Watershed Outlet Monitoring Program

Willow Creek Station

Burnsville, MN

Quarterly Report

Preliminary Data

April – June 2008

Prepared By: Dakota County Soil and Water Conservation District
Prepared For: Lower Minnesota River Watershed District
July 2008

Introduction

The Willow Creek WOMP site, located in Burnsville behind the Menards on Hwy. 13, has been in operation since 1999. The Willow Creek watershed drains more than 5,000 acres of various types of land uses including residential, vacant/agricultural, and commercial properties (Appendix A). This report summarizes the results of flow, precipitation, and water quality for the 2nd quarter of 2008. 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 Willow Creek was 7.76 cubic feet per second (cfs) or 5.02 million gallons per day (mgd) (Table 1). A graph describing quarterly flow and precipitation results is also provided (Figure 1).

Table 1. Average flow and total precipitation at Willow Creek WOMP Station April-June 2008

Period	Average Flow (cfs/mgd)	Precipitation (inches)	*Average Monthly Precipitation, 1998-2007 (inches)
APRIL	9.69/6.26	3.75	3.01
MAY	6.11/3.95	3.07	4.18
JUNE	7.52/4.86	2.87	4.62
TOTAL QUARTER	7.76/5.02	9.69	11.81

*Average monthly precipitation data obtained from the National Weather Service station located near the Willow WOMP site.

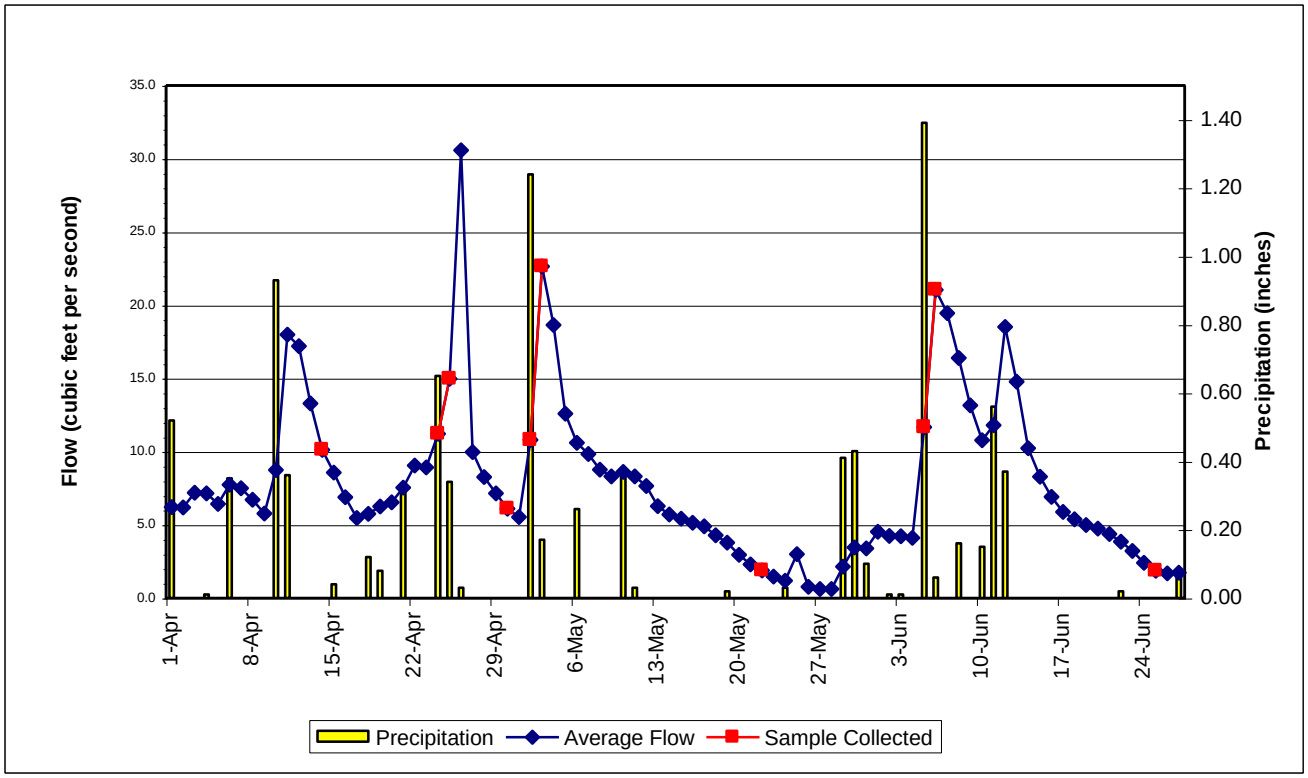


Figure 1. Flow and precipitation at Willow WOMP Station April-June 2008

Water Quality

Three event flow composite samples (4/24/08, 5/2/08, 6/5/08), one event grab sample (4/14/08), and three base flow grab samples (4/30/08, 5/22/08, 6/25/08) were collected from the Willow WOMP Station during the 2nd quarter of 2008.

