

# Watershed Outlet Monitoring Program

East Chaska Creek Station - EC 1 site  
Chaska, MN

## Summary Report March – November 2010



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Prepared For: Lower Minnesota River Watershed District  
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## Introduction

The East Chaska Creek EC 1 site, located in Chaska near the Stoughton Avenue bridge as it crosses the Army Core of Engineers water diversion channel, has been monitored since 2003. The East Chaska Creek watershed drains 9,868 acres of various types of land uses including residential, agricultural, undeveloped, and park/recreation areas (Appendix A). This report summarizes the results of flow, precipitation, and water quality for the 2010 sampling season. This data is preliminary and is subject to change until the Metropolitan Council submits the final report for this period.

## Flow and Precipitation

Average flow in East Chaska Creek was 1.74 cubic feet per second (cfs) or 1.12 million gallons per day (mgd) (Table 1). This was more than 46 percent higher than the average flow in 2009 (1.19 cfs). The 2010 sampling season was characterized by dry/ drought conditions in May and July in addition with much higher than average precipitation (and thus stream flow) in August and September. A graph describing flow and precipitation results is provided (Figure 1).

Table 1. Average flow and total precipitation at East Chaska Creek EC 1 Station April – October 2010

Period	Average Flow (cfs/mgd)	Precipitation (inches)	*Average Monthly Precipitation, 1997-2010 (inches)
APRIL	2.11 / 1.36	3.63	2.93
MAY	0.29 / 0.19	2.75	3.85
JUNE	3.27 / 2.11	4.61	4.26
JULY	2.66 / 1.72	2.37	3.36
AUGUST	1.26 / 0.81	6.55	4.96
SEPTEMBER	0.67 / 0.43	5.22	3.40
OCTOBER	1.98 / 1.28	0.96	2.36
TOTAL	1.74 / 1.12	26.09	25.13

\*Average monthly precipitation data obtained from the National Weather Service station located near the EC 1 site.

