

Table 1.SI. Silver Creek Monitoring Station Information



Station Address: Silver Creek near Washington County Road 11, Stillwater, MN
County: Washington
Major Basin: St. Croix River Basin
Watershed: Silver Creek
Drainage Area: 7.62 square miles

Station Operator: Washington County Soil and Water Conservation District

Metropolitan Council Environmental Services Contact Information:

Contact Person: Casandra Champion
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Watershed District or Watershed Management Organization:
Carnelian Marine Watershed District

Station Overview: MCES has supported water quality monitoring of Silver Creek since 1998. The monitoring station is located near Stillwater, Minnesota, 0.7 mile upstream from the creek confluence with the St. Croix River. There is no rain gage at this station.

2001 Monitoring Year: Snowmelt began during the last week of March 2001. Daily average flows were estimated during the January 1-April 4 period and after November 8.

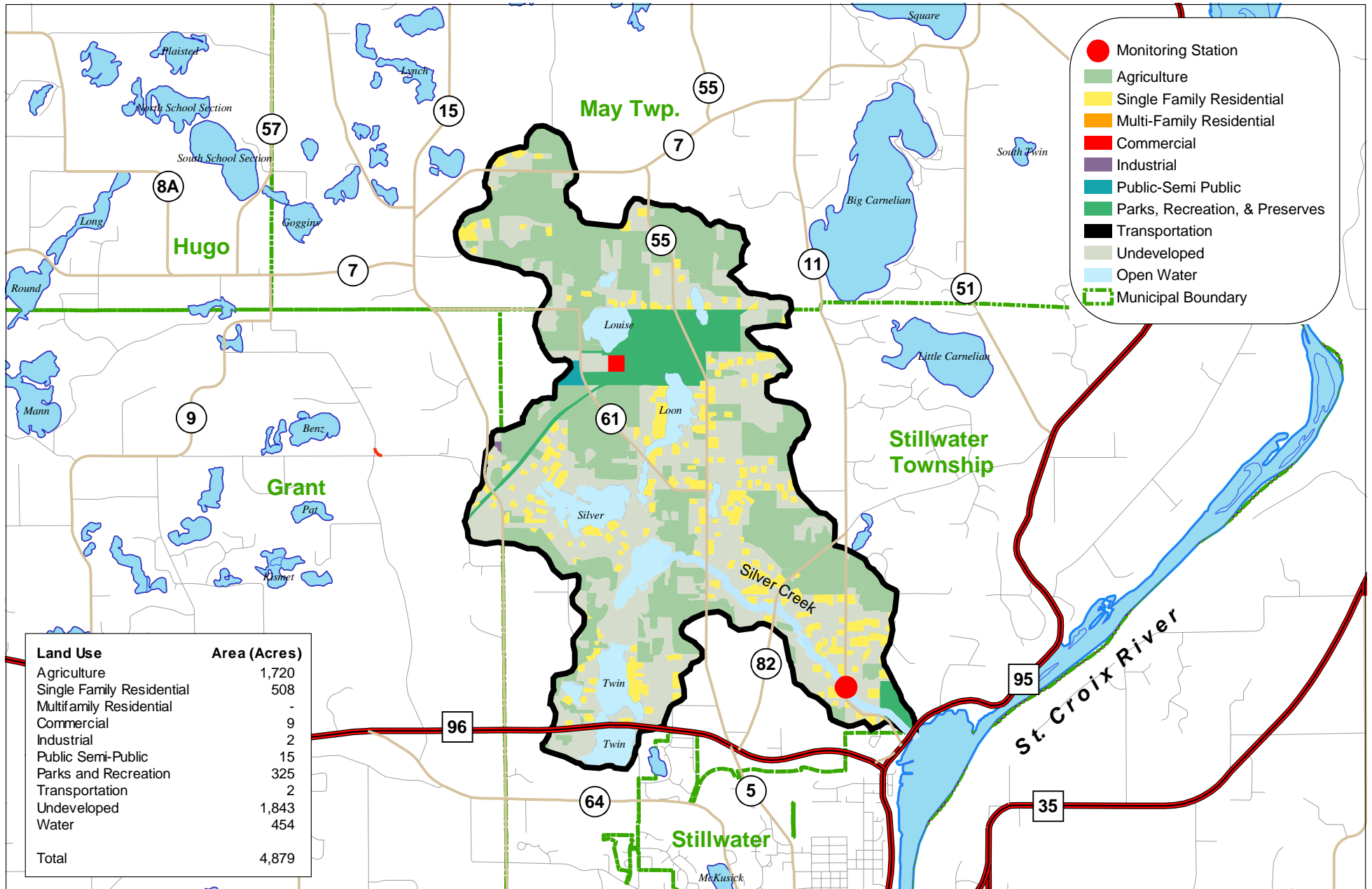
The peak daily average flow of 6.7 cfs, with a stage of 1.25 feet, occurred on April 23, 2001. Monitoring equipment was installed on April 4 and removed on November 8.

