

**11055800 City Creek near Highland, CA**

Santa Ana River Basin

LOCATION.--Lat 34°08'38", long 117°11'16" referenced to North American Datum of 1927, in SW ¼ NW ¼ sec.27, T.1 N., R.3 W., San Bernardino County, CA, Hydrologic Unit 18070203, on right bank, 0.6 mi upstream from Highland Avenue, and 1.5 mi northeast of Highland.

DRAINAGE AREA.--19.6 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--October 1919 to current year; combined records of creek and City Creek Water Co.'s canal, June 1924 to September 1986, October 1988 to current year.

REVISED RECORDS.--WSP 1635: 1920 (instantaneous maximum discharge), 1923 (instantaneous maximum discharge), 1937 (instantaneous maximum discharge), 1939 (instantaneous maximum discharge), 1946. WSP 1928: Drainage area.

GAGE.--Water-stage recorder on creek; water-stage recorder on canal. Elevation of creek gage is 1,580 ft above NGVD of 1929, from topographic map. Prior to Mar. 1, 1939, at site 0.2 mi downstream at different datum. Canal gage at different datum.

REMARKS.--Records good. No regulation upstream from station. City Creek Water Co.'s canal (station 11055700) diverted from a site 0.5 mi upstream from station for irrigation throughout period of record until Sept. 30, 1986, and resumed diversion on Mar. 31, 1989. Diversion canal damaged by storms of January 1993, with no flow in canal from Jan. 14, 1993, to Apr. 5, 1995. For combined discharge of City Creek and canal see station 11055801. See schematic diagram of Santa Ana River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Creek only: Maximum discharge, 9,900 ft<sup>3</sup>/s, Jan. 10, 2005, gage height, 10.68 ft, on basis of slope-area measurement of peak flow, at site 0.50 mi downstream; maximum gage height, 11.06 ft, Dec. 25, 2003, from floodmark left by a debris flow near the gage; no flow for many days in some years. The maximum stage for the period of record is not related to the maximum discharge on that day, but rather is associated with a debris flow at the gaging station. The stage associated with the maximum discharge on Dec. 25, 2003 is unknown. The maximum discharge on Dec. 25, 2003, (8,000 ft<sup>3</sup>/s) is based on hydraulic computations that were applied to a possible hyperconcentrated flow event. The peak flow was the result of an intense rain storm that occurred less than two months after a wildfire burned over 90 percent of the drainage basin.

Combined creek and canal: Maximum discharge, 9,900 ft<sup>3</sup>/s, Jan. 10, 2005; no flow at times in some years.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 110 ft<sup>3</sup>/s and (or) maximum (\*), from rating curve extended above 860 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 10.68 ft:

| Date   | Time | Creek Only                     |                  | Combined Creek and Canal       |
|--------|------|--------------------------------|------------------|--------------------------------|
|        |      | Discharge (ft <sup>3</sup> /s) | Gage height (ft) | Discharge (ft <sup>3</sup> /s) |
| Feb 27 | 1130 | *32                            | *3.07            | *32                            |

