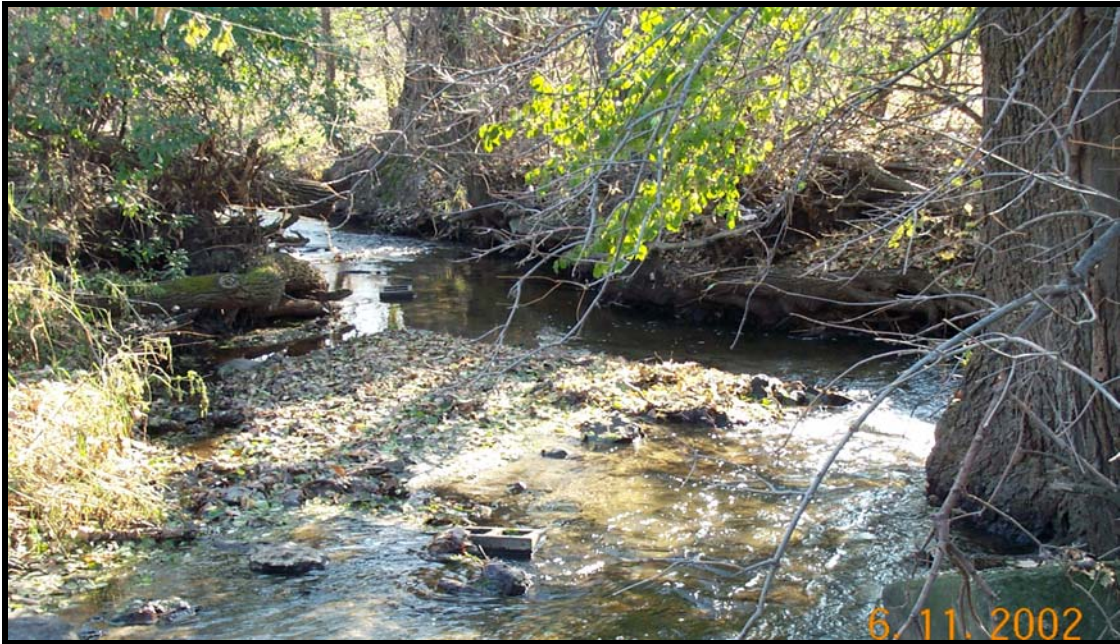


Table 1.RI. Riley Creek Monitoring Station Information



Station Address: 15995 Flying Cloud Drive, Eden Prairie, MN
County: Hennepin
Major Basin: Minnesota River Basin
Watershed: Riley Creek
Drainage Area: 13 square miles

Station Operator: Riley-Purgatory-Bluff Creek Watershed District /
Barr Engineering, Inc.

Metropolitan Council Environmental Services Contact Information:

Contact Person: Leigh Harrod, P.G.
Address: 2400 Childs Road
St Paul, MN 55106
Phone: 651-602-8085
E-mail: leigh.harrod@metc.state.mn.us

Watershed District or Watershed Management Organization:
Riley-Purgatory-Bluff Creek Watershed District

Station Overview: MCES, with funding provided by the Minnesota Legislature via a grant from the Minnesota Pollution Control Agency (MPCA), has supported water quality monitoring of Riley Creek since 1999. The monitoring station is located in Eden Prairie, Minnesota, 1.3 miles upstream from the creek confluence with the Minnesota River. MCES formerly operated a monitoring station on Riley Creek at this location (Mile 1.3) during the 1989-1991 period. Riley Creek generally flows southeast from its

headwaters in Lake Lucy and Lake Ann through Lake Susan, Rice Marsh Lake, and Riley Lake before it reaches the monitoring station. Below the station, Riley Creek flows into Grass Lake before reaching its confluence with the Minnesota River. During the 1989-1990 period, MCES also operated a second monitoring station on Riley Creek, immediately upstream from the creek confluence with the Minnesota River (Mile 0.0).

MCES partners with the Riley-Purgatory-Bluff Creek Watershed District to operate the monitoring station and maintain the rating curve through the district's consulting engineering company, Barr Engineering, Inc. A rain gauge is present at this location for measurement of precipitation.

