

This presentation premiered at WaterSmart Innovations

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A Utility's Look Into Water Restrictions vs. Water Budgets



Water Use Restrictions vs. Water Budgets in Austin, TX

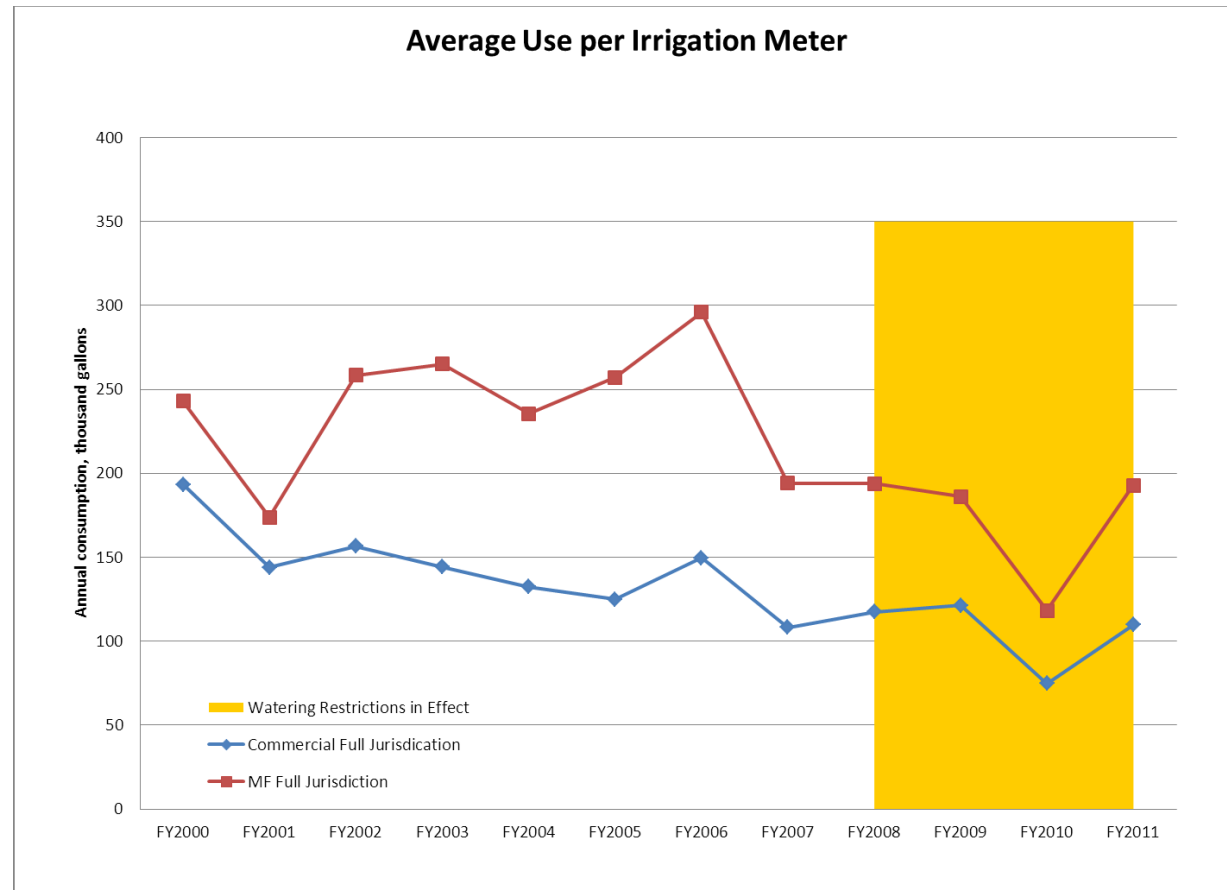
David Turnage

Austin Water: an Overview

- Surface water utility
- 200,000 taps serving 900,000 customers
- ~ 90 to 220 MGD
- Tiered rate structure for residential
- Peak/Non-Peak for commercial