## 11055800 City Creek near Highland, CA—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**  
**DAILY MEAN VALUES**

| Day          | Oct   | Nov   | Dec   | Jan   | Feb   | Mar   | Apr   | May  | Jun  | Jul  | Aug  | Sep  |
|--------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|
| 1            | 5.3   | 5.4   | 4.6   | 5.1   | 6.2   | 7.8   | 4.1   | 3.6  | 2.6  | 1.8  | 1.5  | 1.2  |
| 2            | 5.4   | 5.2   | 4.5   | 5.1   | 5.9   | 7.1   | 4.1   | 3.6  | 2.6  | 1.7  | 1.5  | 1.1  |
| 3            | 5.5   | 5.0   | 4.3   | 5.1   | 5.6   | 6.7   | 4.1   | 3.6  | 2.6  | 1.6  | 1.4  | 1.2  |
| 4            | 5.6   | 4.9   | 4.4   | 5.3   | 5.4   | 6.2   | 4.0   | 3.8  | 2.4  | 1.6  | 1.4  | 1.2  |
| 5            | 5.4   | 4.6   | 4.4   | 6.7   | 5.3   | 6.0   | 4.0   | 3.7  | 2.4  | 1.6  | 1.4  | 1.1  |
| 6            | 5.5   | 4.5   | 4.3   | 6.4   | 5.2   | 5.7   | 4.1   | 3.3  | 2.6  | 1.6  | 1.5  | 1.1  |
| 7            | 5.6   | 4.5   | 4.2   | 6.2   | 5.1   | 5.6   | 4.3   | 3.2  | 2.7  | 1.6  | 1.5  | 1.1  |
| 8            | 5.5   | 4.6   | 4.3   | 6.1   | 5.1   | 5.6   | 4.5   | 3.1  | 2.5  | 1.6  | 1.5  | 1.1  |
| 9            | 5.4   | 4.8   | 4.4   | 6.1   | 5.1   | 5.6   | 4.5   | 3.0  | 2.5  | 1.6  | 1.4  | 1.1  |
| 10           | 5.3   | 4.7   | 7.3   | 6.3   | 5.1   | 5.4   | 4.2   | 2.9  | 2.4  | 1.7  | 1.4  | 1.1  |
| 11           | 5.2   | 4.7   | 5.4   | 6.2   | 6.1   | 5.1   | 4.0   | 2.9  | 2.4  | 1.7  | 1.4  | 1.2  |
| 12           | 5.1   | 4.8   | 5.1   | 8.1   | 5.7   | 5.1   | 4.1   | 3.0  | 2.5  | 1.6  | 1.3  | 1.2  |
| 13           | 5.6   | 4.8   | 4.7   | 6.7   | 7.7   | 5.1   | 3.9   | 3.0  | 2.4  | 1.5  | 1.3  | 1.1  |
| 14           | 8.9   | 4.8   | 4.5   | 6.3   | 6.7   | 4.9   | 3.7   | 3.0  | 2.4  | 1.5  | 1.3  | 1.1  |
| 15           | 7.0   | 4.6   | 4.5   | 6.3   | 5.9   | 4.8   | 5.0   | 3.0  | 2.2  | 1.5  | 1.2  | 1.2  |
| 16           | 6.7   | 4.5   | 6.6   | 6.2   | 5.5   | 4.7   | 5.3   | 3.0  | 2.2  | 1.5  | 1.1  | 1.2  |
| 17           | 6.5   | 4.5   | 7.8   | 6.0   | 5.3   | 4.6   | 4.4   | 2.9  | 2.1  | 1.5  | 1.1  | 1.3  |
| 18           | 6.0   | 4.5   | 5.6   | 5.9   | 5.3   | 4.7   | 4.1   | 2.9  | 2.1  | 1.5  | 1.1  | 1.4  |
| 19           | 5.7   | 4.4   | 5.3   | 5.8   | 8.5   | 4.8   | 3.9   | 2.8  | 2.1  | 1.5  | 1.1  | 1.5  |
| 20           | 5.5   | 4.4   | 5.1   | 5.8   | 6.7   | 5.0   | 6.5   | 2.8  | 2.0  | 1.5  | 1.0  | 1.7  |
| 21           | 5.4   | 4.4   | 5.0   | 5.9   | 6.2   | 8.4   | 6.1   | 3.0  | 1.9  | 1.4  | 1.0  | 1.7  |
| 22           | 5.3   | 4.4   | 5.0   | 5.4   | 6.9   | 6.0   | 5.1   | 3.4  | 2.0  | 1.4  | 1.1  | 2.5  |
| 23           | 5.3   | 4.6   | 4.9   | 5.3   | 11    | 5.3   | 4.7   | 3.1  | 2.1  | 1.5  | 1.1  | 2.9  |
| 24           | 5.3   | 4.6   | 4.8   | 5.2   | 7.2   | 4.9   | 4.4   | 2.7  | 2.1  | 1.5  | 1.2  | 2.1  |
| 25           | 5.4   | 4.8   | 4.8   | 5.2   | 6.6   | 4.7   | 4.1   | 2.7  | 2.1  | 1.4  | 1.2  | 2.0  |
| 26           | 4.9   | 4.9   | 4.8   | 5.2   | 6.6   | 4.6   | 4.0   | 2.6  | 2.1  | 1.4  | 1.2  | 1.9  |
| 27           | 4.8   | 5.7   | 5.0   | 5.2   | 15    | 5.4   | 3.8   | 2.6  | 1.9  | 1.3  | 1.2  | 1.8  |
| 28           | 4.8   | 5.5   | 4.9   | 5.0   | 9.9   | 4.9   | 3.6   | 2.6  | 1.9  | 1.3  | 1.2  | 1.9  |
| 29           | 4.9   | 4.8   | 5.0   | 4.9   | ---   | 4.6   | 3.6   | 2.6  | 1.9  | 1.3  | 1.1  | 2.1  |
| 30           | 5.1   | 4.7   | 5.1   | 5.2   | ---   | 4.3   | 3.6   | 2.6  | 1.8  | 1.3  | 1.3  | 2.0  |
| 31           | 5.4   | ---   | 5.1   | 7.9   | ---   | 4.2   | ---   | 2.6  | ---  | 1.4  | 1.4  | ---  |
| <b>Total</b> | 173.3 | 142.6 | 155.7 | 182.1 | 186.8 | 167.8 | 129.8 | 93.6 | 67.5 | 46.9 | 39.4 | 45.1 |
| <b>Mean</b>  | 5.59  | 4.75  | 5.02  | 5.87  | 6.67  | 5.41  | 4.33  | 3.02 | 2.25 | 1.51 | 1.27 | 1.50 |
| <b>Max</b>   | 8.9   | 5.7   | 7.8   | 8.1   | 15    | 8.4   | 6.5   | 3.8  | 2.7  | 1.8  | 1.5  | 2.9  |
| <b>Min</b>   | 4.8   | 4.4   | 4.2   | 4.9   | 5.1   | 4.2   | 3.6   | 2.6  | 1.8  | 1.3  | 1.0  | 1.1  |
| <b>Ac-ft</b> | 344   | 283   | 309   | 361   | 371   | 333   | 257   | 186  | 134  | 93   | 78   | 89   |