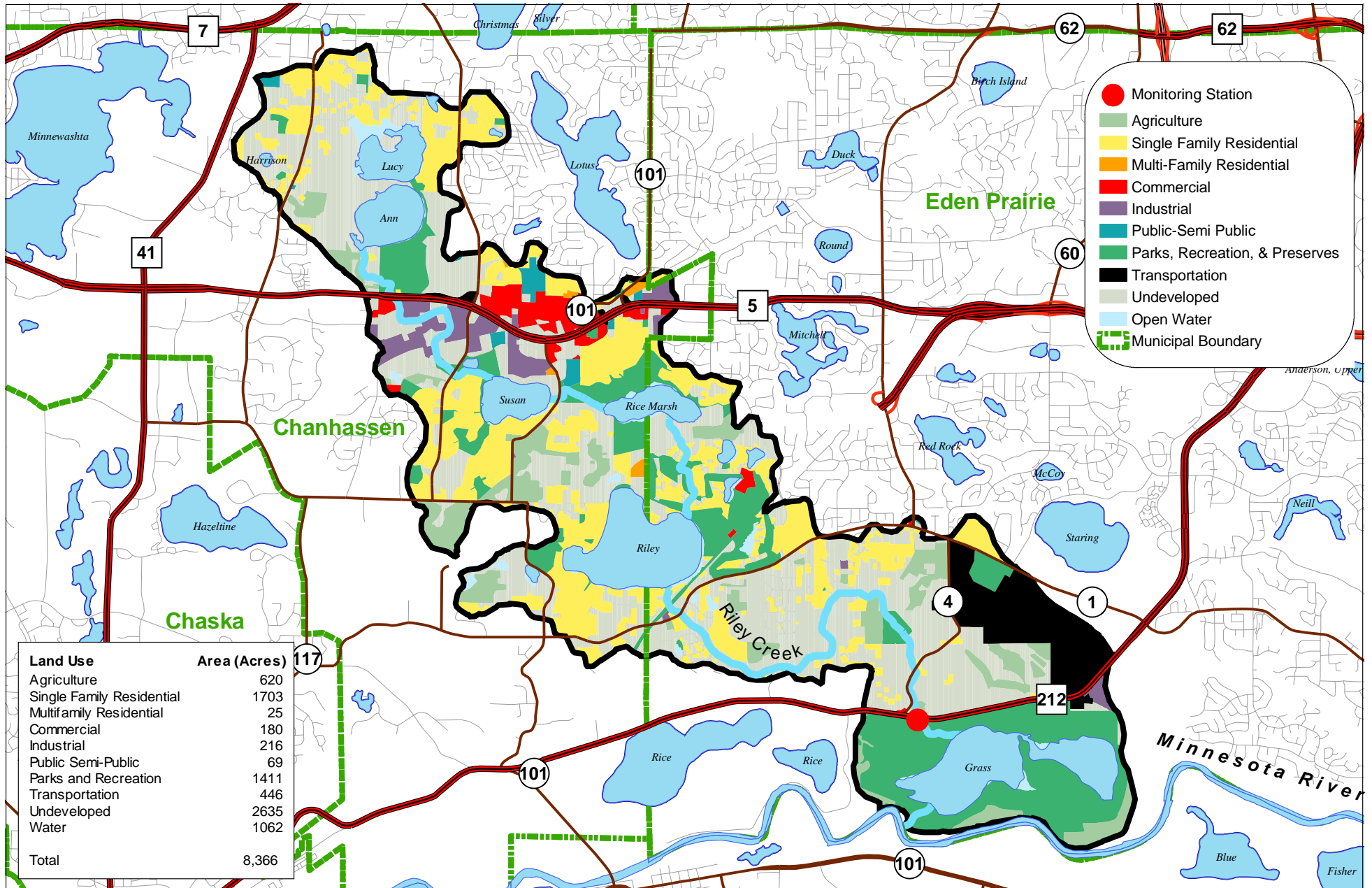
2002 Monitoring Year: Daily average flows could be directly measured during the winter months due to unseasonably mild temperatures. Snowmelt began during the last week of March 2002. Daily average flows were estimated during the August 15-28, 2002 period, when overgrown vegetation interfered with the monitoring equipment, causing artificially high stage measurements. The peak daily average flow of 60 cfs, with a stage of 0.84 feet, occurred on September 6, 2002.

