

## **LANDSCAPE IRRIGATION SYSTEM EVALUATIONS PILOT PROJECT**

### **Spring 2013**

#### **Project Background**

For years Clallam Conservation District has been trying to promote water conservation by teaching classes in natural landscaping and working with irrigation districts and companies and a few large, individual irrigators (i.e. farmers) to improve irrigation efficiencies. Anecdotal information and programs in other communities with water supply issues suggested a need to address inefficiencies of existing automated landscape irrigation systems. It was believed that potential opportunities for improved landscape irrigation system efficiency could be achieved through:

- More efficient operation (e.g., turning off zones, scheduling changes)
- Repairs, such as fixing leaks or broken heads
- Converting to drip irrigation

Thus, the conservation district sought grant funding from the Washington Department of Ecology to conduct a pilot project to evaluate the efficiencies of automated landscape irrigation systems. In October of 2012, the proposal, which included numerous other water conservation outreach and education activities, was funded.

A well-established program developed by the Cascade Water Alliance (CWA) served as the model for the pilot project. That program offers free system evaluations and rebates for system improvements to commercial properties, including schools and multi-family housing. The CWA employs the services of contracted system evaluators. Conservation district manager Joe Holtrop interviewed CWA program director Mike Brent, who was very encouraging and suggested we do a pilot that would include financial assistance for system improvements, if at all possible. He cautioned that without the financial assistance for system improvements, homeowners may not be motivated to find out how inefficient the systems are. He emphasized the intangible educational benefits of such a program – people become much more aware of their water use - and provided considerable advice and sample documents.

#### **Advisory Committee**

A local advisory committee was formed to provide guidance for the development of the pilot project. Advisory committee participants included: Joe Holtrop, Clallam Conservation District; Steve Gilchrist, Landscapes Northwest; Mike Langley, Sunland Water District; Travis Cowan, Sanford Irrigation; Aaron Petroff, Clallam County PUD.

One of the challenges was securing the services of qualified system evaluators in a fair and equitable way, especially with only about three months to get the pilot program fully implemented. Travis Cowan and Steve Gilchrist, the two irrigation system installers on the advisory committee, were confident that most irrigation system installers would be able to complete the evaluations. However, Sanford Irrigation is the only company that specializes in irrigation system installation. All others are landscapers, which will likely be very busy during the spring.

### **Sunland Pilot Project**

It was decided to focus on a single community – Sunland – for the pilot. Data collection (i.e. potential water savings) and education (e.g. improved management) was to be the focus, but we would try to implement some system improvements if funding and time allowed.

The conservation district developed system evaluator qualifications review criteria and publicized the need for contracted evaluators. Only two contractors responded to the request for qualifications, Sanford Irrigation, Inc of Sequim and Susan Black & Associates Landscape Architects (SBA) of Seattle.

After reviewing the qualifications statements, a contract was entered into with Sanford Irrigation on May 6, in which they would be reimbursed \$75 for the first hour of each evaluation and \$50 for subsequent hours, not to exceed a total of \$150 for each single-family residence evaluation and \$500 for multi-unit evaluations. These negotiated costs were based on time estimates of two hours per evaluation and CWA costs of \$300 per multi-unit evaluation. However, Sanford was not very responsive and time was running short, so a contract was also discussed with SBA. Unfortunately, SBA proposed a cost of \$1,500 for seven single-family evaluations (\$250 each) and no multi-unit evaluation, without any calculations of current water consumption, or \$3,500 for the seven single-family evaluations with water consumption calculations. No contract was entered into with SBA. Materials and forms provided by Cascade Water Alliance were adapted for use as guides for our pilot project.

Sunland Water District manager Mike Langley notified the multi-unit systems of the need to perform irrigation system evaluations (see attached letter) and advertised in the Sunland community newsletter the opportunity for single-family residence evaluations.

It was determined that due to time and funding constraints, it would only be possible to evaluate one of the multi-unit systems. Seven single-family residents applied to have their systems evaluated. Because the evaluations were not completed until the beginning of June and pilot project had to be completed by June 30, 2013, there wasn't enough time to provide financial assistance for system improvements. Furthermore, there wasn't enough funding for every applicant, so a selection and award process would have to have been developed and used in order to award financial assistance in a fair and defensible manner.

Travis Cowan of Sanford Irrigation evaluated the smallest of the multi-unit systems and four single-family residences (evaluations attached). The billing for these evaluations totaled \$1,124.65. Travis Cowan expressed considerable frustration over the amount of time it took him to conduct the evaluations and that he worked far more time than he billed. After the first evaluation, Sanford was informed that the maximum payment per single-family evaluation of \$150 could be exceeded on a case by case basis. However, only one bill submitted exceeded \$150. The total billing exceeded the original maximum allowable by just \$24.65.

### **Results**

Two of the four single-family residence irrigation systems are projected to have potential water savings in excess of 50 percent. The other two are expected to save only 10-15 percent. The one multi-unit

system evaluated is projected to have water savings of 56 percent. Potential water savings from these five systems totals approximately 0.64 acre feet per year. The area evaluated was about 2.5 acres, thus the potential water savings is equal to 0.256 acre feet per acre. The vast majority of water savings would be realized by converting sprinklers to drip irrigation. It was noted that considerable areas of landscaping without any vegetation was being irrigated.

The total irrigated landscape area of Sunland, not including the golf course, is roughly 300 acres. These evaluations represent less than one percent of that area. If these evaluations are representative of the entire Sunland community, it might be possible to save as much as 75 acre-feet of water through irrigation system improvements.

No cost estimates were prepared for these irrigation system improvements. However, Sanford Irrigation had given an average cost of \$1,800 to convert a typical residential system from sprinkler to drip. Applying the \$1,800 estimate to the two single-family systems with projected water savings exceeding 50 percent, the improvement costs would range from about \$7,800 to over \$28,000 per acre-foot of water savings. By comparison, large irrigation ditch-piping projects, which typically save over 500 acre-feet of water, generally cost between \$1,500 and \$2,000 per acre foot of saved water.

All of the multi-unit systems not evaluated are very large and complex. They were originally installed decades ago and have been cobbled together over the years. Evaluating and upgrading these systems would be much more costly than a typical single-family residence.

#### **Other Lessons Learned**

Spring is not the time to conduct irrigation system evaluations. Contractors are extremely busy and homeowners are very anxious about getting their systems running. Travis Cowan expressed concern about homeowners not getting anything out of these irrigation system evaluations. Because Sunland homeowners pay the same amount regardless of how much water they use, there isn't an incentive to reduce water use. Cowan did note, however, that in many cases, plant health would benefit from improvements to irrigation systems. Only seven out of nearly 400 homeowners requested the free irrigation system evaluations.