A significant runoff event occurred between April 10 and April 15, 2001. The composite sample collected on the rising limb of this event hydrograph, on April 11-12, had the highest total suspended solids (TSS) concentration (94 mg/L) of all 2001 samples. In contrast, the sample collected at the peak of the hydrograph on April 13 – 14 had a TSS concentration of 16 mg/L. These two samples demonstrate the significance of the pollution contribution of the rising limb of an event hydrograph and the importance of using multiple samples to fully characterize a runoff event.

Twenty-eight samples were collected for water quality analysis during 2001, including 19 composite samples and nine grab samples. The MCES annual water quality monitoring plan includes 12 monthly baseflow (“non-event”) grab samples and approximately 10 to 15 flow-weighted composite samples collected during all runoff events in the open-water season (March-November). The 2001 sampling scheme met the goals of the MCES monitoring work plan, except grab samples representing January and February baseflow conditions were not collected.

For additional stream monitoring information and monitoring methods regarding this site, see www.metrocouncil.org/environment/RiversLakes.

Figure 1.SI. Silver Creek Monitoring Station Location and Watershed Characteristics



0 0.4 0.8 1.6 Miles



Figure 2.SI. Silver Creek 2001 Hydrograph with Sampling Information

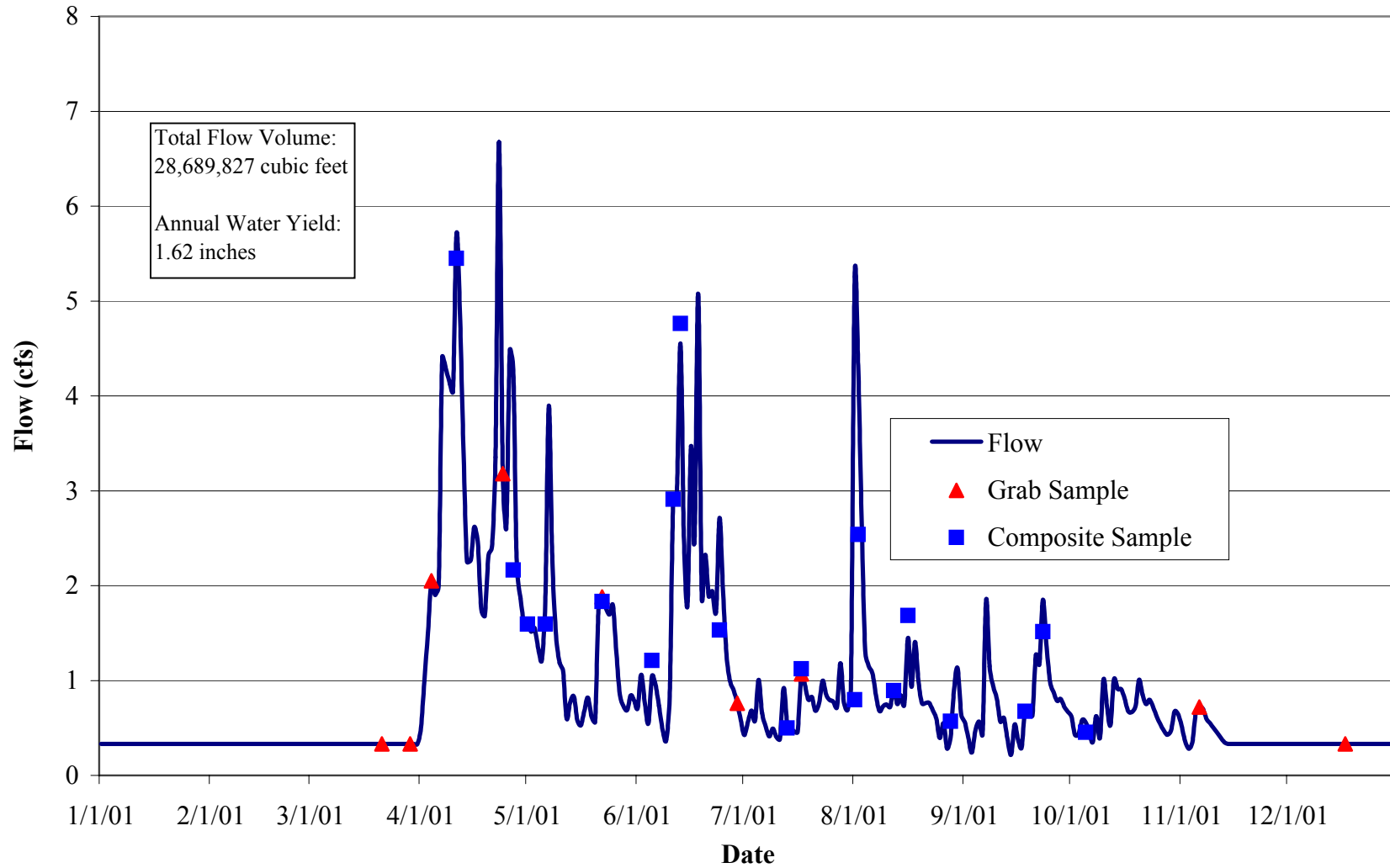


Table 2.SI. Silver Creek 2001 Water Chemistry Information

Variable	N	Mean	Median	Minimum	Maximum	25%	75%	STD
Hardness, mg/L	5	92	na	82	108	na	na	na
Cadmium, ug/L	5	0.1	na	0.1	0.1	na	na	na
Chromium, ug/L	5	0.5	na	0.5	0.7	na	na	na
Copper, ug/L	5	3.6	na	1.6	5.8	na	na	na
Lead, ug/L	5	0.5	na	0.5	0.5	na	na	na
Nickel, ug/L	5	1.2	na	0.9	1.4	na	na	na
Zinc, ug/L	5	2.0	na	1.0	4.0	na	na	na
Nitrogen, Total Kjeldahl, mg/L	25	0.50	0.50	0.20	1.90	0.40	0.60	0.40
Nitrogen, Total Nitrate, mg/L	27	0.16	0.05	0.05	0.84	0.05	0.19	0.21
Phosphorus, Total, mg/L	26	0.06	0.06	0.01	0.17	0.03	0.08	0.04
Phosphorus, Total Dissolved, mg/L	9	0.02	0.02	0.01	0.03	0.01	0.02	0.01
Solids, Total Suspended, mg/L	26	17	11	2	94	4	25	21
Solids, Volatile Suspended, mg/L	26	3	2	1	8	2	4	2
Turbidity, NTU	4	3	na	2	5	na	na	na

na: Data are insufficient to calculate these statistics.

Table 3.SI. Silver Creek 2001 Annual Loading Information* for Suspended Solids and Nutrients

Variable	Annual Load (tons)	Annual Yield (lbs/acre)	Annual Normalized Yield (lbs/acre/in of water)	Flow Weighted Mean Concentration (mg/L)
Solids, Total Suspended	17	10	4	19
Phosphorus, Total	0.05	0.02	0.01	0.06
Phosphorus, Total Dissolved	0.02	0.01	0.004	0.02
Nitrogen, Total Nitrate	0.16	0.07	0.04	0.18

* 2001 Annual Loading Information is provisional and may be subject to minor revisions.