Precipitation was recorded on 117 days at this location in 2002. Several significant storm events occurred between June 21 and October 4, 2002. Five of these events were characterized by high-intensity rainfall that generated more than 2 inches of precipitation at the monitoring station. Runoff event-based composite sampling began in late March 2002 and continued through early October. The highest total suspended solids (TSS) concentration (1,080 mg/L) observed in 2002 was measured in a composite sample collected during the July 10, 2002 storm event, when over 2 inches of rain fell within a 7-hour period.

Twenty-two samples were collected for water quality analysis during 2002, including 12 composite samples and 10 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 2002 sampling scheme did not quite meet the goals of the MCES monitoring work plan. A gap in sample collection occurred between July 10 and September 5, 2002, due in part to equipment failure. Also, monthly baseflow grab samples were not obtained in June and August.

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

Figure 1.RI. Riley Creek Monitoring Station Location and Watershed Characteristics



0 0.4 0.8 1.6 Miles



Figure 2.RI. Riley Creek 2002 Hydrograph, Precipitation and Sampling Information

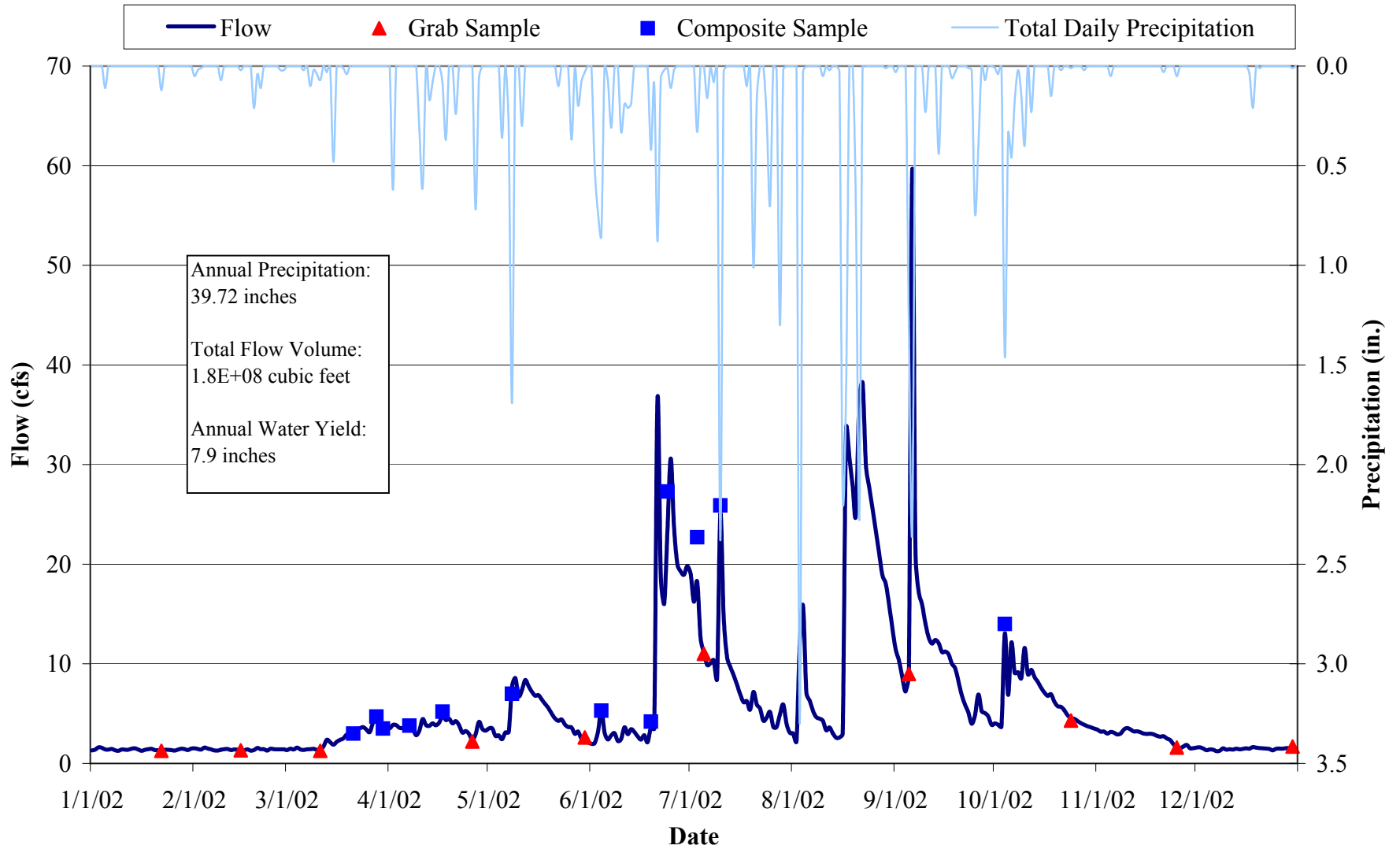


