Elm Creek Watershed Management Commission

2005 Annual Report

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for the Elm Creek Watershed Management Commission
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Elm Creek Watershed Management Commission

The Elm Creek Watershed Management Commission was established to protect and manage the natural resources of the Elm Creek watershed. Its current members are the cities of Champlin, Corcoran, Dayton, Maple Grove, Medina, Plymouth, and Rogers, and the Township of Hassan.

History

The Commission was formed in 1973 as a joint powers organization by the cities of Champlin, Corcoran, Dayton, Maple Grove, Medina, and Plymouth, and the Hennepin Conservation District, under the authority conferred to the member parties through Minnesota Statutes Sections 471.59 and 103B.211.

In 1981 the Town of Hassan entered the agreement. The cities of Greenfield and Rogers, each with only small areas within the watershed, became non-voting, non-paying members of the Commission in 1982. In 2000, the City of Corcoran withdrew from the Pioneer-Sarah Creek Commission in order to include all of its area under the Elm Creek Commission. Likewise, Greenfield voted in 2001 to withdraw from the Elm Creek Commission and to include all its area in the Pioneer-Sarah Creek Watershed Management Commission. Rogers became a full member of the Commission in 2000.

In 2003, the Hennepin County Board of Commissioners authorized the establishment of conservation services under County auspices. Effective in June 2003, the Hennepin County Department of Environmental Services (HCDES) began providing technical services to the Elm Creek Watershed Management Commission. These services include conservation engineering services related to hydrology and hydraulic analyses, the review of site development plans, and technical assistance regarding best management practices (BMPs) for stormwater management, erosion control and the protection of water quality. This necessitated an amendment to the Joint Powers Agreement (JPA) since, prior to that time, technical services were provided by the Hennepin County Conservation District, a party of the original JPA.

The Watershed

The Elm Creek Watershed covers approximately 130.68 square miles and lies wholly within the north central part of Hennepin County, Minnesota. The Crow and Mississippi Rivers demarcate the northern boundary. Although some areas in the north drain to the Crow and Mississippi Rivers, they are within the legal boundaries of the Elm Creek watershed.

There are four major tributaries in the watershed -- the North Fork of Rush Creek starts in Corcoran and flows through Hassan, Dayton and Maple Grove; the South Fork of Rush Creek also originates in Corcoran and flows into Maple Grove; Diamond Creek originates in Dayton and flows into Hayden Lake at the Dayton-Champlin border, and the main stem begins in Medina and flows through Plymouth, Maple Grove, Dayton and Champlin, where it discharges to the Mississippi River.

Table 1: Area of Members within Watershed

Local Government Unit	Area Within Watershed (Square Miles)	Percent of Watershed
Champlin	3.08	2%
Corcoran	36.09	28%
Dayton	25.06	19%
Hassan	19.96	15%
Maple Grove	26.37	20%
Medina	9.35	7%
Plymouth	4.45	3%
Rogers	6.31	5%

The Commission

A Board of Commissioners was established as the governing body of the Elm Creek Watershed Management Commission. The Board is comprised of representatives appointed by the member

communities. *Appendix 1* shows the names of the Commissioners appointed to serve in 2005 and the Commission's administrative, legal and technical support staff. The Commission has no employees.

The Commissioners meet monthly on the second Wednesday at 11:30 a.m. at Maple Grove City Hall, 12800 Arbor Lakes Parkway. These meetings are open to the public and visitors are welcome. Meeting notices, agendas and approved minutes are posted on the Commission's website, www.elmcreekwatershed.org.

The duties of the Commissioners include:

1. Preparing and adopting a watershed management plan meeting the requirements of MN Rules Chapter 8410.
2. Reviewing and approving local water management plans as defined in Chapter 8410.
3. Exercising the authority of a Watershed Management Organization under MN Statutes Chapter 103B to regulate the use and development of land when
   a. a local water management plan has not been approved and adopted, or
   b. a local permit requires an amendment to or variance from the local water management plan, or
   c. the Commission has been authorized by the local government to require permits for land use.
4. Exercising authority when the local government is not enforcing the policies of the Commission.

As noted above, a primary responsibility of the Commission is to prepare and adopt a watershed management plan that meets the requirements of MN Rules Chapter 8410. The purpose of the Elm Creek Watershed Management Plan is to:

1. Protect, preserve, and manage surface water and groundwater resources;
2. Minimize property damages and economic losses through water resource management;
3. Manage public expenditures needed to study, control, and/or correct flooding and water quality problems;
4. Educate and inform the public on pertinent water resource management issues and increase public participation in water management activities;

5. Identify and plan for means to effectively protect and improve surface and groundwater quality;
6. Establish more uniform local policies and official controls for surface and groundwater management;
7. Reduce erosion of soil into surface water systems;
8. Promote groundwater recharge;
9. Protect and enhance fish and wildlife habitat and water recreational facilities;
10. Reduce and control stream degradation through land protection measures, runoff restrictions, and pollutant restrictions.