Water Restrictions

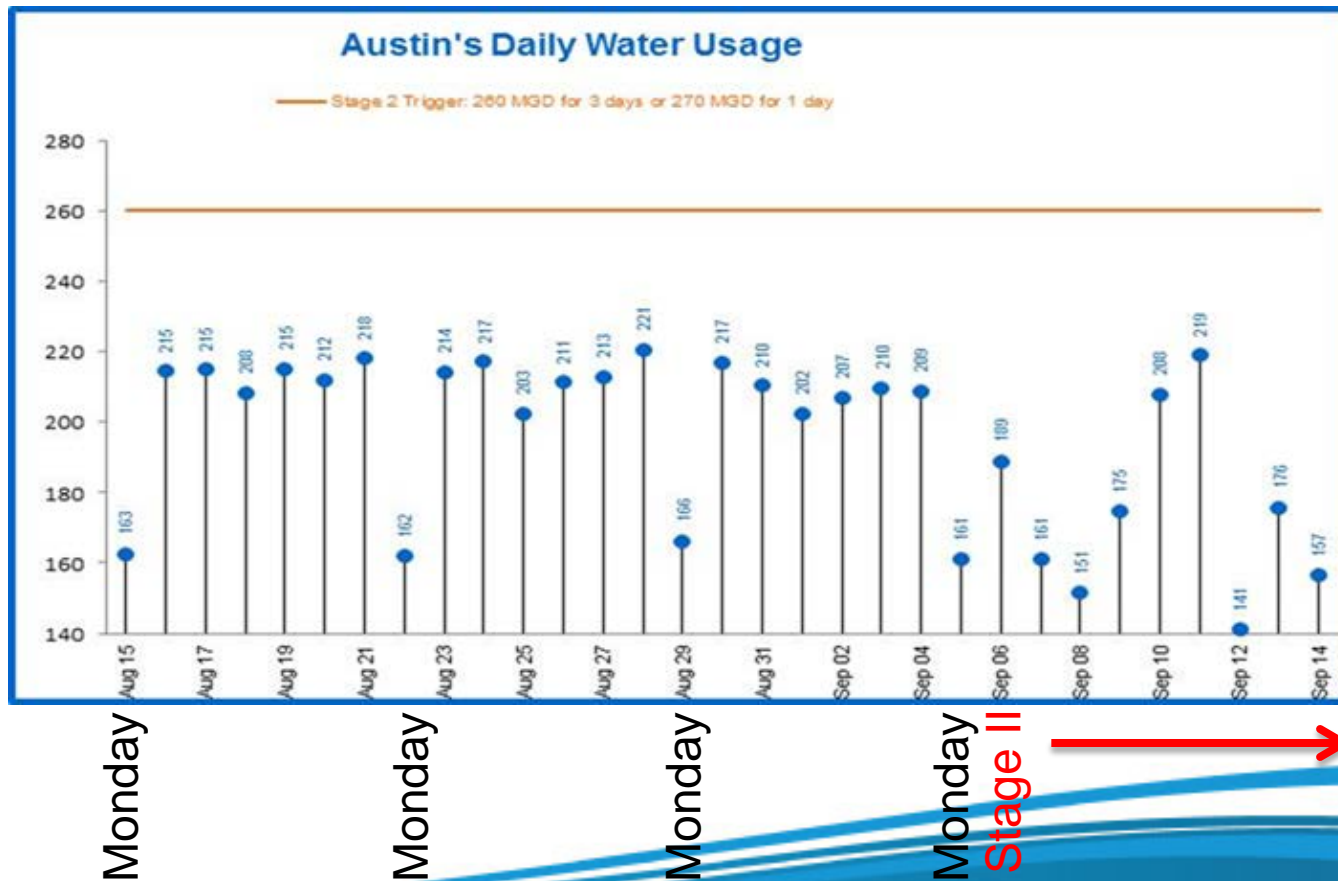
- Watering restrictions introduced late 2007 (wet year)
- Since 2006, GPCD has decreased 13% despite current drought
- Since 2009, 23 month of stage II restrictions have saved 9,449,691,383 gallons over Stage I restrictions.