Table 2.RI. Riley Creek 2002 Water Chemistry Information

Variable	N	Mean	Median	Minimum	Maximum	25%	75%	STD
Chloride, mg/L	23	55	60	220	72	45	65	12
Hardness, mg/L	23	207	186	130	358	149	212	76
Cadmium, ug/L	7	0.1	0.1	<0.1	0.1	0.1	0.1	<0.1
Chromium, ug/L	7	0.9	0.5	0.2	3.0	0.5	0.8	1.0
Copper, ug/L	7	2.8	1.7	0.8	6.4	1.6	3.7	1.9
Lead, ug/L	7	1.0	0.5	0.1	3.6	0.5	0.9	1.2
Nickel, ug/L	7	3.8	3.5	2.8	6.8	3.2	3.7	1.4
Zinc, ug/L	7	6.9	4.5	2.7	21.0	3.6	6.3	6.4
Total Kjeldahl Nitrogen, mg/L	23	1.10	1.10	0.03	3.30	0.71	1.40	0.74
Total Nitrate Nitrogen, mg/L	23	0.89	0.75	0.14	2.20	0.53	1.02	0.61
Total Phosphorus, mg/L	23	0.21	0.13	0.02	1.01	0.07	0.24	0.22
Total Dissolved Phosphorus, mg/L	21	0.05	0.05	0.01	0.13	0.03	0.07	0.03
Total Suspended Solids, mg/L	23	134	41	2	1080	12	112	245
Volatile Suspended Solids, mg/L	23	16	7	2	100	3	17	23
Turbidity, NTU	23	37	14	2	290	4	34	64

N: Sample Count

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

STD: Standard Deviation

Table 3.RI. Riley 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)
Total Suspended Solids	1,490	468	59	260
Total Phosphorus	1.92	0.60	0.08	0.34
Total Dissolved Phosphorus	0.34	0.11	0.01	0.06
Total Nitrate Nitrogen	3.10	0.97	0.12	0.55

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

Figure 3.RI. Riley Creek 2002 Hydrograph with Total Suspended Solids and Nitrate Nitrogen Concentrations