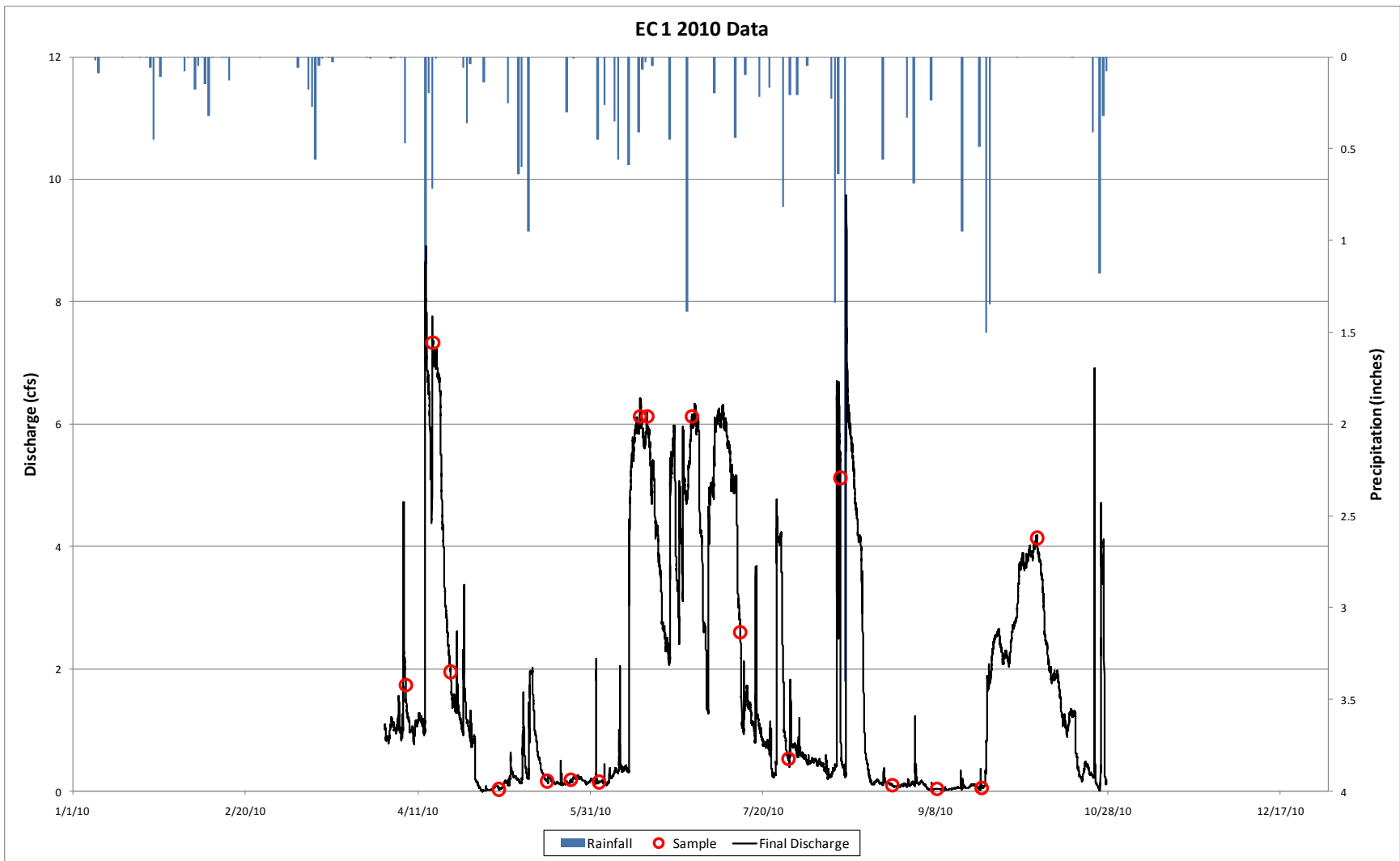


Figure 1. Flow and precipitation at EC 1 Station March-November 2009

## Water Quality

Six nutrient samples and thirteen Escherichia Coli (E.coli) samples were collected at the EC 1 station during the 2010 season. Overall, water quality at EC 1 declined when looking at the chemical results for the site. Two parameters showed improvement from 2009 (Alkalinity and Escherichia coli) and one parameter fell within the ecoregion mean while others exceed it. The most dramatic improvement was in the E.coli parameter with a decrease of 21 percent from 2009. The alkalinity, turbidity, and concentrations of total suspended solids (TSS) and volatile solids (VS) were all higher in 2009 than in 2008. Of particular note, the average TSS concentration increased by 58 % from 13.9 mg/ L in 2009 to 22 mg/L in 2010.