Water Restrictions

Ex: summer 2011 (twice per week schedule with no rain)

Irrigation spread throughout the week, no watering on Mondays



Origin of Alternative Compliance

- Austin City Code allows for alternative compliance with restrictions as approved by the director.
- Vocal group of landscape professionals claimed that the restrictions:
 - force fast applications of water.
 - don't let properties fully take advantage of rain events.
- City of Austin is open to efficient methods that produce similar or better water savings.

Creation of the Pilot Program

Water budget equation

- Warm season turf at low stress (coefficients from Ag extension)
- 70 year historic ET from Ag extension
- Rain and system efficiency are not part of the equation
- Quarterly budgets
- Total budget is affected by Drought Contingency Plan triggers

**Historic ET x Tc x Qf x Sq footage x
0.623 = gallons per sq foot**

Creation of the Program

The “water budget” approach is meant to let participants:

- “Bank” budgeted water longer periods after rain events
- Take advantage of native and adapted beds and increased irrigation efficiency
- Concentrate water on high profile areas
- Water with flexibility!



Application and Dismissal

- Lottery with emphasis on small properties
 - Limited application windows
 - Map of irrigated area (estimated square footage)
 - Pre inspection of irrigation systems
 - 63% of properties failed initial inspection
- Reasons for dismissal
 - Exceeding the budget two quarters or by 50% in any one quarter
 - Complaints made against the property
- Conservation staff provides final map and budget for accepted properties

SR.# _____
(Austin Water Use Only)

AUSTIN WATER
Alternative Irrigation Compliance Pilot Program for Commercial Properties
APPLICATION

Property Information
 Property Name: _____
 Physical Address: _____ City: _____ Zip Code: _____
City of Austin Utility Service Account Information
 Name/Business on Account: _____
 Account #(s): _____
 Irrigation Meter #(s): _____
 Mailing Address: _____ City: _____ Zip Code: _____

Contact Information - Check one box for this property's primary contact person.
 Property Representative (required): _____ Title: _____
 Phone #: _____ Email address: _____
 Landscaper/Irrigator (if applicable): _____ Title: _____
 Phone #: _____ Email address: _____
 Other: _____ Title: _____
 Phone #: _____ Email address: _____

Attach a site map showing the following information:
 • north arrow, street information, and building arrangement
 • color coded boundary of each irrigated area, associated irrigation meter number, and location.

Estimated Quarterly Water Budget Calculation
 Jan-Mar: 1.03 X _____ = _____ Apr-Jun: 5.62 X _____ = _____
(gallons per day) (gallons per day)
 Jul-Sep: 5.99 X _____ = _____ Oct-Dec: 1.83 X _____ = _____
(gallons per day) (gallons per day)

I have submitted the required information, site map, and proposed water budget for the property above and understand that all attachments are made part of this variance request and any subsequent approval. I further understand that Chapter 6-4-12(B), Water Waste Prohibited, remains in full force and effect.

Signature _____ Title _____
 Print Name _____ Date _____

Submit applications to: Austin Water, Water Conservation Division
 P.O. Box 1088
 Austin, TX 78767
 FAX to (512) 974-6348
 Email to watercons@cityofaustin.gov

