

Fort Collins Sprinkler Audit Program

Eric Olson, CID, CLIA

Fort Collins Utilities
Water Conservation Coordinator
eolson@fcgov.com

Laurie D'Audney, CLIA

Fort Collins Utilities
Water Conservation Specialist
ldaudney@fcgov.com

Abstract: *Since 1999, Fort Collins Utilities has administered a sprinkler system -audit program as part of its water conservation efforts. The program informs and educates our community about how to run sprinkler systems efficiently. The audit consists of a full evaluation of every zone, a catch can test for a rotor and a spray zone to determine precipitation rates and distribution uniformity, and a recommended irrigation schedule. In a typical season, auditors complete 350-450 homes and 10-15 HOA audits. An analysis of 671 sprinkler audit participants showed an average of 20 percent water savings on outdoor water use. This indicates that customers are continuing their conservation efforts after their sprinkler audit. This and other conservation programs have helped lower the overall water use in Fort Collins by 25 percent in ten years.*

Keywords: sprinkler, audit, water conservation, landscape water, Fort Collins, sprinkler efficiency, sprinkler program

Fort Collins Sprinkler Audit Program

Since 1999, Fort Collins Utilities has administered a sprinkler system audit program as part of its water conservation efforts. The program seeks to inform and educate our community, one household at a time, about how to run sprinkler systems efficiently.

The free audits are offered to single-family homes and homeowner associations (HOAs). An analysis of audit participants' water use found that they saved an average of 20 percent of their outdoor water use.

An Evolving Program

Fort Collins Utilities Water Conservation Specialist, Laurie D'Audney, with the help of Brent Mecham, formerly from Northern Water, currently Irrigation Association Industry Development Director, created the framework for the program. The first year of the program one auditor performed 60 home audits. Only basic training was provided, large bowls were used as catch cans and handouts were minimal. Believing in continuous improvement, program changes were made, including training, forms, reports, scheduling and handouts. Now during a typical season, up to five auditors complete 350-450 home and 10-15 HOA audits. Over the past 13 years, 3,434 homes and 103 HOAs have received audits.



Sprinkler head with catch cans

Home Audits

For a residential audit, auditors meet one-on-one with customers at their home for up to two hours. The resident who operates the sprinkler system typically participates in the audit to learn about their system and see firsthand any maintenance needs. They learn how the lawn uses water, how to program the controller and the importance of periodic system checks. The auditor prepares a report detailing recommendations for scheduling changes, maintenance needs and system upgrades. Information about available sprinkler equipment rebates is also provided.

An auditor will:

- Inspect each zone to identify maintenance needs
- Perform catch can tests to measure the application rate and how evenly water is being applied
- Measure system pressure and root depth
- Develop a custom watering schedule
- Share the results and recommendations with the homeowner



Auditor educating a homeowner

HOA Audits

HOA representatives and the landscape maintenance contractor accompany the auditor for what could take four hours. Each zone is visually evaluated for any leaks, broken or misaligned sprinkler heads and poor coverage. Catch can tests are not performed for these large properties as the time is better spent identifying maintenance issues. The audit report includes a zone-by-zone evaluation, photos, explanation of problems, watering schedule and a prioritized list of recommended maintenance tasks. Because recommendations for large properties may be expensive, the report is typically presented at an HOA board meeting so the suggestions can be explained and questions answered.

Staffing and Training

Utilities staff recruit, hire and supervise four or five seasonal auditors who work from mid-May to mid-September. Many are college students as the summer schedule works well for them; some return multiple summers. Auditing experience isn't necessary but good communication skills are mandatory. In addition, a program administrator is hired to provide scheduling, keep supplies available and send the audit report and an evaluation to participants.

A comprehensive three-day training includes the basics of sprinkler systems, hands-on practice with controllers and role-playing audits. Colorado State University professors provide training about soils, turf grass and water use. An important part of the training is how to communicate with customers in a way to



Auditor training

effectively educate our diverse population. During the first week of audits, new auditors team up in the field with seasoned auditors. First, the experienced auditor models an effective audit. Then it's the new auditor's turn to conduct the audit with coaching from the experienced auditor.

Throughout the summer, staff and the auditors meet bi-weekly to discuss issues and questions that arise, share stories from the field and receive more advanced training.

Scheduling

Appointments for home audits are scheduled Monday through Friday for two hours at 8:30 a.m., 10:30 a.m., 1 p.m. and 3 p.m. Late day or Saturday appointments are also accommodated. Auditors work alone and perform four audits a day with a half-hour lunch. HOA audits are scheduled with two auditors for four hours.

Customers request an audit online or by voice mail. An online scheduling program is used to track customer information, appointments for each auditor and completed audits. Participants receive automated appointment confirmation and reminder emails. One challenge is connecting with people to make an appointment. To help with this, the program's self-scheduling feature will be used in the future. After audits are scheduled, they may be moved between auditors to keep appointments as close together as possible.

Customer Feedback

An online evaluation or a paper copy is sent to participants. In 2013, 84 percent of participants said the audit exceeded their expectations. This percentage has significantly increased over the last few years as we've dedicated more time to training and have an irrigation professional on staff who provides in-depth expertise and support to the auditors. When asked if they had made changes since the audit, 93 percent responded that they had. The most common changes were adjusting sprinkler heads, changing the watering schedule and fixing leaks. All comments are considered and guide future program improvements.

Water Use Tracking

Utilities uses a software tool to track program and rebate participation, and resulting water savings. The software uses customer account records, geographic information system (GIS) data, tax assessor information and current/historic weather data. An analysis of 671 sprinkler audit participants showed an average annual water savings of 12,110 gallons and a median water savings of 7,690 gallons, about 20 percent of their outdoor use. This data indicates that customers are continuing their conservation efforts after their sprinkler audit.

Budget

The program budget is allocated through the City's biennial budget cycle. Annual costs run \$17,000-\$18,000 per year, including equipment, training, publicity, mileage and labor. The cost per audit typically ranges between \$40 and \$50.

Annual Planning Schedule

February: begin auditor recruitment
April: complete hiring
April-May: finalize training schedule, materials and equipment
End of May: three-day training
June-August: perform audits, ongoing scheduling
September: compile evaluations and write report

Conclusion

Fort Collins is a community of over 151,000 residents located just east of the Rocky Mountains. Fort Collins Utilities provides water, wastewater, stormwater and electric services to the community. Since 1999, the City has offered a free sprinkler system audit program as part of its water conservation efforts. The constantly evolving program receives high accolades from those who have received audits for what they learned during the audit and the professionalism of the auditors. Water use analysis has shown that residents continue to save an average of 20 percent of their outdoor water use long after their audit is performed. The program is gaining attention from neighboring water districts that have contracted with the City to audit their customers.