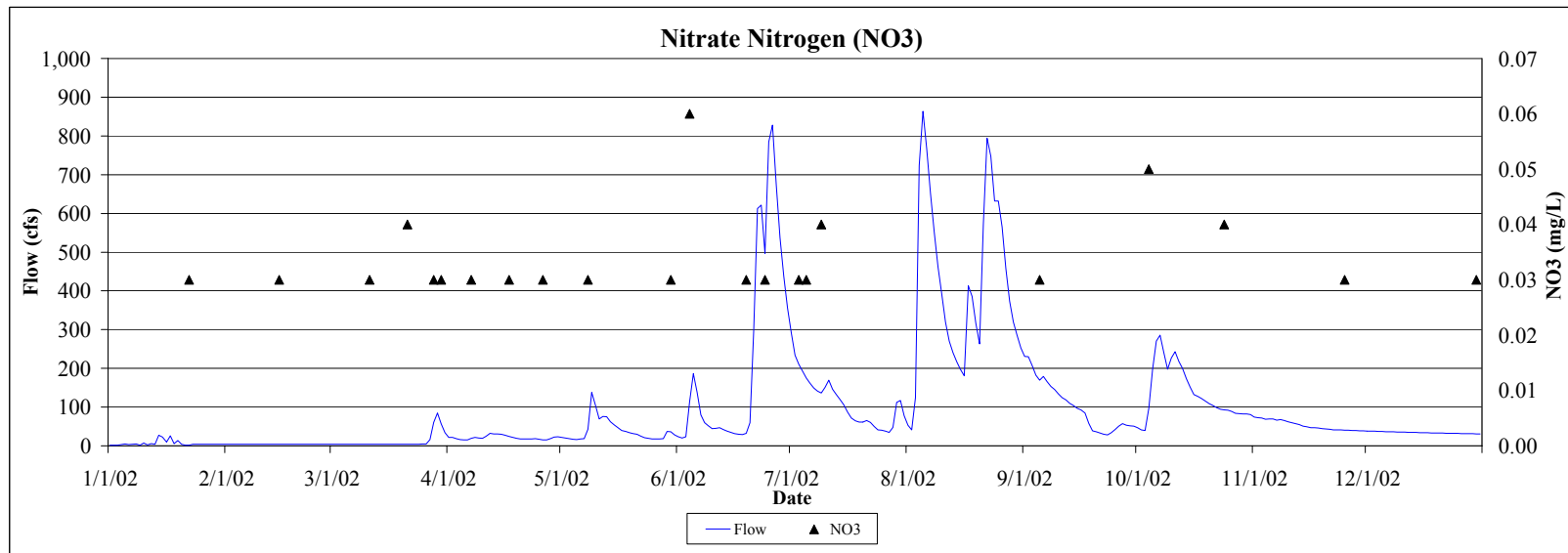
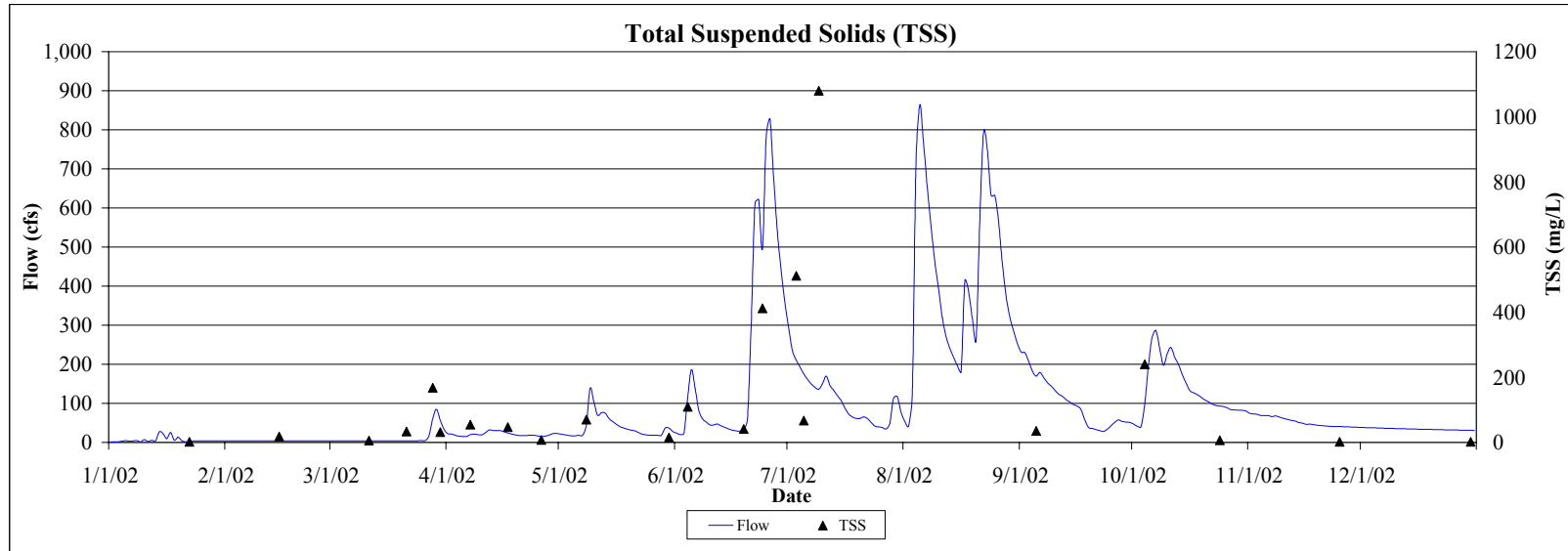


Figure 4.RI. Riley Creek 2002 Hydrograph with Total and Dissolved Phosphorus Concentrations