According to the Metropolitan Surface Water Management Act, the Plan must:

1. Provide a land and water resource inventory;
2. Present information on the hydrologic system and its components, including any drainage system previously constructed under MN Statutes Chapter 106 (the Public Ditch Laws), and existing and potential problems;
3. State goals and policies, including management principles, alternatives and modifications, water quality, and protection of natural characteristics;
4. Develop a management plan, including the hydrologic and water quality conditions that will be sought and the significant opportunities for improvement;
5. Describe conflicts between the watershed plan and existing plans of local government units;
6. Write an implementation program that is consistent with the management plan and which includes a capital improvement program, as well as standards and schedules for amending the comprehensive plans and official controls of local government units in the watershed to bring about conformance with this watershed plan.

Second Generation Plan

In 2000 the Elm Creek Watershed Management Commission and the Pioneer-Sarah Creek Watershed Management Commission, working cooperatively with WSB & Associates, began developing their *second generation* watershed management plans. Meetings were held with citizens of both watersheds, the Commissions' Technical Advisory Committees (TACs), and representatives

from various state agencies to discuss water resource issues and to review and develop policies, standards and rules. Input from these meetings was used to create a draft plan that was presented at a public hearing in October 2002 where oral and written comments were received.

In May 2004 the City of Rogers became the final signatory to the Commission's amended and restated Joint Powers Agreement, signaling the onset of the Board of Water and Soil Resources' 60-day final review period. BWSR approved the *Elm Creek Watershed Management Commission Comprehensive Watershed Management Plan* on October 27, 2004. The Commission adopted the plan on December 8, 2004.

Every member community must prepare and adopt their own water management plans. Local plans must comply with MN Statutes, Sec. 103B.235 and MN Rules 8410.0160 and 8410.0170 regarding local plan content and the requirements of the Commission's Watershed Management Plan. Under the statutes, member cities are required to revise their plans to conform with the Commission's Plan within two years of Commission plan adoption. Communities should also include any information that is important to their own water resources planning in their updated plans. The status of member communities' regulatory programs is found in *Appendix 2.* The members are currently being asked to update this information.

Project Reviews

Land use within the Elm Creek watershed has been influenced by agricultural activities, rural residential, and higher density development pressure. Existing and projected land uses for areas within the Commission's boundaries are described in the member communities' Comprehensive Plans. The land use plans include residential, commercial, and industrial development; designated park and open space areas; and public recreational areas.

Under various authorities the Commission reviews local development plans for conformance with the standards outlined in their second generation Watershed Management Plan. Called project reviews, they are reviewed for erosion and sediment control, wetland, floodplain and stormwater management, as well as DNR permits. The Commission's technical staff performed 96 project reviews in 2005. A list of each project, its location, and the critical areas reviewed is attached as *Appendix 3.* The Commission anticipates the current rate of development in the Elm Creek watershed will continue in 2006.

Water Monitoring

The Commission conducts lake and stream monitoring programs to track water quality and quantity conditions. The Commission began monitoring Elm Creek and its tributaries in 1975 and the lakes within the watershed in 1980. The Commission conducts chemical, physical and biological monitoring of the streams and physical and chemical monitoring of lakes. The Commission may periodically participate in special studies if a need is identified or in larger projects such as a diagnostic-feasibility study of a lake, as funding allows.

Lake Monitoring

In 2005 the Commission monitored Fish, French and Weaver Lakes in cooperation with Three Rivers Park District. In addition, the Commission funded the monitoring of Henry Lake through Metropolitan Council's Citizen Assisted Monitoring Program (CAMP). Summaries of the 2005 CAMP report and the Park District's 2005 lake sampling results, as well as the lake sampling history, are included in *Appendix 4.*

Lake and watershed characteristics of the lakes monitored in 2005 are shown below. Water quality parameters for the lakes can be used to determine their Trophic State (state of nutrient enrichment) using Carlson's Trophic State Index (TSI). Table 3 shows the summary of 2005 data.