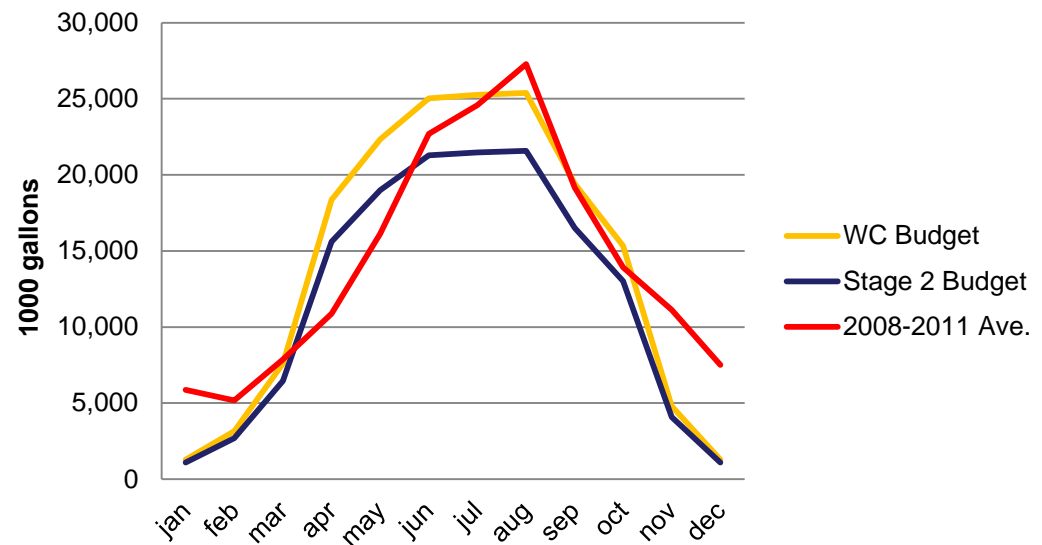
AWU Verified Irrigated Area

(Austin Water Use Only)

Elements of Study

- Will we see similar savings ?
- Seasonal variation in performance?
- Effect on peak use?
- Performance differences based on property and/or management type?
- Increasing usage up to the budget?
- Does program entry date affect success?

Preliminary Look at Feasibility of Budget

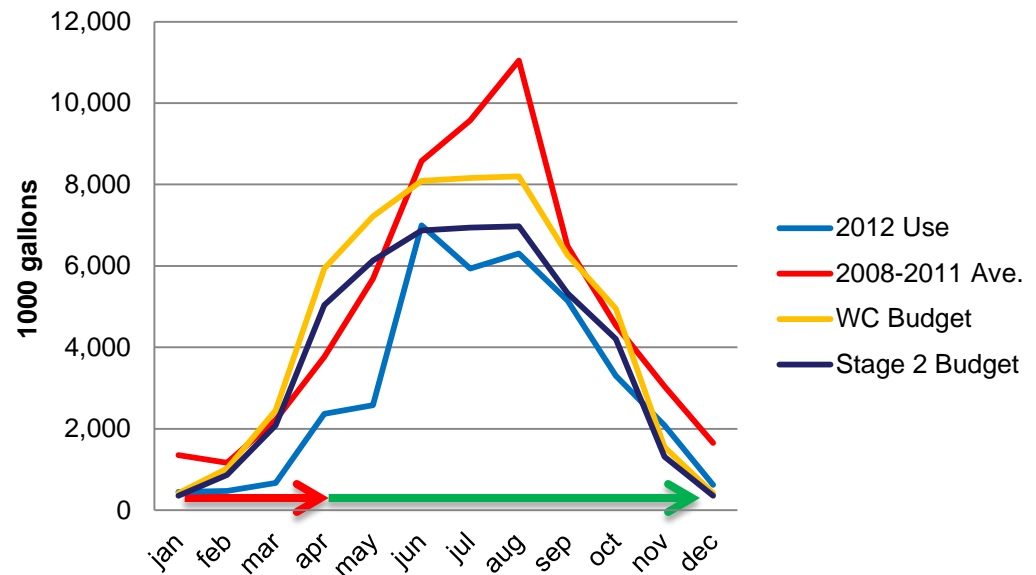


Historical usage under restrictions is within 2% of first 28 participants' allotted annual budget

1st Group of Applicants

- Entered into the program May 1st 2012
- Properties primarily managed by water management companies
- 10 Multi-family properties
- Vast majority of participants made it through summer, even with 15% reductions

