Watershed Outlet Monitoring Program

Willow Creek Station

Burnsville, MN

Quarterly Report

Preliminary Data

July – September 2008

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

The Willow Creek WOMP (Watershed Outlet Monitoring Program) 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 3rd 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 1.11 cubic feet per second (cfs) or 0.72 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 July-September 2008

Period	Average Flow (cfs/mgd)	Precipitation (inches)	*Average Monthly Precipitation, 1998-2007 (inches)
JULY	1.57/1.01	2.86	3.35
AUGUST	0.94/0.61	2.17	4.62
SEPTEMBER	0.80/0.52	1.07	3.28
TOTAL QUARTER	1.11/0.72	6.10	11.25

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

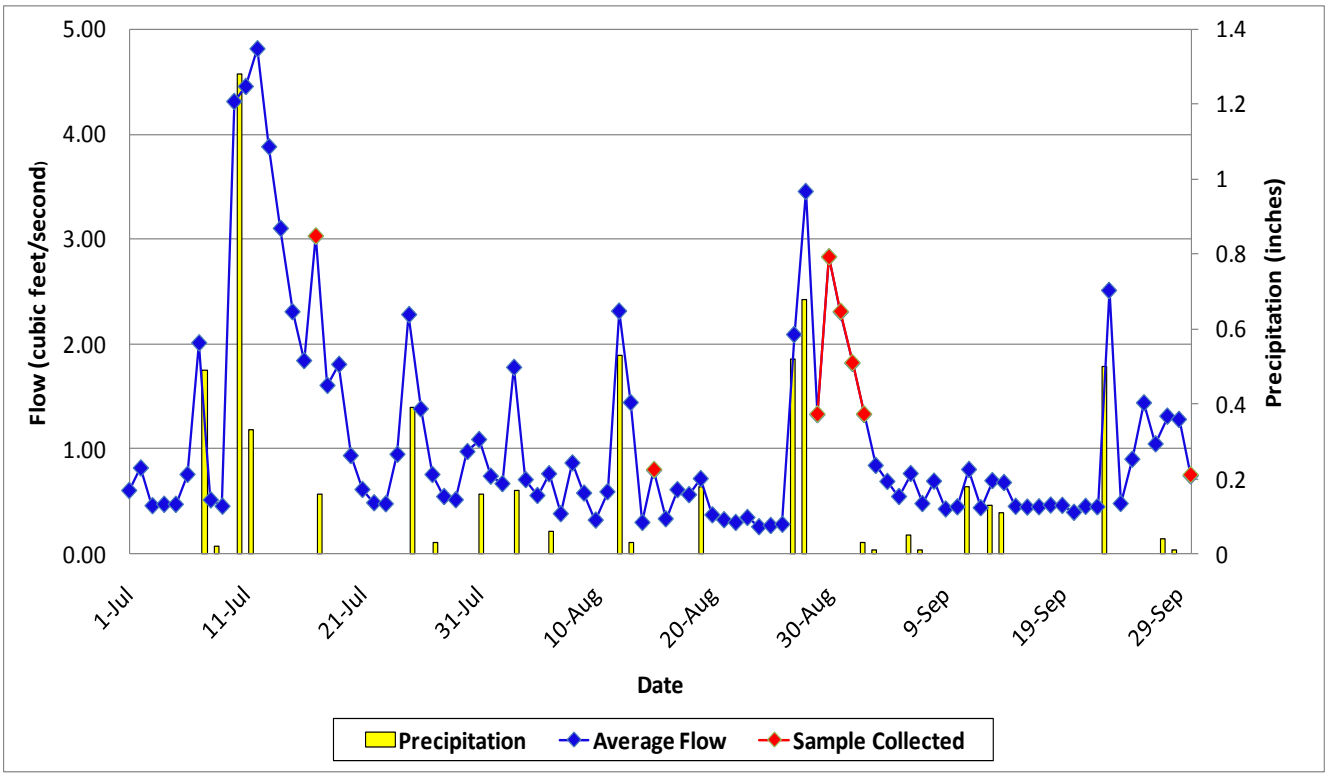


Figure 1. Flow and precipitation at Willow WOMP Station July-September 2008

Water Quality

One event flow composite sample (8/28/08), and three base flow grab samples (7/17/08, 8/15/08, 9/30/08) were collected from the Willow WOMP Station during the 3rd quarter of 2008.