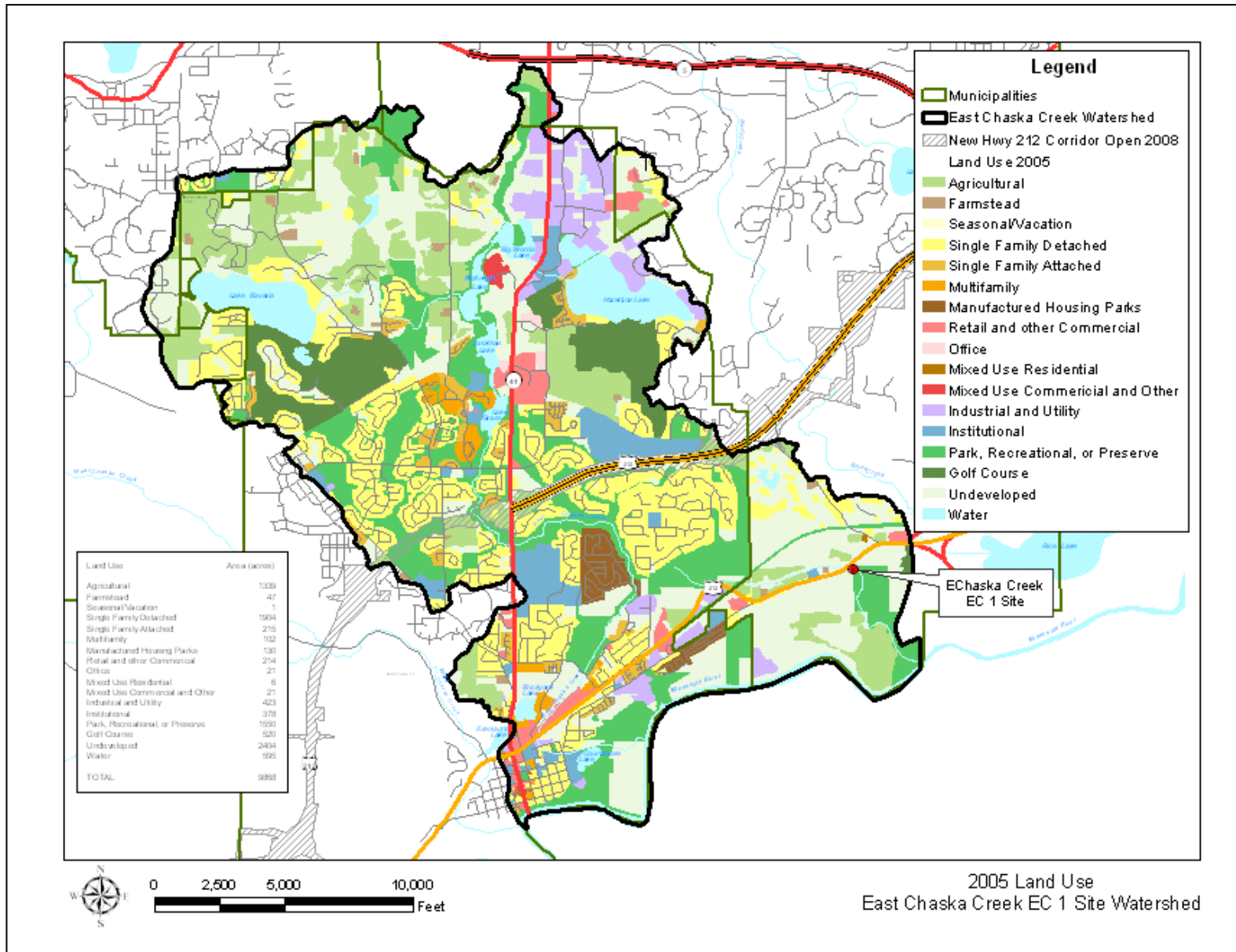
When compared to typical water quality values in the North Central Hardwood Forest ecoregion, those for EC 1 either exceed the mean or fall in the upper range (see table 2). Total suspended solids continued the increasing trend from 2008 and was higher than the ecoregion mean. Additional information about phosphorus and E. coli loading and some statistical analyses can be found in Appendix B. Appendix B contains the draft pages of the 2010 Carver County Water quality report that can be accessed through the Carver County website (<http://www.co.carver.mn.us/departments/LWS/wqmp.asp>) as a report that can be downloaded or through an interactive GIS water quality mapping program.

Table 2. Average concentrations at East Chaska Creek EC 1 Station April – October 2010.

Parameter	2010 Ave. Concentration	Notes
Alkalinity	190 mg/L CaCO <sub>3</sub>	
Chemical Oxygen Demand	31 mg/L	
Cadmium	N/A	Not tested at this site
Chloride	N/A	Not tested at this site
Chlorophyll-a	N/A	Not tested at this site
Chromium	N/A	Not tested at this site
Conductivity	N/A	Not tested at this site
Copper	N/A	Not tested at this site
Escherichia Coli	283.9 MPN/ 100 mL	Standard is 126/ 1260*
Hardness	N/A	Not tested at this site
Lead	N/A	Not tested at this site
Nickel	N/A	Not tested at this site
Nitrogen Ammonia	148 µg/L	
Nitrate + Nitrite	462 µg/L	Ecoregion mean (40-260 ug/L)
Phosphorus, Total	0.127 mg/L	Ecoregion mean (0.06 -0.160 mg/L)
Suspended Solids	22 mg/L	Ecoregion mean (4.8 - 16 mg/L)
Turbidity	19 NTRU	Ecoregion mean (3-8.5 NTU)
Volatile Solids	5 mg/L	
Zinc	N/A	Not tested at this site

\*As stated in MN Rules Chapter 7050.0222, E. coli shall not exceed 126 organisms per 100 mL as a geometric mean of not less than five samples, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 mL.

# Appendix A



2005 Land Use data source provided by Metropolitan Council Environmental Services