**1st Group : 14 Properties
Total Use Vs. Budget**



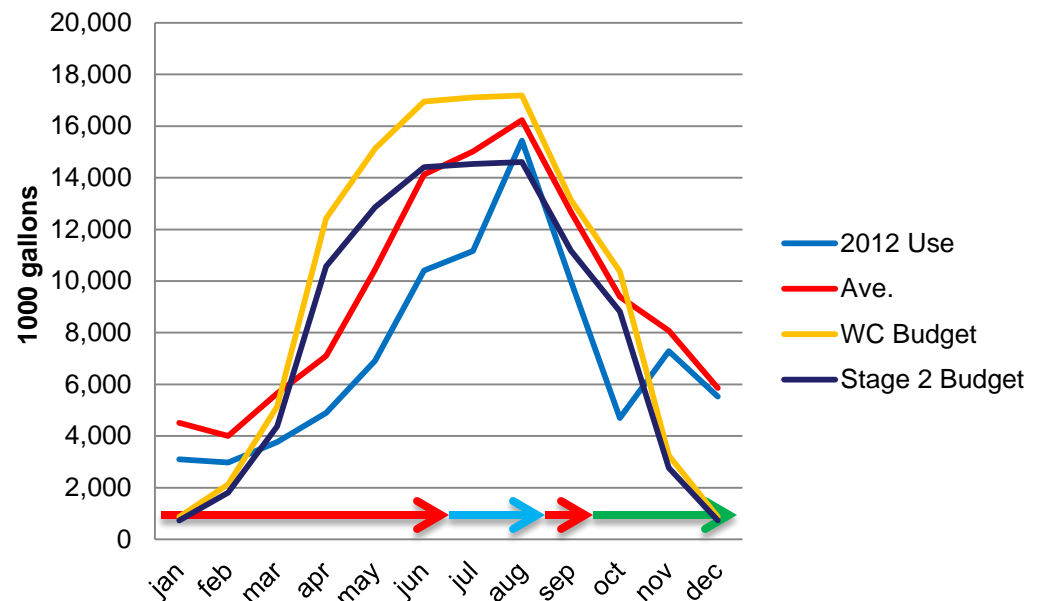
Restrictions

Pilot Program

2nd Group of Applicants

- Entered program beginning of October
- Properties managed by landscapers and irrigators (better representation)
- Expected for some properties to exceed fall budget based on historical pattern
- Higher ET and lower rainfall than average this fall

