## This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



## Auditing the Audit



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## Fort Collins, Colorado



## We aren't the only game in town...



## Sprinkler Audit Program

- Began in 1999
- Free service
- Provide to customers in other districts
- Customers LOVE it
- Installed advanced metering infrastructure in 2014
- 2018 was our 20<sup>th</sup> year, we wanted to know: What's actually going on?



## What is a Sprinkler Audit?

#### An audit is:

- A conversation
- A full system review
- Walking the system
- Programming the controller
- A landscape discussion

#### An audit is not:

- A catch can test
- A repair service
- Mandatory









Date

#### 2018













Are they at least responding to precipitation?













# What did we learn last winter?

Are we getting the over-irrigators?



Sometimes. Our 2016 participants,

their summer 2015 watering:



## Are they using less water?



#### On average, yes!

Controlling for weather, # of zones, and turf area:

Weekly	Daily	Peak Hour per Day	
-15%	-14%	-20%	
-716 gallons	-100 gallons	-52 gallons	

Are they watering fewer days per week?



#### On average, yes!

Controlling for weather, # of zones, and turf area:

0.37 fewer days per week post audit

= ~10% reduction from pre-audit average

Simple Averages: Watering Days Per Week Post Audit Pre Audit 3.9 3.3

Expectations vs. Reality\*: Watering Days per Week



#### BEFORE

22% are watering *fewer* days than expected

**16%** watering as expected

62% are watering *more* days than expected

#### AFTER

26% are watering *fewer* days than expected

32% are watering as expected

42% are watering *more* days than expected

\*Compares documented controller schedules to interval water use patterns.

How about those controllers?

## 28% increased weekly run times

- Only 15% were using cycle-soak
- 75% of schedules were already 3 days per week or less
- Only 22% decreased by at least 1 run day

#### 72% maintained or decreased weekly run times

- 44% were already using cycle-soak
- Only 55% of schedules were watering 3 days per week or less
- 35% decreased by at least 1 run day

- On average, participants with increased run times were already watering closer to plant need.
- Maintain times group: 66% just switched to cyclesoak, 55% were already at 3 days/week or less.





And based on interval data:

- Before Audit:
  - 87% are before 10am or after 6pm
- After Audit:
  - 89% are before 10am or after 6pm



### Takeaways

- Target over-waterers
- Focus on behavior
  - Leave "how-to's" in the controller box
  - Send reminder emails
- Try new insights
  - Maps of systems
  - Landscape water budgets w/ historical water use
- Encourage effective "smart" technology



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Environmental message. Front of postcard.



#### SPRINKLER AUDIT PROGRAM

EBRAING

of helping our community save water!

Your sprinkler system could be wasting water. Get a FREE Sprinkler Audit and start saving today.



Fort Collins Utilities Attn: Water Conservation PO Box 580 Fort Collins, CO 80522

**60%** of a home's summer water bills are spent on outdoor watering. Watering more than necessary means paying more than you need to. Our service provides:

- A customized, efficient watering schedule
- A comprehensive system evaluation
- Recommendations for upgrades and repairs

Schedule your FREE sprinkler audit: fcgov.com/sprinkler-audit 970-416-2666 sprinkleraudits@fcgov.com

18-19909

Auxiliary aids & services are available for persons with disabilities. V/TDD: 711

Did you know? Last year's participants reduced their outdoor water use by 25%!

#### Financial message. Back of postcard.

## So what happened?

- We sent ~1500 postcards, kept a control group
  - 2.5% of postcard recipients participated
  - 0.9% of control group participated
  - 1.6% increase in participation from targeted postcards
- Message mattered, slightly.
  - Financial messaging increased participation by 0.7%



## Will we do it again?

- Maybe.
- To scale up to 400 participants, we'd need to send to just about all of our single-family customers
  - AKA...Bill insert!
    - Will reach customers in other districts
    - Less reliance on the districts for advertising.
- Potential issue with timing: sent after 4<sup>th</sup> of July.



## What else do we know?

	Overall single- family residential population	Sprinkler Audit Participants	<i>REAL</i> Difference?
Age (years)	48	51	Not really.
HH income	\$76,000	\$83,000	Not really.
Renter %	12.1%	6.6%	Yes.
Education: Advanced Degree	25%	37%	Yes.
Education: HS diploma or less	15%	9%	Yes.
		43% in home only two irrigation seasons or less	

\*We did comparisons to the non-participant group, but since there are only 259 participants, the nonparticipant group is not significantly different than the overall single-family population.

\*Caveat. We don't have demographic data on all households, so this is a limited, imperfect comparison.

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## Water budget graphs

Your Water Use (Gallons)



# GIS maps of irrigation systems



60ft



City of Fort Collins, County of Larimer, Esri, HERE, Garmin, INCREMENT P, USGS, EPA, USDA | City of Fort Collins GIS Services Department.



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Thank you!



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