal 2	*To be completed annually*	*To be completed annually*	*To be completed annually*	*To be completed annually*
…	…	…	…	…

4.4.7 Addressing Identified Problems and Issues

As noted above, this planning process revealed a number of problems and issues to be considered in this Third Generation Watershed Management Plan. Table 4.7 below repeats the problems and issues set forth in Table 4.1, and describes how each were addressed in this Implementation Plan.

Table 4.7. Actions in this Plan addressing the identified problems and issues.

#	Problem or Issue	Actions in 3rd Generation Plan
Water Quality		
1.1	Numerous impairments on the primary streams and several lakes.	Expanded monitoring program to track the impacts of BMPs. Continued the capital projects cost-share policy. Added a line item in the cost estimate to fund the development of grant applications.
1.2	Land is transitioning from lightly-developed and agriculture to more densely developed land uses at higher imperviousness.	Revised the development rules and standards to increase required load reductions and added an abstraction/infiltration requirement.
1.3	Erosion and sedimentation issues continue on Elm Creek and the other streams and conveyances in the watershed.	The CIP includes high-priority stream restoration projects. Revised the development rules and standards to increase required load reductions and added an abstraction/infiltration requirement.

Table 4.7 Actions in this Plan addressing the identified problems and issues (continued)

#	Problem or Issue	Actions in 3rd Generation Plan
Agricultural Impacts on Water Quality		
2.1	Need to increase the number and distribution of agricultural BMPs in the watershed.	Modeling completed for the WRAPS identified high-loading areas where BMPs would be most cost effective. This may help assure producers what they are being asked to do will make a difference.
2.2	Need to develop an effective mechanism to achieve voluntary adoption of BMPs	The Commission has identified key stakeholder actions and messages and will work with other ag –interested agencies as a Technical Advisory Committee (TAC) to focus technical resources and financial incentives.
2.3	Need more effective outreach to agricultural operators and hobbyists.	See above.
Funding Needs		
3.1	Additional funding is necessary to take on the actions identified in the Channel Study and WRAPS implementation study.	Continued the capital projects cost-share policy. Added a line item in the cost estimate to fund the development of grant applications.
3. 2	Identify a sustainable funding level and sources that minimize impacts to city levies.	The cost estimate in this Plan assumes no more than a 3 percent annual increase in member assessments.
Other Issues		
4.1	Need to expand activities for education and outreach to increase knowledge about water resources issues and create behavioral change.	The Education and Outreach Plan identifies key message for stakeholder groups. The commission will continue to partner with collaborative groups such as WMWA to increase the scope and delivery of educational messages.
4.2	The Commission should be realistic about its Capital Improvement Program.	The Commissioners have prioritized capital projects to include on the CIP only those that could be feasibly completed in 2015-2024.
4.3	All the member cities need to be involved in watershed management.	Following adoption of the Plan, the Commission will consider requesting the TAC to meet semi-regularly to enhance information sharing and collaboration.
4.4	There are too many agencies involved in water management, and nothing gets done.	See above.

4.5 IMPACT ON LOCAL GOVERNMENTS

Following approval and adoption of the Elm Creek Third Generation Watershed Management Plan pursuant to Minnesota Statutes 103B, governmental units having land use planning and regulatory responsibility are required by statute to prepare or amend their local water management plans. Local plan content is driven primarily by Minnesota Rules 8410 and must include a capital improvement program and implementation plan to bring the local water management plan into conformance with the Commission's Plan. The local water management plans must be submitted to the Commission and the Metropolitan Council within two years after approval of the Watershed Management Plan by the Board of Water and Soil Resources (BWSR).

4.5.1 Local Plan Content

Local water management plans adopted by member cities pursuant to Minnesota Statutes, Section 103B.235 shall be consistent with the Third Generation Watershed Management Plan. Local plans must comply with Minnesota Statutes, Section 103B.235 and Minnesota Rules 8410 regarding local plan content. The Commission strongly encourages communities to develop the scope of their local plan with assistance from the Commission. At a minimum, local water management plans are required to do the following:

- Update the existing and proposed physical environment and land use. Information from previous plans that has not changed may be referenced and summarized but does not have to be repeated. Local plans may adopt sections of this Plan's Inventory and Condition Assessment by reference unless the city has more recent information, such as revised figures and data.
- Explain how the goals and policies, and rules and standards in this Plan will be implemented at the local level, including any necessary modifications of local ordinances, policies, and practices and specifically addressing adoption and enforcement of a manure management ordinance.
- Show how the member city will take action to achieve the load reductions and other actions identified in and agreed to in TMDL Implementation Plans and the WRAPS study, including identifying known upcoming projects including street or highway reconstruction projects that will provide opportunities to include load and volume reduction BMPs.
- Show how the member city will, through an executed and recorded maintenance and inspection agreement, inspect or cause to be inspected and documented at least every five years privately owned permanent BMPs installed to meet the goals and policies, rules and standards of this Plan, and the actions the member city will take to assure that the BMPs are maintained and operated as designed.
- Update existing or potential water resource related problems and identify nonstructural, programmatic, and structural solutions, including those program elements detailed in Minnesota Rules 8410.0100, Subp. 1 through 6.
- Summarize the estimated cost of implementation and analyze the member city's ability to finance the recommended actions.
- Set forth an implementation program including a description of adoption or amendment of official controls and local policies necessary to implement the Rules and Standards; programs; policies; and a capital improvement plan.

4.5.2 Local Plan Review

Each member city shall submit its proposed local water management plan to the Commission and the Metropolitan Council for review before adoption by its governing body. The Metropolitan Council review period is 45 days and the Commission review period is 60 days after plan receipt.

The Commission recognizes that the member cities differ in land use, level of development, and capacity. As such, the level of detail required in local plans will also vary. In addition, member cities have land in multiple watersheds, and those WMOs are on differing management plan update schedules. The Commission will consider approval of phased planning efforts provided the Commission is notified of the phased approach prior to the start of planning activity.

4.5.3 Project Review Authority Delegation

Member cities may request that the Elm Creek Commission delegate its authority to conduct certain project reviews to the member city by a Memorandum of Understanding (MOU). To be so considered, the member city must have enacted local ordinances, policies, and practices at least as stringent as the Commission's; must have the resources and technical capacity to undertake these reviews; and must annually report to the Commission the numbers and types of reviews completed. The Commission will periodically audit the member city's project reviews, and will reserve the right to rescind its delegated authority if the city is not consistently operating under the terms of the MOU. Development and redevelopment projects that impact wetlands, floodplains, or watercourses must continue to be reviewed by the Commission.

4.5.4 Financial Impact

For the purpose of estimating future operating costs, this Plan limits the annual increase in member city assessments to 3 percent, with the difference between the proposed budget in a given year and the estimated revenue taken from the Commission's fund balance. Table 4.4 above shows the estimated member dues and the cost of Commission operations per capita and per $100,000 of market value. This table does not include the cost of capital improvement projects.

The JPA contains a provision allowing member cities to request Commission review of proposed budget increases prior to accepting an annual budget. The largest municipal cost is likely to be the result of local water planning efforts mandated by the State of Minnesota through the NPDES MS4 permit, and updating local plans. Costs to revise the in-place local plan will range from minimal to $40,000 depending on the level of activity anticipated by the community.

4.6 PLAN REVIEW, UPDATE AND REVISION

This Watershed Management Plan provides direction for the Elm Creek Watershed Management Commission activities through the year 2025. The Commission may initiate amendments to the Plan at any time. The Commission intends that the Plan provide a flexible framework for managing the watershed.

The Commission will annually review the Implementation Plan and Capital Improvements Program (CIP), and revisions to the IP and CIP may require future minor or major plan amendments. The CIP details projects for the first five years and provides a summary of potential 2020-2024 projects. Future plan amendments may be necessary to amend the CIP or the Implementation Plan based on new project opportunities, TMDL or regulatory requirements, policies, or standard practices.

4.6.1 Amendment Procedures

All amendments to the Plan except minor amendments shall adhere to the full review and process set forth in Minnesota Statutes 103B.231, and this section. The Commission shall adopt proposed major plan amendments upon their approval by the Board of Water and Soil Resources (BWSR) in accordance with Minnesota Statutes 103B.231.

The amendment procedure for minor plan amendments shall be in accordance with Minnesota Rules 8410.0140 as such rules now exist or as subsequently amended.

Neither a minor nor a major plan amendment will be required for the following situations:

1. If projects included in the approved CIP are implemented in a different year than shown.
2. When a capital project is included in the approved Capital Improvement Program and the Commission's share of an updated cost estimate does not exceed 125 percent of the Commission's share shown on the CIP, as adjusted by the Construction Cost Index as published by the Engineering News Record.
3. When a capital project is included in the approved CIP and the Commission's share of an updated cost estimate is less than the Commission's share shown on the CIP, as adjusted by the Construction Cost Index as published by the Engineering News Record. However, the Commission will review such projects to evaluate the extent to which the original project objectives are being met.

4.6.2 Form of the Amendment

Unless the entire document is reprinted, all amendments adopted by the Commission must be in the form of replacement pages for the Plan, each page of which must conform to the following:

1. On draft amendments being considered, show deleted text as stricken and new text underlined.
2. Be renumbered as appropriate.
3. Include the effective date of the amendment.