Table 2: Lake and Watershed Characteristics

Lake	Size (acres)	Max Depth (feet)	Mean Depth (feet)	Watershed Size (acres)	Land Use Characteristics
Henry	43.6	5	3**	979**	Agricultural, rural residential
Fish	244	48	19	1990	Residential, commercial, park
French	218*	6	3	870	Agricultural, rural residential
Weaver	159	57	21	510	Residential, park

*Open water area **Approximation

Historical trend data are available for Fish and Weaver Lakes and are listed in *Appendix 4.* The trend data include samples from April through October for the entire monitoring period and the summer means (May through September) since 1995. French Lake does not have long-term data

from which to draw trend information. As the Commission continues to implement its second generation entire monitoring period and the summer means (May through September) since 1995. French Lake does not have long-term data from which to draw trend Management Plan, the goals for these lakes will be constantly evaluated. The Commission will also consider a non-degradation policy to prevent further degradation of its water resources.

Table 3. Carlson's Trophic State Index (R.E. Carlson)

Lake	TSI	Trophic Status	Expected Conditions
Henry	65*	Littoral	Dominated by aquatic vegetation.
Fish	55.4	Eutrophic	Decreased transparency, anoxic hypolimnion during summer, macrophyte problems evident
French	75.4	Hypereutrophic	Heavy algal blooms possible throughout summer, dense macrophyte beds, but extent limited by light penetration
Weaver	57.7	Eutrophic	Decreased transparency, anoxic hypolimnion during summer, macrophyte problems evident

*Approximation

Stream Monitoring

The Elm Creek watershed contains several large depressions and drainageways. Water is generally directed from the south and west to the northeast via four main drainageways – Rush Creek, North Fork Rush Creek, Diamond Creek, and Elm Creek. These drainageways converge in Elm Creek Park Reserve and enter Hayden Lake. Water is eventually discharged to the Mississippi River near the Mill Pond in Champlin.

The monitoring station in Champlin is operated with the cooperation of the United States Geological Survey (USGS). The Commission shares the costs of operating the station, which collects continuous flow data and periodic event and base water quality data, with the USGS. Both grab samples and storm runoff samples are collected and analyzed for various parameters. Analyses of the streamflow and water quality monitoring data for Elm Creek and its tributaries are summarized below. Real time data from this monitoring station may be viewed on the Internet at: http://nwis.waterdata.usgs.gov/mn/nwis/uv/?site_no=05287890.

The gauging site is located at the Elm Creek Road crossing in the Elm Creek Park Reserve. Continuous flow monitoring, low flow, and storm event sampling are completed at the site. The watershed area above the gauging station is 86 square miles, or 81% of the watershed.

Table 4. Elm Creek Annual Instantaneous Peak Discharge Rates

Date	Peak Flow (cfs)	Date	Peak Flow (cfs)	Date	Peak Flow (cfs)
4/4/79	307	8/1/90	225	4/25/01	875**
3/25/80	199	6/1/91	371	5/11/02	554
6/15/81	44	3/8/92	380	6/28/03	695
4/3/82	471*	6/22/93	315	6/03/04	350
3/9/83	408	4/30/94	669*	10/30/04	118
2/25/84	341	3/17/95	237		
3/18/85	579*	3/19/96	407		
3/27/86	812*	4/1/97	511*		
8/1/87	185	4/5/98	306		
3/27/88	39	5/15/99	538*		
3/31/89	159	7/13/00	112		

*These values have been revised based on the 2001 rating curve.

**All-time instantaneous peak discharge. 100-year flood discharge at this site is 2290 cfs.

Flow Monitoring

Storm event samples are collected using an automatic sampler. Routine manual sampling occurs approximately monthly. A spreadsheet of the data received in 2005 WY is included in *Appendix 5.*

The average daily discharge for the 2005 Water Year (WY), October 1, 2004 through September 30, 2005, was 28.1 cubic feet per second (cfs) or 4.44 inches. During the same period, the minimum and maximum observed average daily discharge values were 1.3 cfs and 118 cfs, respectively. The long-term average daily discharge at the station is 39.1 cfs or 6.18 inches (years 1979-2005). Long-term flow volumes (calendar and water years) are also included in *Appendix 5.*

Table 4 shows the annual instantaneous peak discharge values at the gauging station for the period of record. The flow hydrograph for the 2005 WY and the daily discharge and the summary information at the Elm Creek USGS gauging station are included in *Appendix 5.*

Elm Creek Channel Study

In their second generation Watershed Management Plan, the Commission determined that bank stabilization and erosion control are very high priority issues. In 2005 the Commission undertook a study to identify unstable areas of Elm Creek, Rush Creek, North Fork Rush Creek and Diamond Creek. Due to its rapidly changing land use, low flow regimes in Elm Creek are changing and threatening the stability of the stream. The Commission seeks to determine low flows at critical points along the Creek and the stable stream configurations that can sustain those flows. This will help in developing policies at subwatershed level to prevent further degradation of the stream.