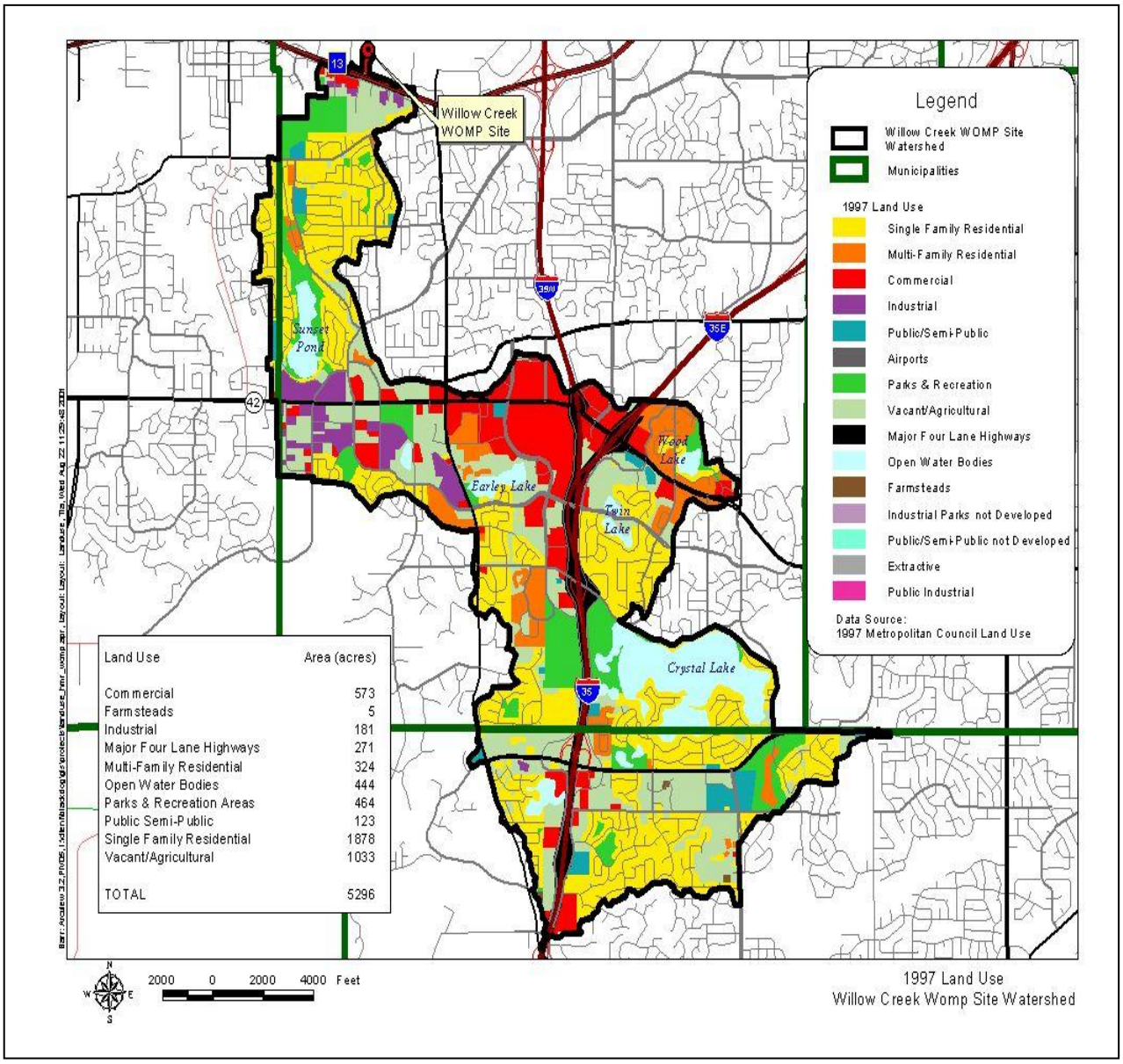
Overall, water quality was good with most parameters below the state standard (in compliance with standards) or near the ecoregion mean (Table 2). However, two endpoints exceeded standards or ecoregion means (highlighted red). These exceedances are likely artifacts of the soils and the highly urbanized nature of the Willow Creek watershed.

Table 2. Average concentrations at Willow Creek WOMP Station January 2008-March 2008 (for comparison purposes) and April-June 2008.

Parameter	1st Quarter 2008 Mean Concentration	2nd Quarter 2008 Mean Concentration	Notes – 2nd quarter results
Alkalinity	228 mg/L $CaCO_3$	83.4 mg/L $CaCO_3$	Typical for freshwater; higher during low flow
Biological Oxygen Demand	3.50 mg/L	1.84 mg/L	Below ecoregion mean
Cadmium	0.50 ug/L	0.50 ug/L	In compliance with state standard
Chloride	235 mg/L	201 mg/L	In compliance with state standard
Chlorophyll-a	11.9 ug/L	11.7 ug/L	Fair level
Chromium	1.2 ug/L	3.6 ug/L	In compliance with state standard
Conductivity	1315 mMHOs	832 mMHOs	Above ecoregion mean, higher during low flow
Copper	4.8 ug/L	2.6 ug/L	In compliance with state standard
E. coli	53.5 CFU/100 mL	20.6 CFU/100mL	In compliance with state standard
Hardness	307 mg/L $CaCO_3$	144 mg/L $CaCO_3$	Considered hard water; sometimes very hard during low flow
Lead	3.65 ug/L	0.40 ug/L	In compliance with state standard
Nickel	5.9 ug/L	1.7 ug/L	In compliance with state standard
Nitrogen Ammonia	345 ug/L	76 ug/L	Below ecoregion mean
Nitrate + Nitrite	0.42 mg/L	0.28 mg/L	Slightly above ecoregion mean
Phosphorus, Total	0.146 mg/L	0.065 mg/L	Below ecoregion mean
Suspended Solids	7.0 mg/L	13.3	Below ecoregion mean
Turbidity	9.5 NTU	6.6 NTU	In compliance with state standard
Zinc	7.5 ug/L	4.1 ug/L	In compliance with state standard

mg/L = milligrams per liter or parts per million (ppm)
ug/L = micrograms per liter or parts per billion (ppb)
mMHO = micromhos or micorseimens
CFU = colony forming units
NTU = nephelometric turbidity units

Appendix A



Watershed and land use information provided by Metropolitan Council Environmental Services.