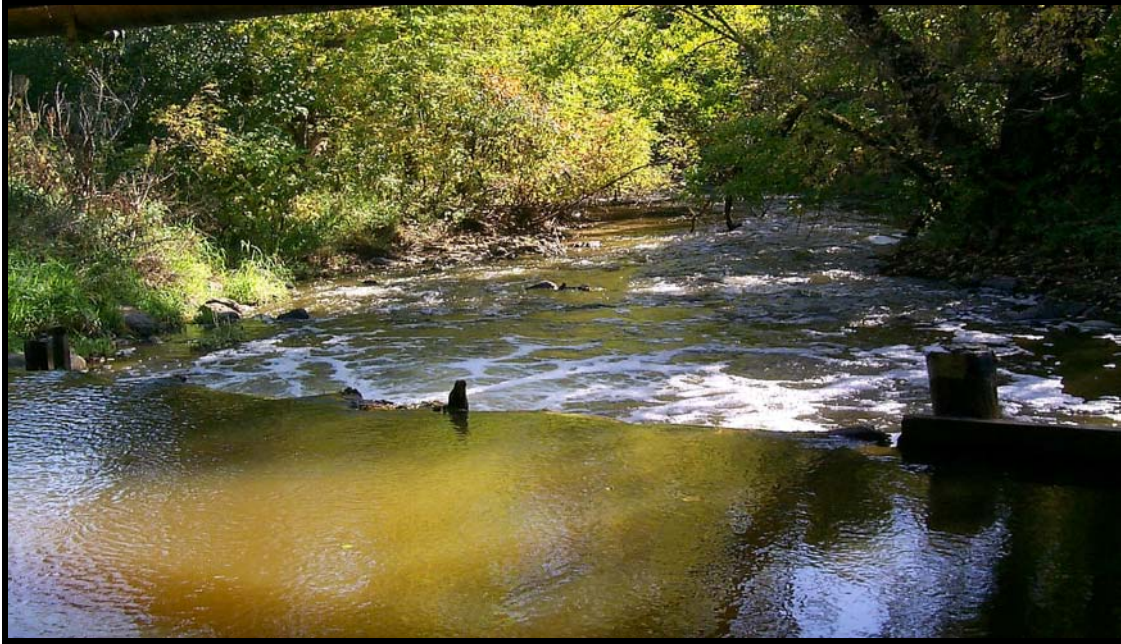


Table 1.CA. Carver Creek Monitoring Station Information



Station Address: 14025^{1/2} Carver County Road 40, Carver, MN
County: Carver
Major Basin: Minnesota River Basin
Watershed: Carver Creek
Drainage Area: 83.5 square miles

Station Operator: Metropolitan Council Environmental Services

Metropolitan Council Environmental Services Contact Information:

Contact Person: Tim Pattock or Mike Ahlf
Address: 2400 Childs Road
St. Paul, MN 55106
Phone: 651-602-8084 (Tim) or 651-602-8082 (Mike)
E-mail: timothy.pattock@metc.state.mn.us
mike.ahlf@metc.state.mn.us

Watershed District or Watershed Management Organization:

Station Overview: MCES has conducted water quality monitoring of Carver Creek since 1989. The monitoring station is located in Carver, Minnesota, 1.7 miles upstream from the creek confluence with the Minnesota River. MCES staff maintain the rating curve at this station. There is no rain gauge at this station; however, precipitation data are obtained from the Minnesota Climatology Working Group, Chanhassen Station Number 211448.

2002 Monitoring Year: Snowmelt had a limited impact on Carver Creek flow during the spring of 2002. Daily average flows were estimated prior to the ice out date, which occurred on approximately March 19, 2002. The peak daily average flow of 349 cfs occurred on August 21, 2002.

