This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



Water Conservation 2.0 Large Scale Technology Upgrades for Existing Inspection Programs

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Center for ReSource Conservation Overview

CRC Mission

Putting conservation into action

CRC History

• 35 year old nonprofit organization, founded by concerned citizens in 1976



Slow the Flow Program Roots

- Slow the Flow Save H20 Utah
- Pilot Program of the City of Boulder in 2003
- CRC Run Since 2004
- Since 2007, Slow the Flow has been funded entirely by the participating water providers
 - 2004-2006 CWCB grant (55% utilities, 45% CWCB)
- In 2014 24 water providers participated in Slow the Flow
- Over 19,000 homes audited resulting in 285 million gallons of water saved



Steps of the Audit

- 1. Meet with Homeowner
- 2. Visual Inspection
- 3. Catch Cup Tests
- 4. Pressure Readings
- 5. Soil and Root Depth Tests
- 6. Landscape Measurements
- 7. Determine Watering Schedule
- 8. Share Test Results and Recommendations With Homeowner





Customer

High quality service

Slow the Flow Partners







Parker Water and Sanitation District











CITY OF ARVADA

























City of Northglenn centerof the future





10 Years 10 Years 19,000 Audits

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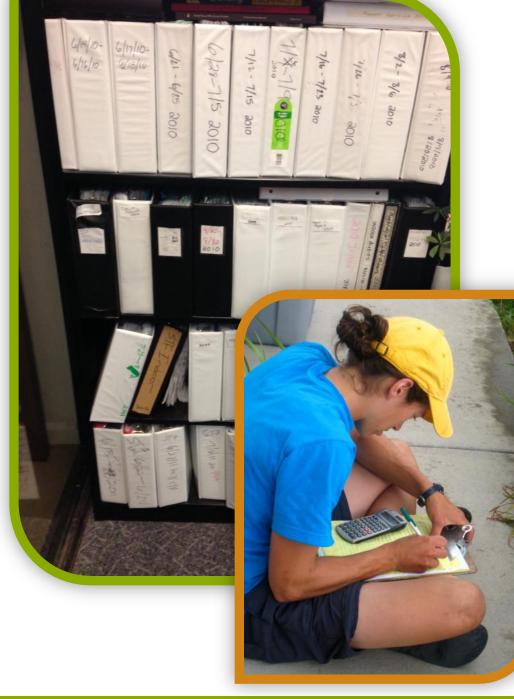
Our Idea



 Conduct all audits with tablets
 Build software to merge scheduling/auditing and reporting functions

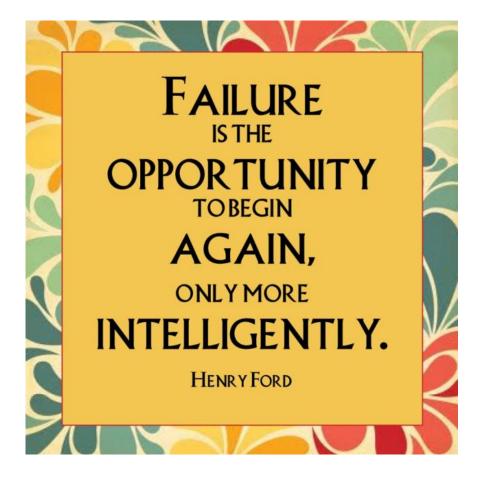
Program Costs Addressed

- 30,000 sheets of paper each summer
- 300 hours of data entry
- 500 hours of manual calculations and re-copying information



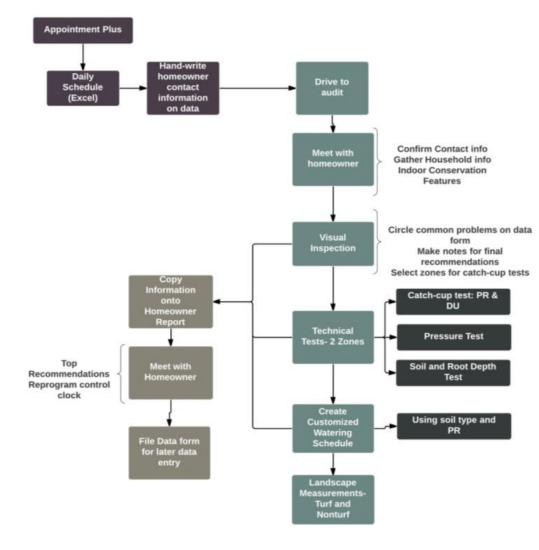
Trial and Error

- 2012 Failed Trial- All about saving \$
 - Attempted to use survey tool for audit information gathering
 - Purchased low end tablets
 - Did not fully scope projectlooking at one piece
- Main lesson learned is that we need custom software!



