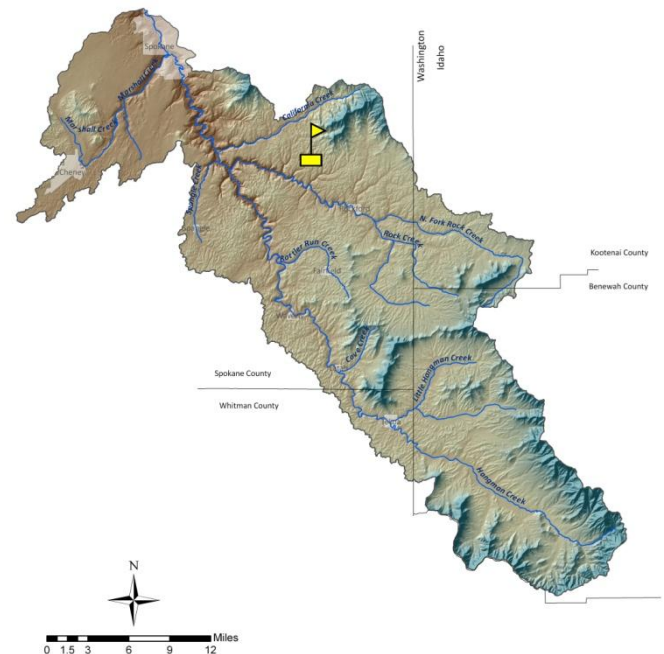


Freeman High School Football Field

IRRIGATION EFFICIENCY PILOT PROJECT

INTRODUCTION

The pursuit of irrigation efficiency should be the highest priority for all public and private facilities responsible for irrigated areas. The program provided funding to evaluate the current use and improve the efficiency in public irrigation facilities. It focused on irrigation systems of schools, cemeteries, golf courses, parks, etc. The program offered professional irrigation audits, new (upgrade) irrigation designs, retrofit designs, and outreach/awareness to all residents. The program also included cost-share for construction and materials. The pilot project will be focused on improving irrigation efficiency at the Freeman High School Football Field for the purpose of improving a public system and showcasing the water savings to the Hangman Watershed community.



PROJECT GOALS



The pilot project for the irrigation efficiency program was designed to take an existing public irrigation system and identify the inefficiencies within the system and retrofit the system to make it more efficient. The Freeman High School Football Field was chosen as the site for the pilot project as it is highly visible for the surrounding community, as it is where the majority of students living within the Hangman Watershed in Spokane County attend high school, and is a gathering point for events throughout the year. The project components included an audit and audit report of the existing irrigation system, a design for a retrofit of the system to increase efficiency, and installation of a retrofitted system.



AUDIT

The audit was completed by Ewing Irrigation on May 25, 2011. A number of important problems with the existing system were highlighted in the report. The field was watered using two different rotor brands, skewing in the water distribution pattern. The pressure of the system was inconsistent in the different irrigation zones, ranging from 70 psi to 45 psi, which decreases efficiency because of droplet size and account for wind. The layout of the system was very random and inefficient. Based on the head spacing, the peak season distribution uniformity was well below 50%, which means that the system would have to apply 2 inches of water or more to get 1 inch to the dry spots. A retrofit to the system was necessary to increase the water use efficiency.

The recommendations from the audit were as follows:

- ◆ Install 6 in pop up heads from one manufacture.
- ◆ Install Hunter ICV 1.5" valves, equipped with AccuSync on-valve pressure regulator on the head to maintain pressure at 40 psi
- ◆ Lateral piping should be sized to ensure that the pressure varies no more than 10% from the first head to the last in the zone
- ◆ Scheduling needs to account for the heavy clay soil
- ◆ Scheduling needs to account for peak water needs

DESIGN/INSTALLATION

The retrofitting of the existing irrigation system was designed using the recommendations from the audit. Ewing and Dew Drop Sprinklers and Landscaping collaborated on the design to increase the efficiency of the system to 80% efficient. Dew Drop Sprinklers and Landscaping completed installation of the retrofit and the system is functioning today with 80% or better efficiency.

RESULTS OF THE PROGRAM

This pilot project was the first of hopefully many irrigation efficiency projects in the Hangman Watershed Irrigation Efficiency Program. The project saves 17,175 gallons per watering, which translates to 51,525 gallons saved per week during the peak watering season of May through October. This translates to an energy savings as well as the pump from the water well to the storage tanks will not have to work nearly as much. The pumps have not been individually metered, so total energy savings could not be calculated at this time. Future projects will be considered for the program includes any public spaces in the Hangman Watershed that are currently irrigated.



PARTNERS/FUNDING

This project was conceived and executed by the Spokane Conservation District, with input from the WRIA 56 planning subgroup of Ty Wick from the Spokane Joint Aquifer Board, Brian St. Claire of Modern Electric Water and Power, and Steve Skipworth, retired from Vera Water and Power. It was managed with grant oversight by Ecology Staff. This project was funded by WRIA 56 Phase IV year 4 funds for \$10,000. The Freeman School District contributed \$1,000 to the project for a total project cost of \$11,000.