Runoff event-based composite sampling began in mid May and continued into mid October 2002. A runoff event on August 4 produced the highest instantaneous flow of the year: 947 cfs, with a stage of 4.2 feet. This intense runoff event also generated the highest total suspended solids (TSS) concentration (1,930 mg/l) and highest total phosphorus (TP) concentration (3.81 mg/l) measured at this station in 2002.

Thirty-three samples were collected for water quality analysis during 2002, including 18 composite samples and 15 grab samples. Samples were obtained throughout the year during varying stream flow conditions to most accurately characterize Carver Creek water quality. 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 2002 sampling scheme met the goals of the MCES monitoring work plan.

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

Figure 1.CA. Carver Creek Monitoring Station Location and Watershed Characteristics

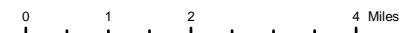
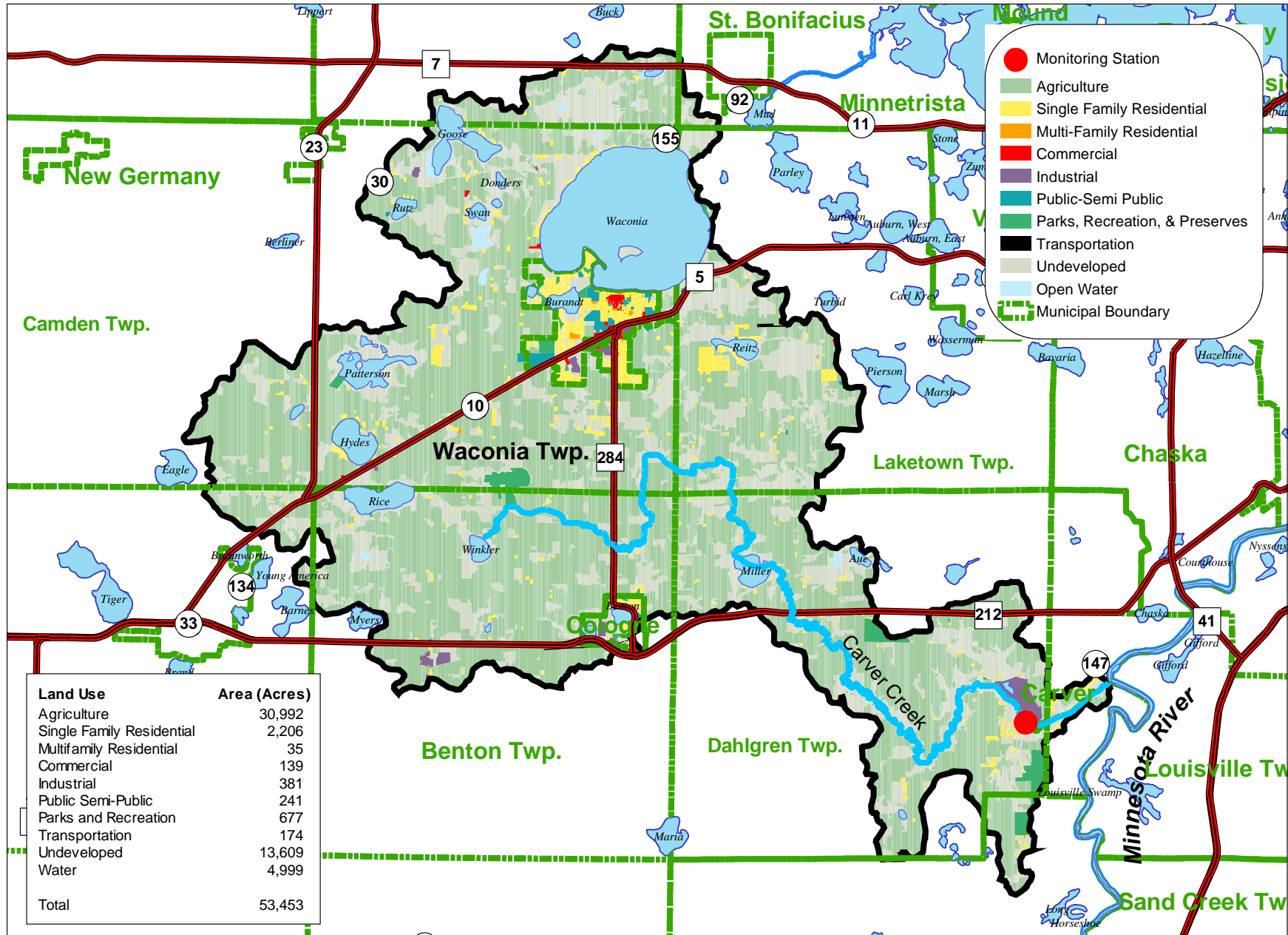


