

Rainwater Harvesting

This project is a partnership consisting of UDFCD, Water Environment Research Foundation (WERF), Denver Green School (DGS), and the Urban Watershed Research Institute. The project is also made possible by Denver Water, who augments the rainwater used for irrigation. The cistern shown below collects runoff from the new building at DGS and uses this for irrigation of the adjacent landscape areas. Most of the 8000 square-foot roof drains to the 3000 gallon cistern. When available, the cistern will capture a rainfall depth of approximately 0.7 inches.

The DGS rainwater harvesting system is designed, in part, for student involvement. DGS is a public school in Denver that utilizes project-based learning through the lens of sustainability. Students will be able to see differences in volume associated with usage, rain events, and cistern evacuation in anticipation of forecasted rain events. They can use this system to expand understanding of math and science while becoming aware of water issues in Colorado. The WERF partnership has enhanced this aspect of the project, providing components for real time monitoring of the cistern via the web. The system has a connection to NOAA weather forecasting and will drain prior to an event and commensurate with the forecast so that the volume is available for stormwater capture. This type of automated system can be used to address stormwater treatment using a smaller footprint than would be required using conventional methods. Additionally, measurements will include volume collected; volume used for irrigation and volume drained to make storage available for forecasted rainfall. This is part of a nationwide WERF study and an important site within that study as rainfall patterns in Denver are much different than at other sites currently in the study.

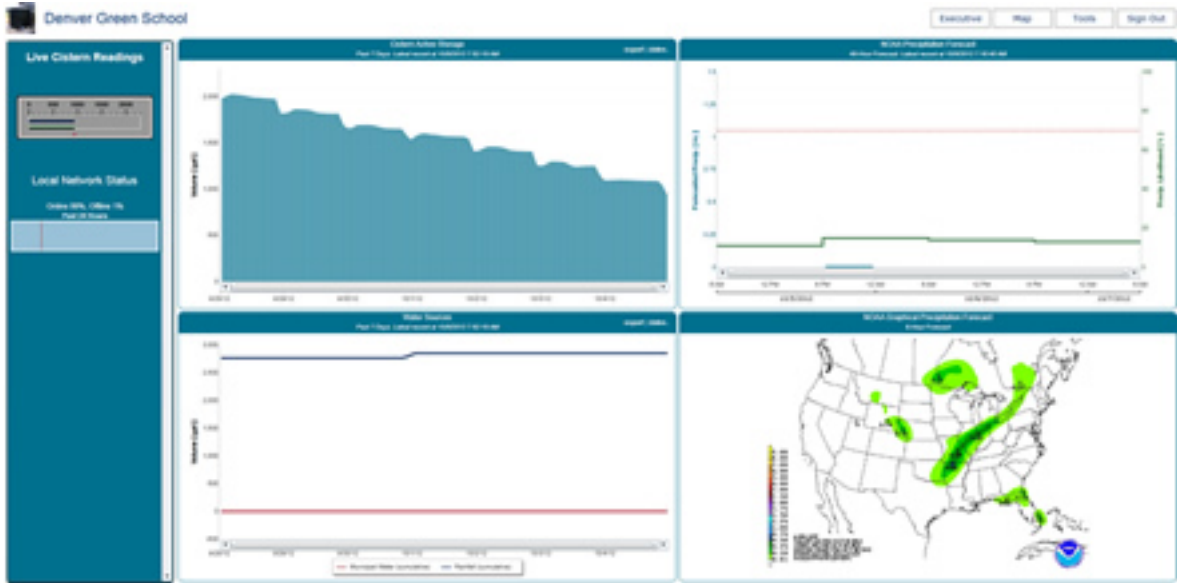
More information is provided in the following paper:

[Evaluation of Rainwater Harvesting With Cloud-Based Infrastructure as a Stormwater Control Measure](#)



The 3000 gallon cistern collects runoff from approximately 7300 square feet of the roof.

The purge valve is shown at the lower right side of the cistern. This box includes a pressure transducer continuously measuring the volume in the cistern. A valve on the downspout allows for winterizing the system. A rain gauge can be seen mounted on the HVAC box.



Capture, rainfall, irrigation demand, and weather forecasting can be viewed via the web.