5.5 Residential Landscape Irrigation Evaluations

Applicability

The Residential Landscape Irrigation Best Management Practice is intended for use by a municipal water user or water utility with a large majority of customers utilizing automatic in-ground irrigation systems. Outdoor irrigation constitutes about 60 percent or more of water used by households during the summer months, and much of that water is wasted due to overwatering and broken or maladjusted components. Helping customers identify these issues can amount to large water savings and a positive customer service image for the utility.

Description

Landscape irrigation evaluation training is an effective way to utilize existing staff to reduce summertime water usage and effect positive behavior change through face-to-face site visits and information sessions with individual customers. Automatic landscape irrigation systems typically operate in the early morning or late evening hours, leaving broken and maladjusted components, resulting in irrigation water run-off that goes unnoticed by the home resident. Having in-house staff to address customer complaints regarding a variety of irrigation issues such as high water bill complaints, watering schedule violations, complaints regarding broken irrigation components, or overwatering causing run off and/or ponding, is a valuable asset to the utility in terms of both water savings and customer service. This best management practice is designed to provide assistance and methods for a utility to gain the expertise to perform irrigation evaluations. Implementation can be accomplished by performing one or a combination of the approaches listed.

1. Off-Site Classroom Training
   Several training opportunities are available through accredited irrigation education providers around the state. The Texas Commission on Environmental Quality is the licensing agency for irrigators, technicians, and inspectors, and approves continuing education credits to maintain these licenses. To find a list of approved trainers and courses in your area of the state, visit http://www.tceq.texas.gov/licensing/training/trainers/li_cont_train. One does not need to be a licensed irrigator, technician, or inspector, or seeking one of the specified licenses, to attend courses. Many of the irrigation education service providers teach a variety of topics related to irrigation and water conservation.

   Texas Commission on Environmental Quality licensing regulations require that individuals who consult on the design, construction, or maintenance of irrigation systems hold irrigation licenses. The license ensures that any person giving advice regarding an irrigation system fully understands the function and regulations associated with the system. Individuals who are employees of water utilities may provide advice on irrigation scheduling and comment on irrigation maintenance challenges without a

license. However, obtaining an irrigation license is still desirable for utility employees to provide a higher level of service to customers.

Water providers seeking to utilize current staff should consider having staff attend a landscape irrigation auditing or evaluation course to gain a basic understanding of what landscape irrigation auditing involves and what tools and knowledge will be necessary to perform audits or evaluations. These courses can provide an understanding of basic irrigation principals to help with program development and potential troubleshooting while on-site performing an irrigation evaluation.

Training opportunities are also available through a number of different resources such as the Irrigation Association and Texas Agrilife Extension Service. Courses are available in many different areas around the state and will range from one to two days in length, depending on the course.

2. On-Site Training
   There are many water providers around the state with individuals on staff performing irrigation evaluations in a variety of methods. It may be possible to enlist the assistance of a landscape irrigation evaluation trained staff person from a nearby water provider to walk through their processes and procedures as well as offer advice and technical assistance for starting an irrigation evaluation program.

   The most beneficial opportunity would be a chance to “shadow” an experienced irrigation evaluator while evaluating properties within the water providers service area. The utility interested in starting the program would need to identify and schedule several properties to be evaluated. Setting up one or two city council or city official properties would be helpful to observe the process and see results first hand.

   Shadowing would require having scheduled staff time to accompany the evaluator, at least five properties lined up for evaluations over a two or three day period, and depending on the size of the properties to be evaluated, any materials necessary to provide evaluation results as well as other information for the property owner. Some additional tools would be necessary such as a stopwatch for reading and recording the flow rate from the meter and manuals for operating and programing various irrigation controllers. Shadowing an experienced evaluator, interacting with customers, seeing the variety of irrigation system components and problems typically encountered, and adjusting irrigation schedules firsthand provides the greatest level of education for beginning evaluators. Shadowing can provide a firsthand perspective of what to expect before scheduling those first evaluations.

Implementation

Water providers utilizing this best management practice should offer the program to customers with permanently installed in-ground landscape irrigation systems as a means of reducing wasteful irrigation practices and educating homeowners regarding proper maintenance and

operation of irrigation systems. This program should be targeted to water customers who use over a certain amount of water or as a response to high water usage or bill complaint. As an example focusing on high-use customers, such as the top 10 percent of water users, will provide a more manageable program while still achieving a large volume of water savings. Program marketing can be directed at customers through bill inserts or direct mailing of letters, post cards, or similar materials. The water provider can also approach homeowner associations of targeted high water use neighborhoods with articles regarding the program for publication in newsletters, or offer to give a presentation regarding program specifics, such as procedures and goals.