Figure 2.CA. Carver Creek 2002 Hydrograph, Precipitation and Sampling Information

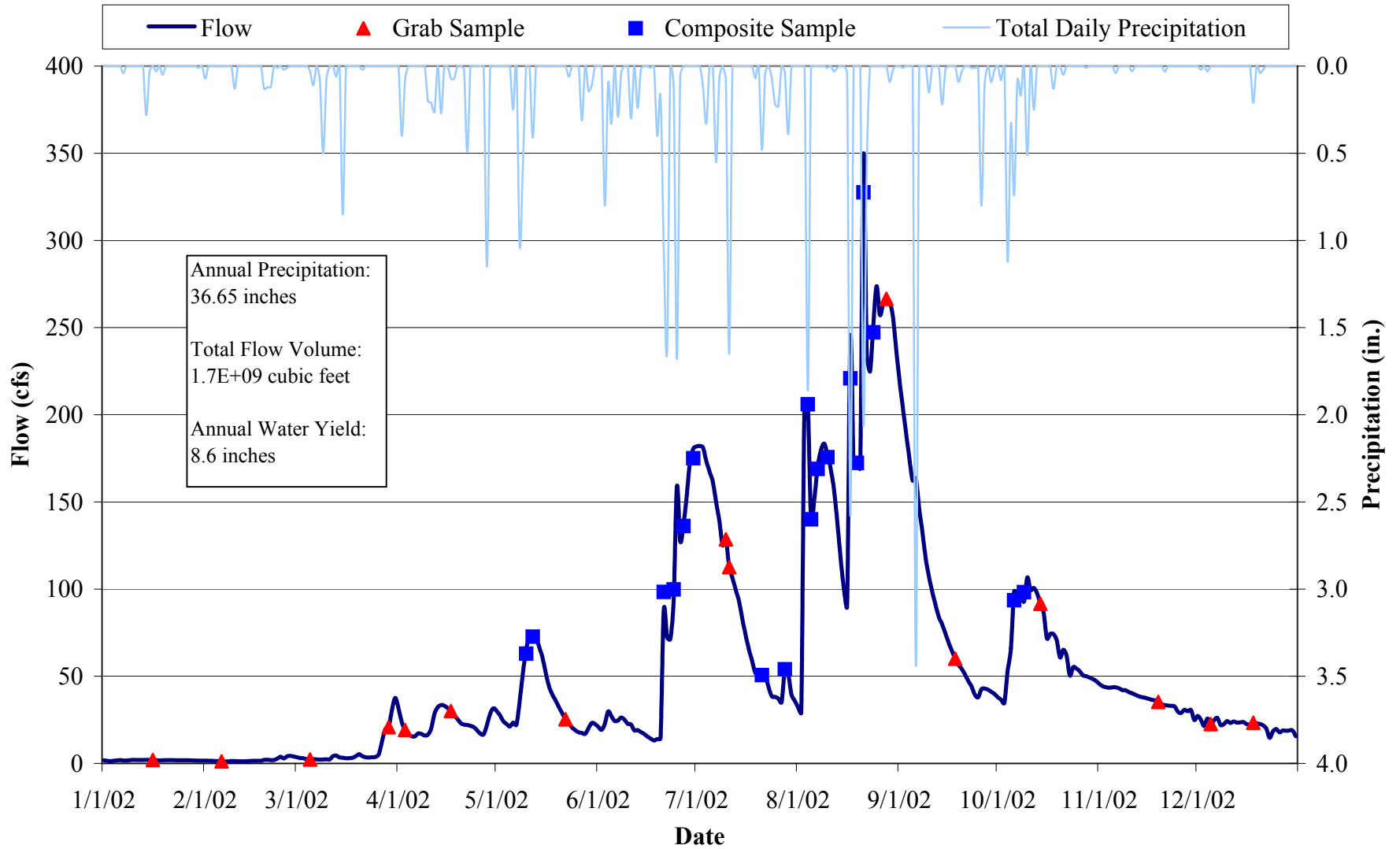


Table 2.CA. Carver Creek 2002 Water Chemistry Information

Variable	N	Mean	Median	Minimum	Maximum	25%	75%	STD
Chloride, mg/L	33	35	31	14	72	23	41	16
Hardness, mg/L	2	210	na	160	260	na	na	na
Cadmium, ug/L	2	0.7	na	0.1	1.4	na	na	na
Chromium, ug/L	2	17.8	na	0.6	35.0	na	na	na
Copper, ug/L	2	26.4	na	1.7	51.0	na	na	na
Lead, ug/L	2	25.6	na	0.1	51.0	na	na	na
Nickel, ug/L	2	36.3	na	3.6	69.0	na	na	na
Zinc, ug/L	2	86.8	na	1.5	172.0	na	na	na
Nitrogen, Total Kjeldahl, mg/L	32	2.47	1.95	0.36	8.80	1.48	2.60	1.93
Nitrogen, Total Nitrate, mg/L	31	1.77	1.59	0.54	4.63	1.19	2.10	0.88
Phosphorus, Total, mg/L	32	0.60	0.38	0.04	3.81	0.18	0.58	0.80
Phosphorus, Total Dissolved, mg/L	31	0.21	0.20	0.01	0.71	0.06	0.33	0.17
Solids, Total Suspended, mg/L	30	239	92	3	1930	27	166	450
Solids, Volatile Suspended, mg/L	30	29	15	1	200	7	24	46
Turbidity, NTU	33	89	22	2	850	8	40	184

na: Data are insufficient to calculate these statistics.

N: Sample Count

25%, 75%: 25th and 75th Percentiles

STD: Standard Deviation

Table 3.CA. Carver Creek 2002 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	14,000	524	61	270
Phosphorus, Total	36.9	1.38	0.16	0.71
Phosphorus, Total Dissolved	12.1	0.45	0.05	0.23
Nitrogen, Total Nitrate	83.8	3.14	0.37	1.61

* 2002 Annual Loading Information is provisional and may be subject to minor revisions.

Figure 3.CA. Carver Creek 2002 Hydrograph with Total Suspended Solids and Nitrate Nitrogen Concentrations