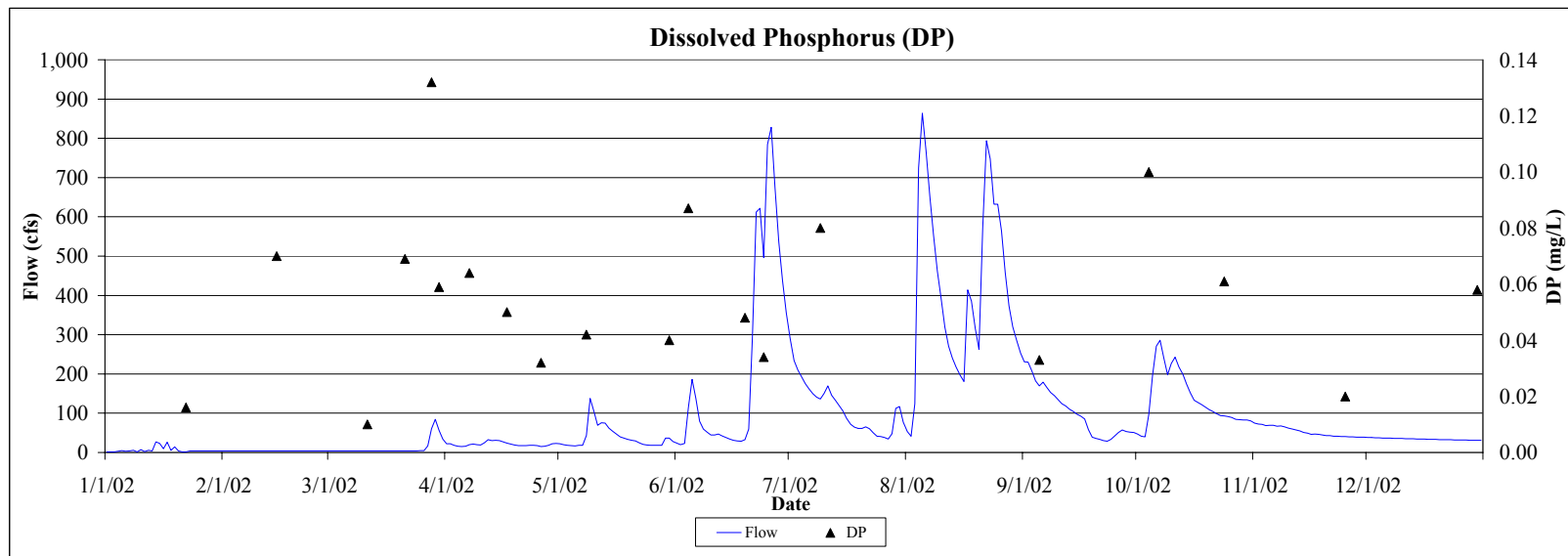
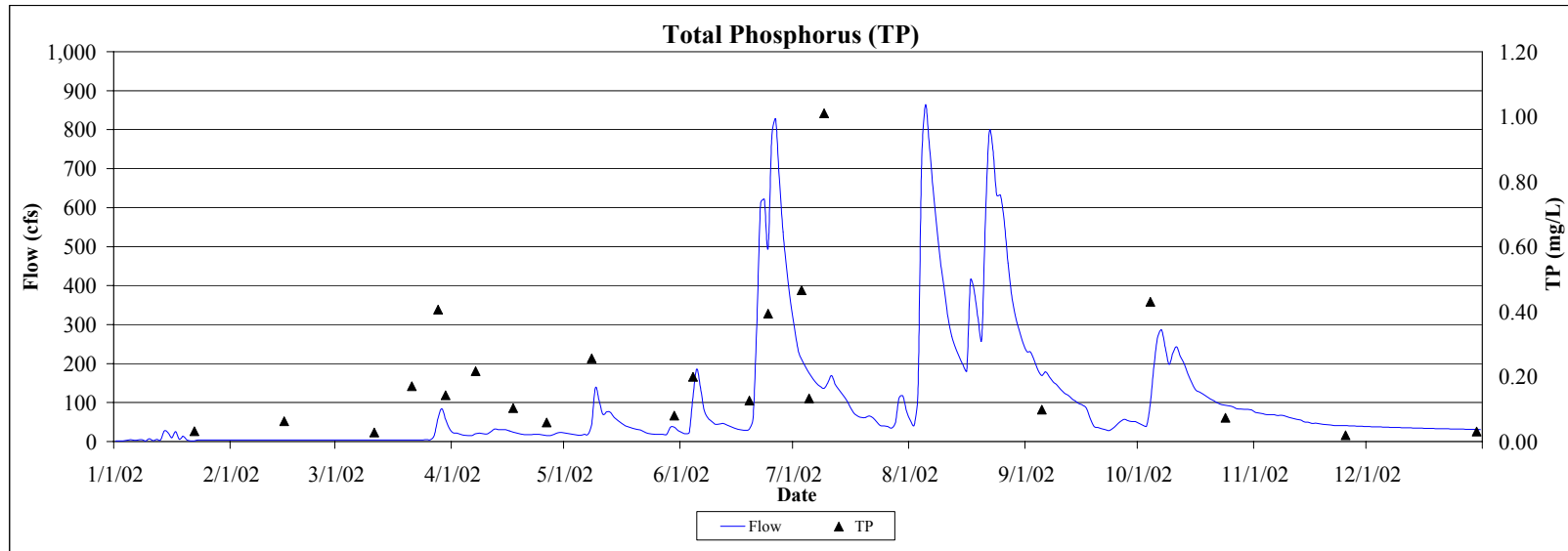