To incentivize the program a water provider could offer some type of rebate or giveaway to customers for participating. Some water providers offer, or have offered, free rain sensors to customers that did not have one. Others require an irrigation system evaluation as a prequalification to participate in irrigation equipment rebate programs. A utility that has imposed outdoor watering restrictions as a water use reduction measure, permanently or temporarily, could offer to waive a customer violation if they agree to an irrigation landscape evaluation where both the customer and utility benefit. The customer doesn't have to pay a fine and learns about their water use. The utility saves water and has had a positive impact on a customer.

Keeping detailed accounts of each site visited and the water use pre- and post-evaluation will help track water savings associated with the program. However, a follow-up survey with customers who participated in the program can show the effectiveness of the program and the overall satisfaction of the service.

Before the landscape irrigation evaluation program can be developed, it is important to establish defined goals. While the ultimate goal is to save water, the water provider will want to achieve several things along the way, such as a behavior change in how customers use water outdoors, provide a quality service that customers will recommend, and build a positive relationship between the water provider and the customer or end user.

Basic materials should be developed prior to conducting irrigation evaluations to provide results and information of the evaluation to the customer as well as tracking and monitoring evaluations and water use. This includes:

1. Irrigation evaluation forms that list elements of each irrigation station, such as plant type, soil, emitter, and light conditions. Also, this form should have sections for tracking water use per station, basic information recorded from the controller, and issues encountered in each station.
2. Manuals or access to manuals for various types of irrigation controllers which aids in programing and troubleshooting.
3. Irrigation schedule card to be affixed to the controller which current irrigation schedule.
4. Educational information for the customer regarding proper irrigation maintenance and scheduling.

5. Irrigation evaluator contact information for questions or comments regarding the evaluation.

Scope and Schedule

In the first 12 months the water provider should do the following for implementation of the Best Management Practice:

1. Obtain staff training and complete all necessary additional education, documents, and testing required to receive certifications.
2. Develop materials necessary for conduction, scheduling, and tracking irrigation system evaluations.
3. Develop materials and processes to promote program.
4. Look at historic and current water use of the utility and begin identifying target areas with high water use as potential areas for irrigation evaluations.

To accomplish this Best Management Practice, the water provider should do the following after the first year of implementation:

1. Look at water savings per irrigation evaluation and determine effectiveness of the program.
2. Develop and distribute a follow-up survey to customers who participated in the program and gauge the overall public perception of the program.
3. Identify aspects of the program that worked well and not too well. Look for opportunities to expand on what worked and change or remove aspects that did not.
4. Identify additional customers to target and expand the reach of the program through continued outreach and promotions.

Measuring Implementation and Determining Water Savings

Water savings associated with landscape irrigation system evaluations are estimated to last approximately three years. Beyond the three years it is assumed that the landscape needs or scheduling will have changed from what was originally observed and programmed as a direct result of the irrigation evaluation.

To measure savings of irrigation evaluations, exact documentation must be kept for each evaluation performed which must include flow rate measurements and specific run-times associated with each irrigation station. Calculations for each station and total water use must be included on the irrigation evaluation form that is provided to the customer and kept by the water provider as a record. Savings will be represented on each individual evaluation and can be averaged for an overall savings estimate.

Cost-Effectiveness Considerations

Landscape irrigation evaluation training courses can cost approximately $400.00, depending on the source and if an exam for certification is offered. Courses, typically referred to as Irrigation

System Auditing courses, are available several times annually around the state through the Texas Agrilife Extension Service and the Irrigation Association. Other irrigation education organizations may also offer similar courses as well.

It is also highly recommended the irrigation evaluator become a Texas Licensed Irrigator to ensure compliance with all state rules regarding landscape irrigation systems, and develop a greater awareness of the rules and regulations governing the irrigation industry in Texas.

To become a licensed irrigator in Texas a 40-hour course and examination is required. The course fee is around $500.00 and the exam fee another $100.00. Once licensed, the irrigator must complete 24 hours of continuing education credits every three years and pay a license renewal fee to maintain a current status.

Other cost considerations may include the purchase of tools and supplies for conducting irrigation evaluations; for example: soil probe to assess soil type and depth; utility key to access meters; irrigation controller remote controls to operate irrigation systems from various areas of the property; and water proof boots to keep feet dry.

References

1. Texas Commission on Environmental Quality. http://www.tceq.texas.gov/licensing/training/trainers/li_cont_train
2. Irrigation Association. Certified Landscape Irrigation Auditor. http://www.irrigation.org/clia/
3. Texas AgriLife Extension Service. http://itc.tamu.edu/
4. Lower Colorado River Authority. http://www.lcra.org/water/save/irrigation/index.html
5. San Antonio Water System. http://www.saws.org/conservation/
6. City of Austin, Austin Water Utility. http://www.ci.austin.tx.us/water/water_portal2.htm
7. City of Austin Grow Green. http://www.ci.austin.tx.us/growgreen/
8. Dobbs, Steve, *The Perfect Texas Lawn, Attaining and Maintaining the Lawn You Want,* Thomas Nelson, August 2002.