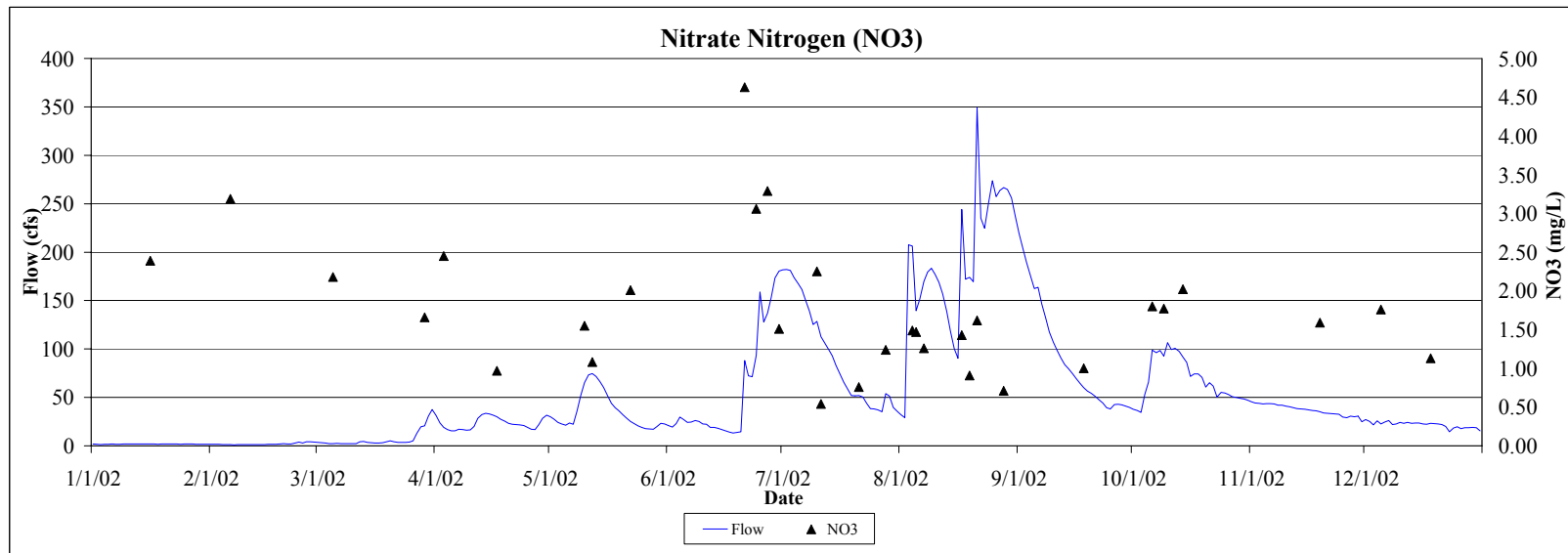
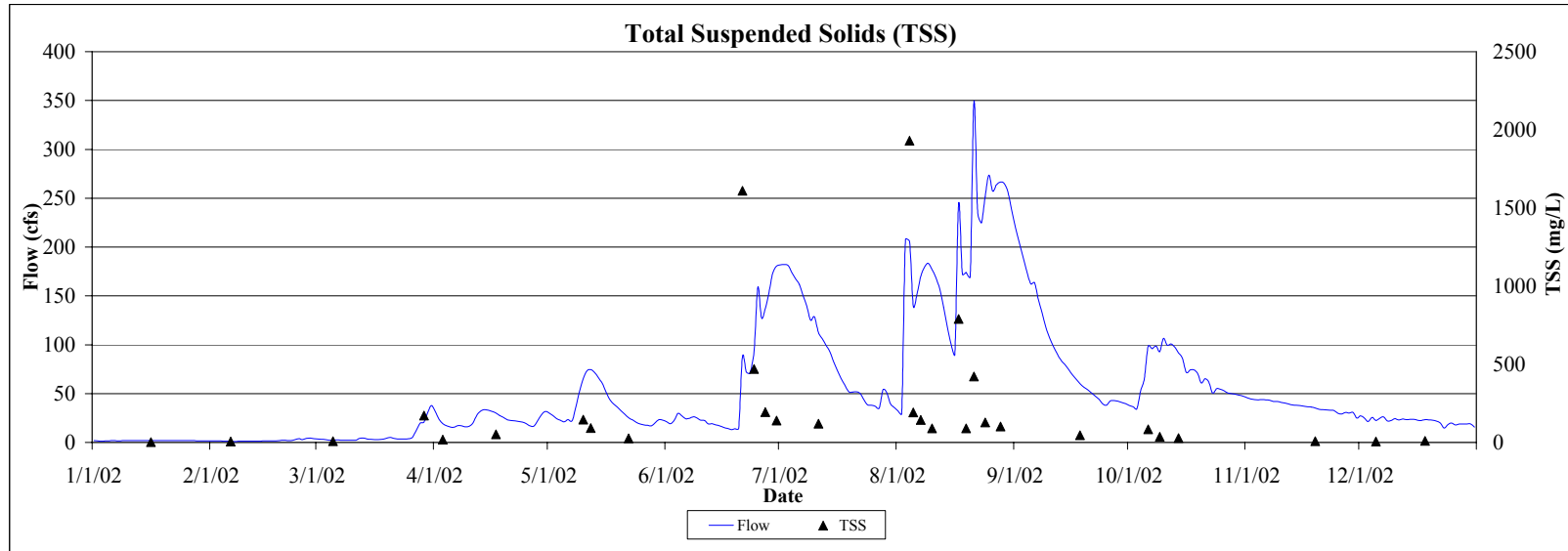