Table 4.RI. Riley Creek: Comparison of 2001-2002 Hydrology and Water Chemistry

	2001	2002
Hydrology		
Total Precipitation (in)	26.22	39.72
Water Yield (in)	5.4	7.9
Total Volume (cf)	1.6E+08	1.8E+08
Annual Load (tons)		
Total Suspended Solids	2,700	1,490
Total Phosphorus	2.47	1.92
Total Dissolved Phosphorus	0.33	0.34
Total Nitrate Nitrogen	4.08	3.10
Annual Yield (lbs/acre)		
Total Suspended Solids	644	468
Total Phosphorus	0.59	0.60
Total Dissolved Phosphorus	0.08	0.11
Total Nitrate Nitrogen	0.98	0.97
Annual Normalized Yield (lbs/acre/in of water)		
Total Suspended Solids	120	59
Total Phosphorus	0.11	0.08
Total Dissolved Phosphorus	0.01	0.01
Total Nitrate Nitrogen	0.18	0.12
Flow-Weighted Mean Concentration (mg/L)		
Total Suspended Solids	531	260
Total Phosphorus	0.49	0.34
Total Dissolved Phosphorus	0.06	0.06
Total Nitrate Nitrogen	0.80	0.55

Table 5.RI. Riley Creek 2002 Macroinvertebrate Monitoring Results and Metrics

Monitoring Date 6/20/2002

Class	Order	Family	Common Name	Life Stage	Organism Count
Crustacea	Amphipoda		Scuds	Adult	14
Hirudinea			Leeches	Adult	3
Insecta	Coleoptera	Curculionidae	Water Weevils	Adult	2
Insecta	Coleoptera	Dytiscidae	Predaceous Diving Beetles	Larvae	4
Insecta	Coleoptera	Dytiscidae	Predaceous Diving Beetles	Adult	1
Insecta	Coleoptera	Elmidae	Riffle Beetles	Adult	10
Insecta	Diptera	Athericidae	Watersnipe Flies	Larvae	9
Insecta	Diptera	Chironomidae	Midges	Larvae	35
Insecta	Diptera	Simuliidae	Black Flies	Larvae	52
Insecta	Diptera		True Flies	Pupa	3
Insecta	Ephemeroptera	Baetidae	Small Minnow Mayflies	Larvae	63
Insecta	Trichoptera		Caddisflies	Pupa	4

Macroinvertebrate Taxa Metrics

Total Taxa	10
EPT Taxa	1
% EPT Taxa	10
Diptera Taxa	3
% Diptera Taxa	30
Mean Tolerance Value	5.3

Macroinvertebrate Organism Metrics

Total Organisms	200
EPT Individuals	67
% EPT Individuals	34
Diptera Individuals	96
% Diptera Individuals	48
Chironomidae Individuals	35
% Chironomidae Individuals	18

Water Quality

Degree of Organic Pollution

Family-Level Biotic Index	5.1	Fair	Fairly substantial pollution likely
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