

City of Jonesboro Streamgaging Network



Executive Summary



In an effort to help the City of Jonesboro develop an understanding of the hydrology of the drainage basins within city limits, the USGS proposes the installation of two gaging stations to continuously monitor streamflow and rainfall. Listed below (fig. 1, table 1) are the proposed continuous streamflow-record gaging stations and costs associated with installation, operation, and maintenance.



EXPLANATION

- ▲ Continuous Stream Flow-Record and Rainfall Gaging Station

Figure 1. Illustration of site locations for continuous streamflow-record and rainfall gaging stations for Jonesboro, Arkansas.

Table 1. Continuous streamflow-record and rainfall gaging stations to be installed for Jonesboro, Arkansas and costs associated with installation, operation and maintenance.

Monitoring Location	Task	Jonesboro
Lost Creek at Lacy Drive (S,Q,R)	Gage Installation	\$960 *
	Operation and Maintenance	\$6,250 **
Whiteman Creek at Access Road (S,Q,R)	Gage Installation	\$960 *
	Operation and Maintenance	\$6,250 **
TOTAL		\$14,420

[S, stage (water level), Q, streamflow; R, rainfall]

* Actual cost of installation is \$15,000. Other funding sources used to cover the remaining \$14,040.

** represents 6 months of operation and maintenance (7/09 - 12/09)

The USGS will install the instrumentation, shelters, and equipment for each gaging station at select locations (fig. 1). Each gaging station will be equipped with stage (water-level) sensing instruments that are accurate to within 0.01 feet and rainfall tipping buckets that can measure as little as 0.01 inches of rainfall over a range of rainfall intensities. All gaging stations will be equipped with a data collection platform (DCP) that will record these data in 15-minute increments and transmit the data to the USGS office in Little Rock via satellite telemetry once every hour. The data will be stored in the USGS database and posted to the Arkansas Water Science Center's webpage (fig. 2).

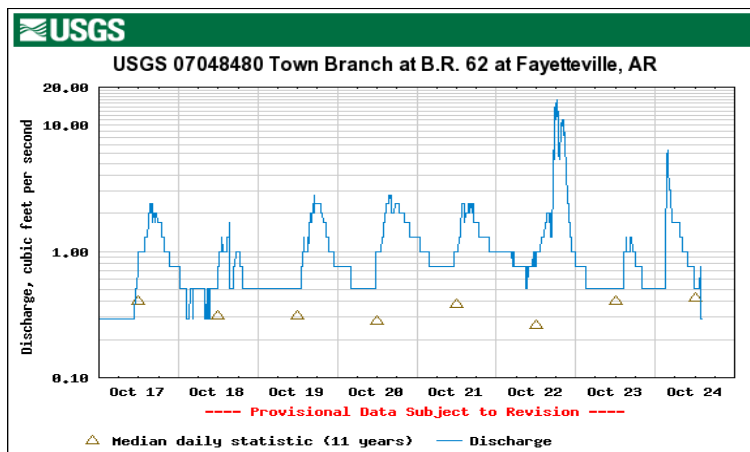


Figure 2. Stream-flow hydrograph displayed on the USGS website (<http://ar.water.usgs.gov/>)

Transmitted data from each gaging station will be inspected daily at the USGS Arkansas Water Science Center to ensure that data are being transmitted properly, battery voltage is appropriate, and that all components of the station are functioning properly. At least once every eight weeks, sites will be visited and inspected by USGS personnel. If a gaging station is malfunctioning, the USGS will make the necessary repairs at no additional cost to the city of Jonesboro.

At each of the gaging stations, streamflow will be measured during routine visits (and during high-flow conditions) according to established USGS standards and methods using acoustic velocity meters and/or conventional streamflow measurement equipment. Upon returning to the Arkansas Water Science Center in Little Rock, USGS personnel will apply necessary corrections to the stage and rainfall data stored in the USGS database based upon information collected during site inspections. For each station, stage-discharge relations will be developed, modified, and maintained based upon streamflow measurement data collected at the site. Using the stage-discharge relations and the USGS automated data processing system, streamflow will be computed and stored in the USGS database for each unit-value (15-minute reading) that was transmitted to the USGS office from the gaging station. Additionally, based on site visit inspections, the accuracy of the data will be assessed. Annually, daily mean (average) values of the streamflow data and total rainfall will be published and available online at: <http://pubs.usgs.gov/wdr/#AR>.