Figure 4.CA. Carver Creek 2002 Hydrograph with Total and Dissolved Phosphorus Concentrations

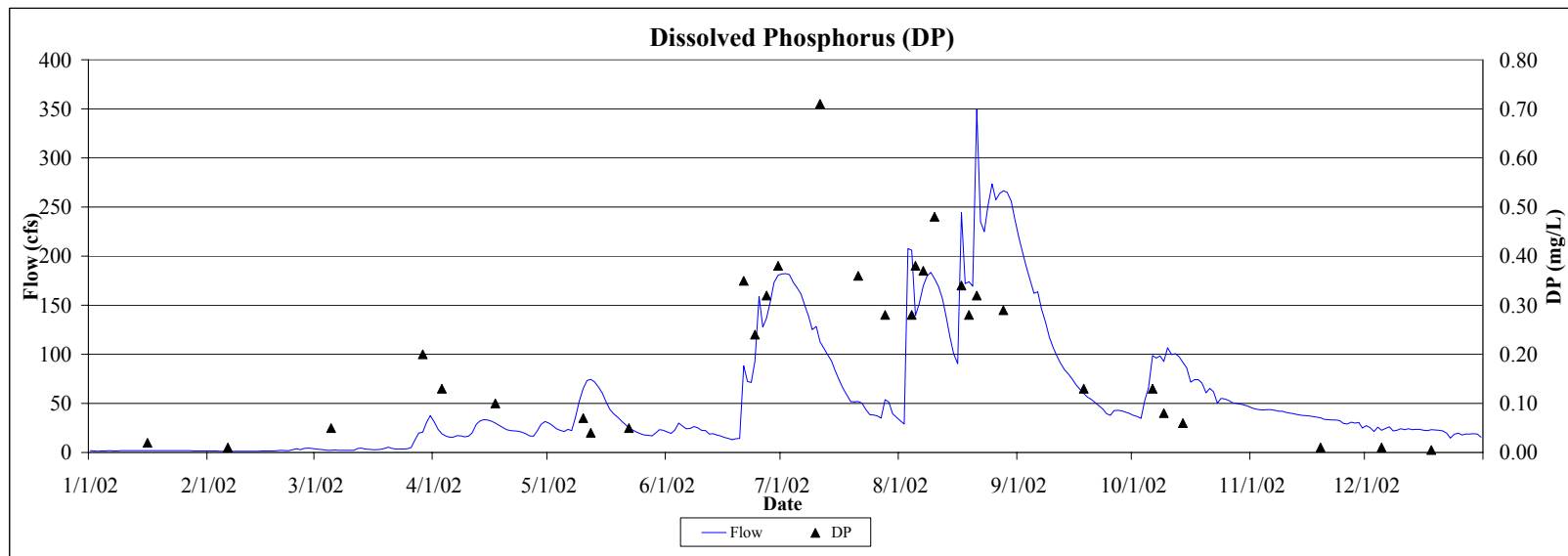
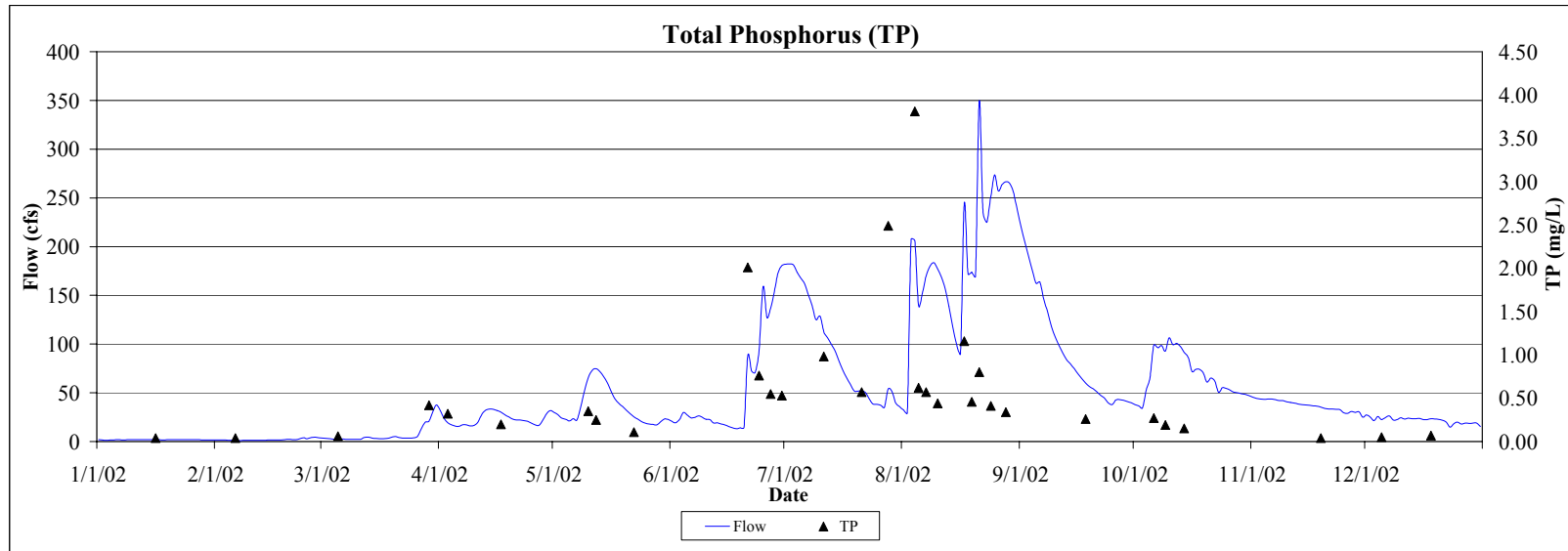


Table 4.CA. Carver Creek: Comparison of 2001-2002 Hydrology and Water Chemistry

	2001	2002
Hydrology		
Total Precipitation (in)	33.67	36.65
Water Yield (in)	6.4	8.6
Total Volume (cf)	1.2E+09	1.7E+09
Annual Load (tons)		
Total Suspended Solids	8,380	14,000
Total Phosphorus	20.9	36.9
Total Dissolved Phosphorus	10.0	12.1
Total Nitrate Nitrogen	186	83.8
Annual Yield (lbs/acre)		
Total Suspended Solids	314	524
Total Phosphorus	0.78	1.38
Total Dissolved Phosphorus	0.38	0.45
Total Nitrate Nitrogen	6.96	3.14
Annual Normalized Yield (lbs/acre/in of water)		
Total Suspended Solids	49	61
Total Phosphorus	0.12	0.16
Total Dissolved Phosphorus	0.06	0.05
Total Nitrate Nitrogen	1.09	0.37
Flow-Weighted Mean Concentration (mg/L)		
Total Suspended Solids	216	270
Total Phosphorus	0.54	0.71
Total Dissolved Phosphorus	0.26	0.23
Total Nitrate Nitrogen	4.80	1.61