**2nd Group: 14 Properties
2012 Use Vs. Budget**



Stage II
Restrictions

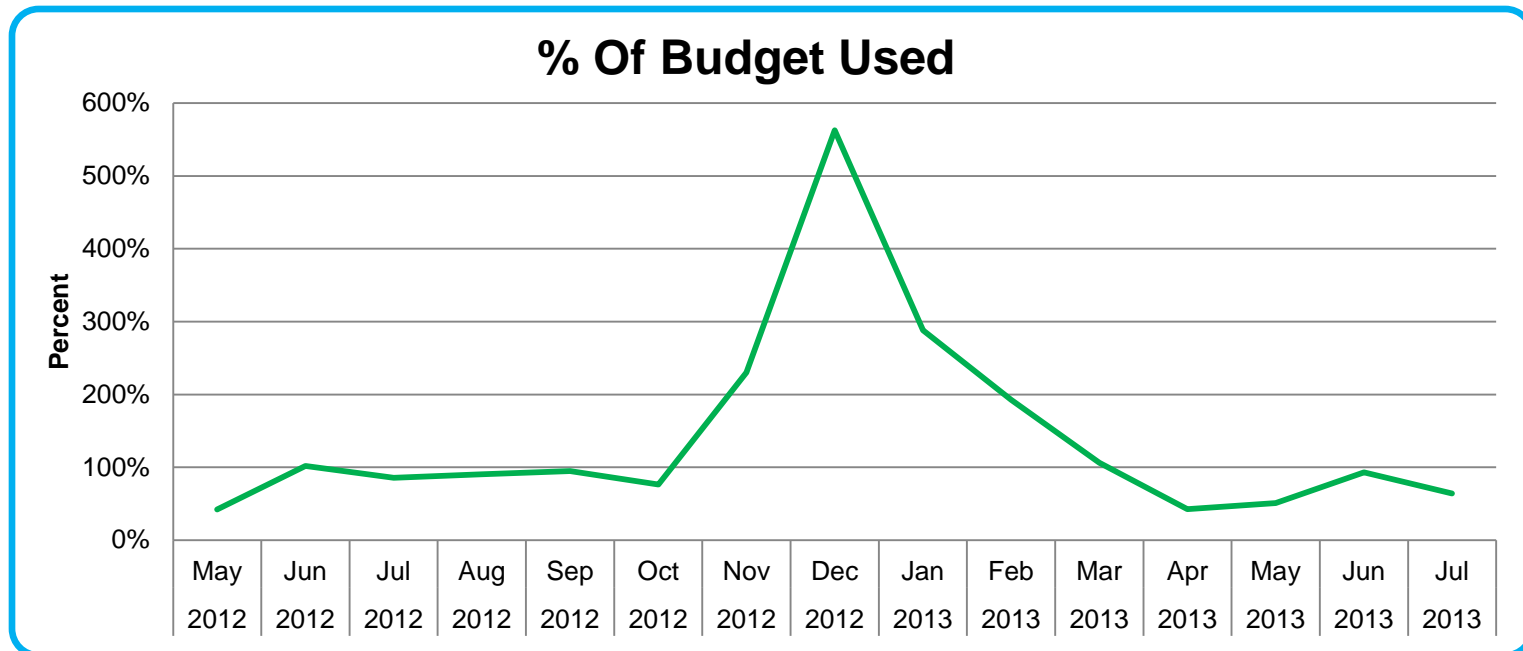
Stage I
Restrictions

Stage II
Restrictions

Pilot Program

Seasonal Effect on Success

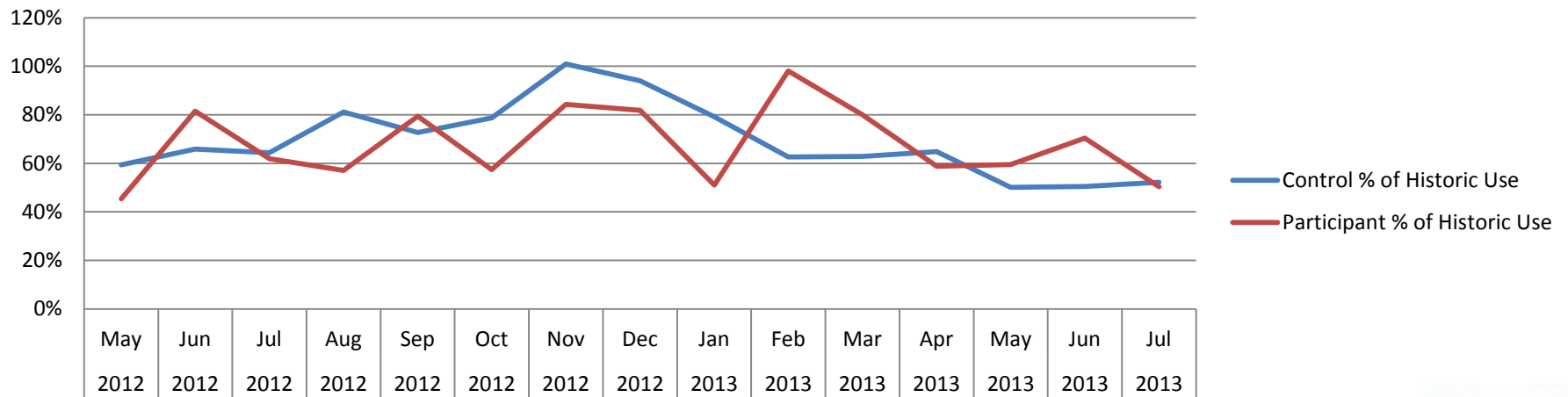
- Budget over winter months is greatly reduced due to turf dormancy.
- Percent over budget in winter months is high, but this does not represent a great amount of water.



