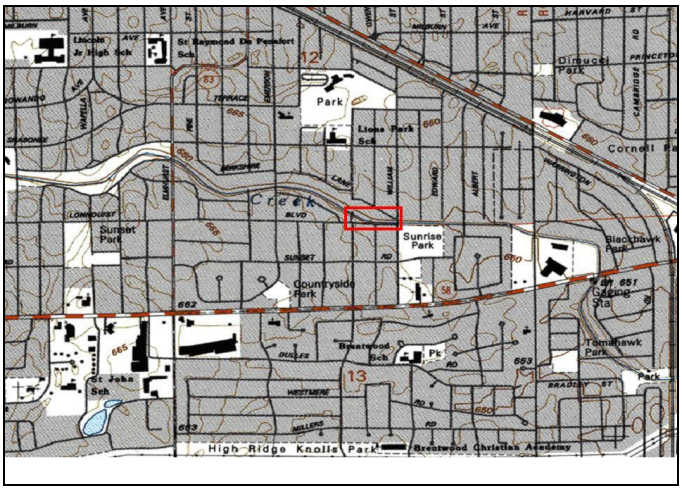
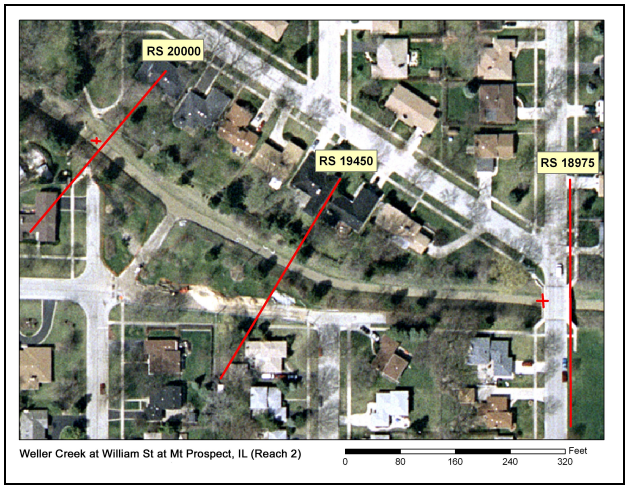
Weller Creek at William St at Mt Prospect, IL (Reach 2)





Study Reach.--The channel reach under consideration is a constructed channel in an urban setting, as shown on the quadrangle map at the top left. The study reach, about 730 ft long, is located from just upstream of the South School Street bridge to the South William Street bridge. Three surveyed cross sections (surveyed by the U.S. Corps of Engineers in May 2003) are available for describing the channel geometries in the study reach. The channel alignment, approximate variations in channel width and bank conditions, and locations of cross sections are shown in the aerial photo on the top right. Cross-sectional plots at four river stations (RSs), as shown above, are selected to illustrate the variation in cross-sectional geometry.

Gage Location.--The location of discharge measurement is lat 41°03 06 , long 87°55 43 . This study reach is at SW1/4 SW1/4 SE1/4 sec.12, T.41N., R.11E., Cook County, Hydrologic Unit 07120004, on right bank 10 ft upstream from bridge on State Highway 58 (Golf Road) in Des Plaines, 2 mi west of US Highway 45 and at mile 3.0. The USGS streamgage-station number is 05529990.

Drainage Area.--12.69 sq mi.

Gage Datum and Elevations of Reference Points.--Datum of gage is 634.02 ft.; RP4 is two filemarks on the upstream side of the bridge deck frame accessed through an opening in the bridge deck catwalk located just under the "X" formed by the guardrail diagonals on the School Street pedestrian bridge, elevation = 654.999 ft.; RP3 is a bolt in the concrete guardrail on the upstream side of the South Williams Street bridge located about midchannel, elevation = 656.515 ft. All elevations are in NGVD 1929 convention.

Stage, Discharge Measurements, and Computed n-Values.--Water surface elevations are made by taping down from RP-3 on the upstream side of Williams Street bridge and from RP-4 on the upstream side of the School Street pedestrian bridge. Discharge measurements are made on the upstream side of Williams Street Bridge. Wading measurements are made in the vicinity of the upstream side of the bridge. When possible, multiple discharge measurements were made during a rise and recession to provide data for calculating n-values over a range in stage. The computed n-values are listed in the following table. Whenever possible, the computed n-values are associated with a photo taken at the time of the measurement. The photos are arranged from low stage to high stage in order to illustrate contributing factors of n-value at a particular stage.

Date of Observation	Discharge (ft^3/s)	Average Cross	Hydraulic Radius (ft)	Mean Velocity	Slope	Coefficient of

		Section Area (ft^2)		(ft/s)		Roughness *n*
5/2/2006	8.1	8.2	0.60	1.00	0.000999	0.029
4/25/2007	59.1	23.5	1.41	2.52	0.001358	0.024
4/25/2007	62.4	24.7	1.46	2.54	0.001382	0.024
6/26/2006	63.7	27.7	1.58	2.32	0.001542	0.029

05529990 Weller Creek at William St at Mt Prospect, IL (Reach 2) 06/03/03
Closeup of cement biostructure at School St

05529990 Weller Creek at William St at Mt Prospect, IL (Reach 2) 06/03/03
Looking Upstream at cement bank protection (at School St)

05529990 Weller Creek at William St at Mt Prospect, IL (Reach 2) 06/03/03
Looking Downstream from School St

05529990 Weller Creek at William St at Mt Prospect, IL (Reach 2) 06/03/03
Looking at bed material at School St

05529990 Weller Creek at William St at Mt Prospect, IL (Reach 2) 06/03/03
Looking Upstream at bed and bank material

05529990 Weller Creek at William St at Mt Prospect, IL (Reach 2) 06/03/03
Looking Upstream of Williams, cement

05529990 Weller Creek at William St at Mt Prospect, IL (Reach 2) 05/02/06
From upstream, looking downstream

05529990 Weller Creek at William St at Mt Prospect, IL (Reach 2) 05/02/06
From downstream, looking upstream

05529990 Weller Creek at William St. at Mt. Prospect, IL (Reach 2) 06/26/06
Looking Downstream from Bridge

05529990 Weller Creek at William St. at Mt. Prospect, IL (Reach 2) 06/26/06
Looking Upstream of Bridge

Description of Channel.--This channel has been modified. The streambed material consists of coarse sand and gravel in 12 inch monoslab pavers. The bank consists of 12 inch monoslab pavers over geoweb fabric with tall grass and weeds anchored in the geoweb. Small brushy willows have begun to take root in scattered clumps along the bank. The cross sections are fairly uniform and nearly trapezoidal. The channel is straight upstream and downstream of a gentle bend to the left, which occurs about 500 feet downstream from the School Street footbridge.

Floods.--Maximum discharge during period of record, 1,590 ft^3/s on June 10, 1967, gage height, 15.09 ft.

Estimated n-Values using Cowan s Approach.--