

## 2019 Stream Monitoring United States Geological Survey

### 2019 Stream Monitoring

There are three hydrologic watersheds within the administrative boundaries of the Elm Creek Watershed Management Commission – Elm Creek, Crow River and Mississippi River. The Elm Creek watershed contains several large depressions and drainageways. Stormwater within Elm Creek watershed is generally directed from the south and west to northeast via four main drainage ways – Rush Creek, North Fork Rush Creek, Diamond Creek, and Elm Creek. These drainage ways converge in the Elm Creek Park Reserve and enter Hayden Lake. Water is eventually discharged to the Mississippi River near the Mill Pond in Champlin.

Northwest areas of Rogers drain to Crow River. Within this area, Fox Creek is the main drainage way that collects stormwater along the I-94 corridor and the area between I-94, Territorial Road and Fletcher Lane. Areas north of I-94 and along the Highway 101 corridor drain north to the Crow River, mostly along the corridor. The northern quarter of Dayton flows north into the Mississippi River with a small area on the northwest side of Dayton draining to the Crow River. There are no major drainageways in these areas.

Elm Creek has been monitored since 1976 by a station located in Champlin. The monitoring station for Elm Creek is located at Elm Creek Road crossing in the Elm Creek Park Reserve and is operated in cooperation with the United States Geological Survey (USGS). The exact location is: latitude 45°09'48", longitude 93°26'11" referenced to North American Datum of 1927, in NE ¼ NW ¼ Sec.35, T.120 N., R.22 W., Hennepin County, MN, Hydrologic Unit 07010206, on left bank, 33 feet downstream from bridge on Elm Creek Road, 2.5 mi southwest of Champlin. Datum of the gage is 850.70 ft above sea level (NGVD of 1929). The Commission shares the costs of operating the station, which collects continuous flow data and periodic event and base water quality data. The watershed area above the gauging station is 86 square miles, or 81% of the hydrologic watershed.

Both grab samples and storm runoff samples are collected and analyzed for various parameters. Analyses of the streamflow and water quality monitoring data for Elm Creek and its tributaries are summarized below. Real time data from the monitoring station in Champlin may be viewed on the Internet at

[http://waterdata.usgs.gov/mn/nwis/uv/?site\\_no=05287890&PARAMeter\\_cd=00065,00060](http://waterdata.usgs.gov/mn/nwis/uv/?site_no=05287890&PARAMeter_cd=00065,00060).

### Flow Monitoring

Storm event samples are collected using an automatic sampler. Routine manual sampling occurs approximately monthly. The average daily discharge for the 2019 WY (October 1, 2018 through September 30, 2019) was not available at the time this report was updated. County Road 202 (Elm Road) bridge replacement took place between November 2018 to June 2019 affecting the stage-discharge relationship (flows) at the monitoring station.

A new stage-discharge rating is being developed based on the new channel configuration after the bridge construction. Provisional data suggests an annual mean discharge of 75.2 cfs during the 2019 water year. Although not verified, data suggests the 2019 water year had prolonged flows that were higher and discharged more water downstream of the station than any time during the 43 years the station has been in place. During the 2019 water year the minimum and maximum observed average daily discharge values were 4.86 cfs on February 20, 2019 and 904 cfs on March 24, 2019.. The long-term average daily discharge at the station is 42.1 cfs or 6.65 inches (years 1979-2017). A spreadsheet of the provisional data received in 2019 water year (WY), including daily discharge and summary information, long-term flow volumes (calendar and water years), and the daily mean flow hydrograph follow.

Elm Creek Annual Instantaneous Peak Discharge Rates							
Date	Peak Flow (cfs)	Date	Peak Flow (cfs)	Date	Peak Flow (cfs)	Date	Peak Flow (cfs)
4/4/79	307	6/1/91	371	6/28/03	695	7/19/15	127
3/25/80	199	3/8/92	380	6/03/04	350	9/24/16	1,220**
6/15/81	44	6/22/93	315	10/30/04	118	5/23/17	482
4/3/82	471*	4/30/94	669*	10/09/05	295	4/25/18	405
3/9/83	408	3/17/95	237	3/17/07	223	3/24/19	904***
2/25/84	341	3/19/96	407	5/4/08	205		
3/18/85	579*	4/1/97	511*	3/27/09	119		
3/27/86	812*	4/5/98	306	3/17/10	369		
8/1/87	185	5/15/99	538*	3/24/11	803		
3/27/88	39	7/13/00	112	5/29/12	568		
3/31/89	159	4/25/01	875	6/26/13	389		
8/1/90	225	5/11/02	554	5/1/14	803		

\*These values have been revised based on the 2001 rating curve.

\*\*All-time instantaneous peak discharge. The estimated 100-year flood discharge at this site is 2,290 cfs.

\*\*\*Provisional. Subject to change