Control Group

- Control properties have shown similar usage patterns as program participants
 - Program participants used 67 % of historic use
 - Control properties used 68 % of historic use
- Program participants used 90% of their combined budgets

Recent Use as % of Historic Use



Preliminary Observations

- Successful participant's use was less than their average, but control properties showed greater savings under restrictions
- 63% of successful participants managed by water management company (NOT representative of Austin)
- 94% of properties exited from the program managed by typical landscape company (representative of Austin)
 - We know the budget can work, but probably wouldn't on a large scale
- Multi-family properties used 82% of combined budget
- Commercial properties used 119% of combined budget
- Historically low users did not increase usage to "meet the budget"

Future of the Pilot Program

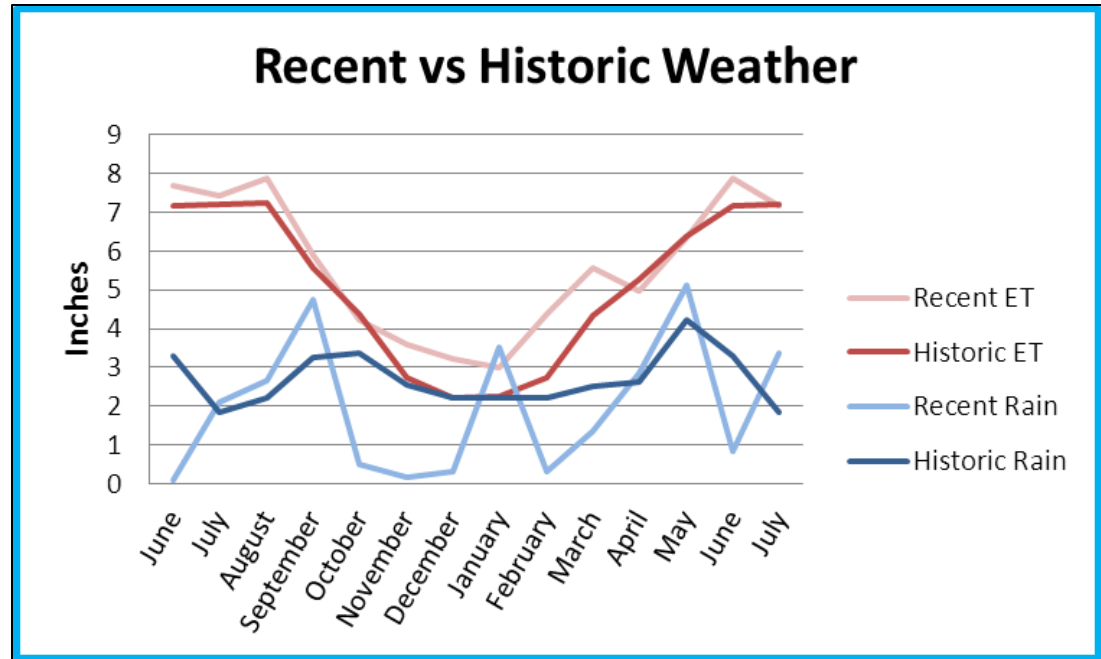
- More participants, and a better variety of participants, are needed to isolate trends

What we know is:

- Success is heavily dependent on “person in the field”
 - Property type/property manager matters
 - Participants need an informed plan to succeed
 - The season and rain events heavily influence success
-
- Not much interest outside of original stakeholders

Potential Issues with Large Scale Implementation

- Many properties not following the watering schedule may erode the effectiveness of public enforcement of water restrictions
- Residential perception of the program
- How to enforce the budget? Rate based vs. fine based?
- Mapping of irrigated areas
- Variable ET rates and rain events



Questions?



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