Bonestroo, Rosene, Anderlik & Associates was selected to conduct the channel study. It was their goal to complete the field survey work by year-end. At December 31, 2005, 26 of the 45 reaches had been surveyed. Delays were experienced due to unusual weather. Approximately 50% of the bank-full flow determination was completed.

Three Rivers Park District, recognizing the need for intergovernmental cooperation to prevent degradation of aquatic resources, assess the quality of stream resources in the watershed and develop and implement a comprehensive management plan, entered into a cooperative agreement with the Commission to provide cost-share assistance to complete the study.

River Watch

The Elm Creek watershed is the largest watershed completely within Hennepin County boundaries. Elm Creek and its tributaries are 23 miles long.

Since 1995 the Commission has worked with the Hennepin Conservation District (HCD) to create and maintain a benthic macroinvertebrate monitoring program. In 2003 the program came under the guidance of the Hennepin County Department of Environmental Services (HCDES).

River Watch, as this program is now called, is used both for education and data collection. It is a goal of the Commission to sustain existing monitoring sites, gain water quality data, and promote

river stewardship through teaching and project participation by students. Currently, students from three schools monitor at four locations in the Elm Creek watershed.

2005 Hennepin County River Watch Results, available from HCDES, includes results from all the Hennepin County monitoring sites. A map showing the watershed macroinvertebrate monitoring sites as well as excerpts from the report on the sites in the Elm Creek watershed are found in *Appendix 6.* The complete report is available at http://www.hennepin.mn.us, keyword River Watch.

Wetland Monitoring

The Commission serves as the local government unit (LGU) for administering the Wetland Conservation Act (WCA) for the cities of Champlin and Corcoran and the Township of Hassan. The Commission reviews exemption applications, drain and fill applications, replacement plans, and banking applications; attends Technical Evaluation Panel (TEP) meetings; and fulfills other requirements of WCA.

The Commission's goal is to assure that WCA rules are properly implemented, wetland violations are resolved and replacement plans are reviewed. In 2005 the Commission reviewed 27 plans involving wetlands and received no new wetland banking applications. They also participated in ten TEPs. A similar level of activity is anticipated in 2006. Three new potential Wetland Conservation Act violations were investigated within the watershed in 2005.

Four outside firms were approved to perform wetland consulting services for the Commission in 2005-2006. They are named in *Appendix 1.*

Written Communications

Development work on the Commission's website www.elmcreekwatershed.org began in 2004. Communications, including monthly meeting packets, project reviews , and the second generation Watershed Management Plan, are posted on the website. The website www.pressnews.com serves as the Commission's official newspaper.

Interest Proposals

The required biennial solicitation for interest proposals for professional, technical and wetland consulting services was published in the February 22, 2005 edition of the *State Register.* After reviewing the responses, the Commissioners approved the individuals and companies named in

Appendix 1.

Financial Reporting

Appendix 7 includes the Commission's approved budget for 2005, a report of revenues and expenditures for 2005, and the 2005 Audit Report prepared by Johnson & Company, Ltd., Certified Public Accountants.

2006 Work Plan

In addition to continuing the programs and activities described above, in 2006 the Elm Creek Watershed Management Commission will focus on the following activities.

Channel Study

It is anticipated the Elm Creek Channel Study will be completed in 2006. The results of the Study and resultant Report will be presented to the Commission and Three Rivers Park District for review and comment. The Final Report will be presented to the member cities and other interested parties at meetings held throughout the watershed. Based on the results obtained from the study, the Commission will evaluate the current state of the watershed and stream stability and determine if its current rules are adequate to protect the stream system from long term instability.

Local Plan Development

The Commission will continue to assist member communities with local plan development. Some members have not developed local plans, having expressed their intentions to wait until the Commission's second generation Watershed Management Plan was adopted, while others need only to update sections of their plans to be in conformance with the Commission's Management Plan.

Under the statutes, member communities are required to revise their plans to conform with the Commission's Plan by December 2006. It is an option for the members to adopt all or part of the Commission's plan as their local plans.

Digitization Project

The Commission has budgeted $5,000 for the digitization of the original floodplain study that was done in the 1980s. The floodplain study has been incorporated into the second generation Management Plan but it has remained in hard copy format. This project will make the data

available in electronic and GIS formats.

Rain Gauge Network

The Elm Creek rain gauge network, which was temporarily discontinued in 2003 due to the transfer of services from HCD to HCDES, will be revitalized in 2006. The Commission has budgeted $1,000 for 2006 to begin this process and has committed to funding the program in future years

Questions and Comments

Questions and comments regarding this report or the activities of the Elm Creek Watershed Management Commission may be directed to the Commission's administrative offices, judie@jass.biz.