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2007, BY WATER YEAR (WY)**

|             | Oct    | Nov    | Dec    | Jan    | Feb    | Mar    | Apr    | May    | Jun    | Jul    | Aug    | Sep    |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Mean</b> | 1.38   | 3.44   | 8.57   | 18.9   | 30.4   | 28.6   | 17.9   | 7.62   | 3.03   | 1.26   | 0.74   | 0.75   |
| <b>Max</b>  | 19.2   | 43.4   | 89.5   | 269    | 451    | 219    | 148    | 52.3   | 26.1   | 11.7   | 9.56   | 6.60   |
| <b>(WY)</b> | (2005) | (1966) | (1967) | (2005) | (1969) | (1938) | (1926) | (1998) | (1998) | (1980) | (1983) | (2005) |
| <b>Min</b>  | 0.00   | 0.00   | 0.00   | 0.13   | 0.35   | 0.18   | 0.03   | 0.00   | 0.00   | 0.00   | 0.00   | 0.00   |
| <b>(WY)</b> | (1927) | (1922) | (1930) | (1936) | (1924) | (1926) | (1934) | (1934) | (1924) | (1924) | (1920) | (1920) |

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SUMMARY STATISTICS

|                                 | Calendar Year 2006 |        | Water Year 2007 |        | Water Years 1920 - 2007 |              |
|---------------------------------|--------------------|--------|-----------------|--------|-------------------------|--------------|
| <b>Annual total</b>             | 5,124.4            |        | 1,430.6         |        |                         |              |
| <b>Annual mean</b>              | 14.0               |        | 3.92            |        | 10.1                    |              |
| <b>Highest annual mean</b>      |                    |        |                 |        | 75.3                    | 1969         |
| <b>Lowest annual mean</b>       |                    |        |                 |        | 0.46                    | 1961         |
| <b>Highest daily mean</b>       | 281                | Apr 5  | 15              | Feb 27 | 3,360                   | Feb 25, 1969 |
| <b>Lowest daily mean</b>        | 4.2                | Feb 26 | 1.0             | Aug 20 | 0.00                    | Jul 18, 1920 |
| <b>Annual seven-day minimum</b> | 4.3                | Dec 3  | 1.1             | Aug 16 | 0.00                    | Jul 18, 1920 |
| <b>Maximum peak flow</b>        |                    |        | 32              | Feb 27 | 9,900                   | Jan 10, 2005 |
| <b>Maximum peak stage</b>       |                    |        | 3.07            | Feb 27 | <sup>a</sup> 11.06      | Dec 25, 2003 |
| <b>Annual runoff (ac-ft)</b>    | 10,160             |        | 2,840           |        | 7,320                   |              |
| <b>10 percent exceeds</b>       | 27                 |        | 6.2             |        | 20                      |              |
| <b>50 percent exceeds</b>       | 7.2                |        | 4.4             |        | 1.6                     |              |
| <b>90 percent exceeds</b>       | 4.7                |        | 1.3             |        | 0.00                    |              |

<sup>a</sup> Maximum stage for the 2004 water year and period of record is not related to the maximum discharge on that date, but rather is associated with a debris flow at the gaging station.