2013 A Year for Investment

- CRC board and leadership decided to invest in the Slow the Flow program
- Formed a Slow the Flow upgrade task force
 - Made up of qualified, business and technology professionals
- Fully scoped project
 - Spent hours documenting every process and interconnection
- Used consultant to help us write an RFP



Picking the Right Developer

- Evaluated all proposals on the following
 - Technical ability
 - Understanding of project and goals
 - Can they relate to non-tech people
 - Price
- Why we chose Pivotal Labs



Building a better mousetrap

- Intensive 6 week development phase, utilizing Agile development methodology
- Daily/Weekly progress meetings
- 90% of software built during this time





Outcomes

- Fully integrated custom software
 - Offline Audit App
 - Scheduling
 - Customer Profile Management
 - Water Provider Dashboard
 - Easy reporting, exporting
 - Electronic homeowner report



Outcome: Audit App

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Outcome: Homeowner Report



Thank you for participating in the **Slow the Flow** sprinkler inspection program, provided to you for free by the Center for ReSource Conservation(CRC) and your water provider. The findings and recommendations from your audit performed on 2014-07-10 by the trained sprinkler inspector, Henry, are included in this report. For questions or comments please contact the CRC at 303-999-3824.

What is an Irrigation Inspection?

A landscape inigation inspection is a series of tests performed on your watering system to determine your system efficiency. This includes how much water your system pots out (precipitation rate), the soil type, which affects infiltration rate the evennes (starbuton unformity or efficiency) of the water application and the system pressure.

Tune Up Your System

You can tune up your system by fixing the maintenance problems identified in a visual inspection. Turn the system on at least once a year and watch each zone run for a minute or so to make sure the system is vorking properly. Check for broken, tilted, clogged, or blocked heads and make any needed repairs. Take the time to adjust sprinklers that are not covering the desired area and learn how to change your timer.

Top Recommendations:



1.1011 Soil Type **Precipitation Rate** Many times irrigation systems apply water faster than the soil Precipitation rate (PR) is a measure of how many inches of water per hour your irrigation can absorb. It is important to know your soil type and adjust system is applying. Different head your watering to minimize runtypes have different precipitation rates. The precipitation rate determines how long you need to run your sprinklers. Soil Type: Clay 1.3 inches/hour in spray zones. **Distribution Uniformity** Water Pressure The distribution uniformity (DU) Most sprinkler heads apply is a measurement of an water most efficiently at a irrigation system's ability to water pressure between 20 apply water uniformly over the and 30 PSI (pounds per surface of a landscape. Since square inch) for spray heads and 25-80 PSI for rotor heads. Sprinklers the amount of water put out by an irrigation system is not completely uniform, some can???t cover the desired area if the parts of the landscape will receive more pressure is either too low or too high. If water than others. Minor adjustments to your pressure is low, try watering when most systems can improve distribution less people are watering or modify your uniformity and green up the dry spots. system so there are fewer sprinklers on each valve. High pressure causes misting Your Distribution Uniformity is: and wears out your sprinklers faster. If your 53% in spray zones. pressure is high, pressure regulating heads or a pressure regulator can be installed to lower pressure, minimize misting, and maximize irrigation efficiency Your Sprinkler head pressure is: 48 psi in spray zones **Root Depth** Evapotranspiration For a healthy lawn, roots Evapotranspiration (ET) is one of should be 6 to 12 inches deep. the most important things to This is accomplished by deep consider when scheduling run infrequent watering that greatly times for your irrigation system. enhances your lawns ability to ET is the amount of water a plants withstand extreme temperatures and loses to evaporation and transpiration and increased intervals between watering is the amount of water needed for the plant to survive. Our recommended watering Your root system is about 2 inches deep. schedule is based on an average historical ET for the Denver area of 27 inches of water per year. If the weather is significantly hotter and drier or cooler and wetter than average, you may need to adjust your watering schedule. Landscape Size and Water Usage Irrigation Scheduling Your landscape has The following schedule has approximately 927 square feet been completed based upon

Software Roll-out

- In June of 2014 15 auditors began doing audits on iPad Minis
- Successfully completed over 1,700 audits using new software



Program Savings

- Eliminated need for manual calculations/ re-copying information
- Savings of over 15 minutes per audit
- Auditors able go from 4 to 5 audits per day
- Send and resend reports instantly
- Ability for water provider partners to log-in and view the audit information in their community
- Now completely paperless!
- 10% cost savings in first year



What's Next

- Gathering feedback from all our stakeholders
- Prioritizing changes to software over the winter/spring
- Moving other CRC programs into the software



Lessons Learned

- Spend the time up front to figure out exactly what you need
 Document, document!
- Look at the whole system, integrated is better
- Find the most talented people you can for the budget you have!
- You get what you pay for (both software and hardware)

Questions?



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