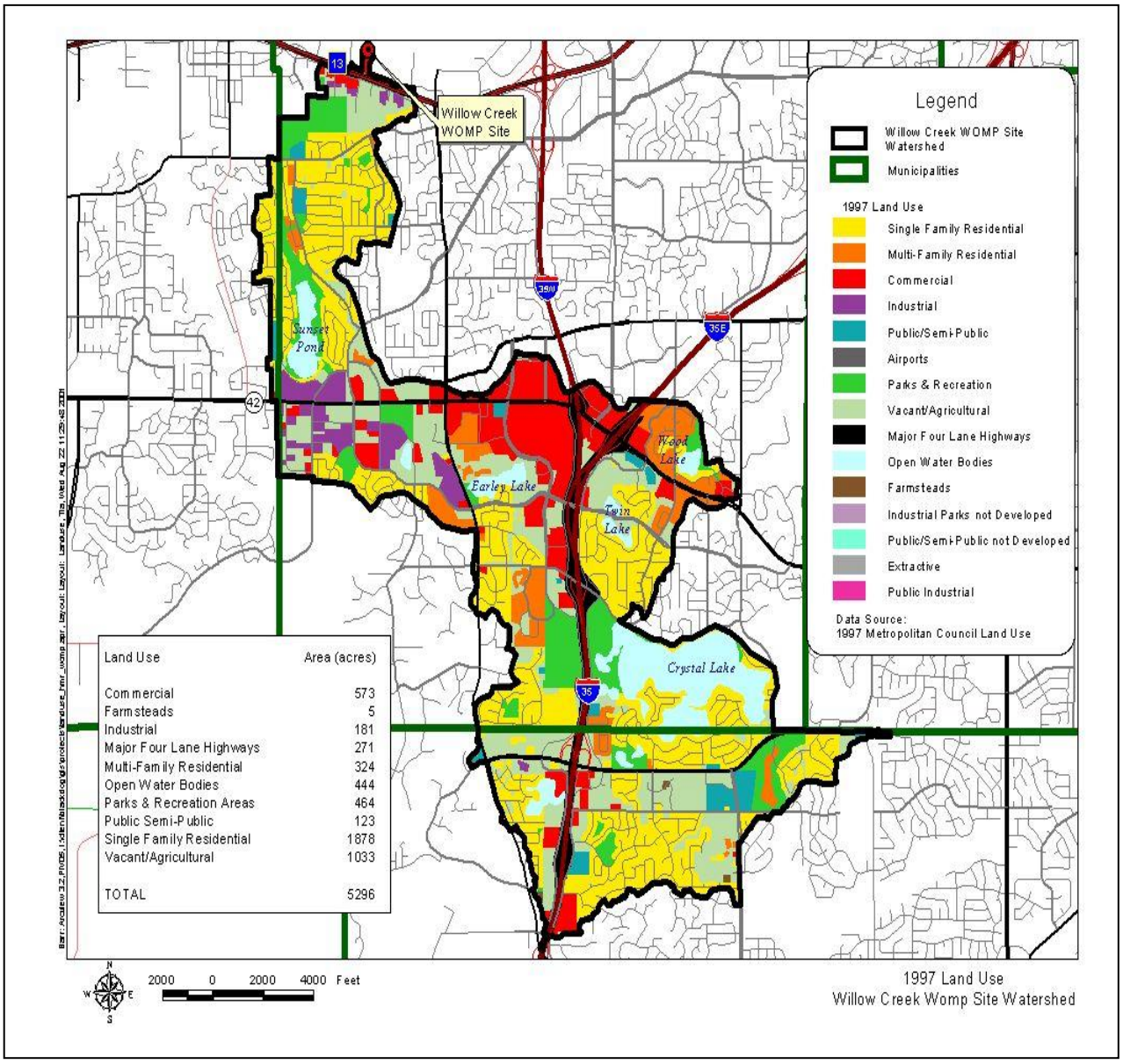
Overall, water quality was good with most parameters below the state standard (in compliance with standards) or near ecoregion means (Table 2). However, conductivity and nitrate/nitrite levels continue to exceed ecoregion means (highlighted red). These exceedances are likely an artifact of soil types and the highly urbanized nature of the Willow Creek watershed.

Table 2. Average endpoint concentrations at Willow Creek WOMP Station April 2008-June 2008 (2nd quarter-for comparison purposes) and July-September 2008 (3rd quarter).

Parameter	2nd Quarter 2008 Mean Concentration	3rd Quarter 2008 Mean Concentration	Notes – 3rd quarter results
Alkalinity	83.4 mg/L $CaCO_3$	208.8 mg/L $CaCO_3$	Typical for freshwater; higher during low flow
Biological Oxygen Demand	1.84 mg/L	1.0 mg/L	Below ecoregion mean
Cadmium	0.50 ug/L	0.50 ug/L	In compliance with state standard
Chloride	201 mg/L	132 mg/L	In compliance with state standard
Chlorophyll-a	11.7 ug/L	2.8 ug/L	Fair level
Chromium	3.6 ug/L	3.3 ug/L	In compliance with state standard
Conductivity	832 mMHOs	1072 mMHOs	Above ecoregion mean, higher during low flow
Copper	2.6 ug/L	1.8 ug/L	In compliance with state standard
E. coli	20.6 CFU/100mL	88.7 CFU/100mL	In compliance with state standard
Hardness	144 mg/L $CaCO_3$	350 mg/L $CaCO_3$	Considered hard water; very hard during low flow
Lead	0.40 ug/L	0.10 ug/L	In compliance with state standard
Nickel	1.7 ug/L	6.2 ug/L	In compliance with state standard
Nitrogen Ammonia	76 ug/L	28 ug/L	Below ecoregion mean
Nitrate + Nitrite	0.28 mg/L	0.39 mg/L	Above ecoregion mean
Phosphorus, Total	0.065 mg/L	0.045 mg/L	Below ecoregion mean
Suspended Solids	13.3 mg/L	9.8 mg/L	Below ecoregion mean
Turbidity	6.6 NTU	4.8 NTU	In compliance with state standard
Zinc	4.1 ug/L	2.6 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.