



DOING MORE WITH LESS

**Maintaining healthy and attractive
landscapes while reducing water**

*Evapotranspiration Adjustment Factor (ETAF)
Study by UC & DWR*

True or False?

You can meet the State
water reduction goals
and keep your sites healthy.

Goals of the Study



Determine if landscape:

- Reduction goals reachable
- Health and appearance maintained

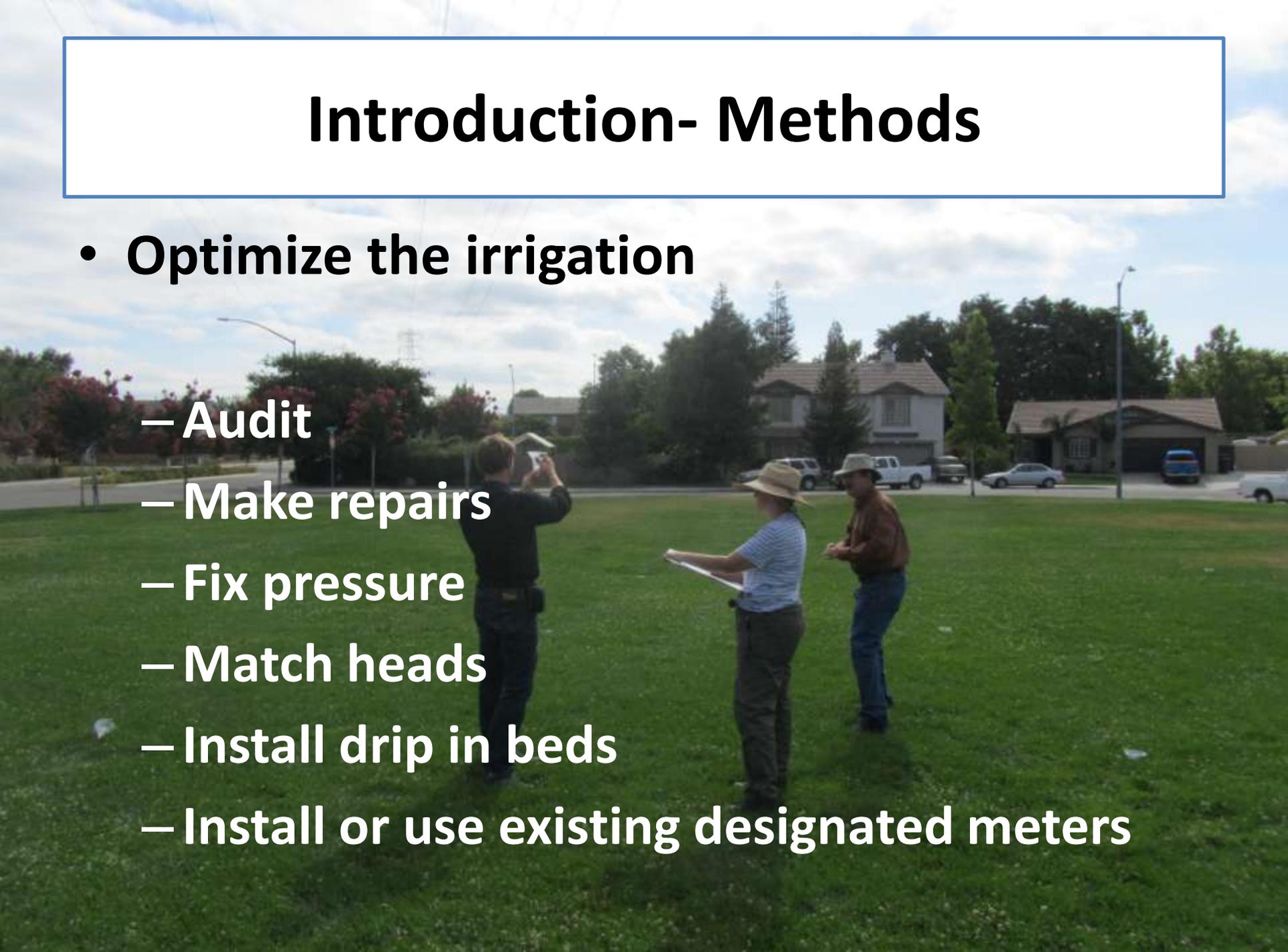
Methods

Select 30 sites

- Turf, turf + shrub, shrub only
- Drip, sprays, and rotors
- 5 each in 6 regions
 1. South Coast
 2. Central Coast
 3. Los Angeles Basin
 4. Inland Empire
 5. Desert
 6. Central Valley



Introduction- Methods

- **Optimize the irrigation**
 - **Audit**
 - **Make repairs**
 - **Fix pressure**
 - **Match heads**
 - **Install drip in beds**
 - **Install or use existing designated meters**
- 
- A photograph showing three people in a grassy field. One person on the left is taking a photo with a smartphone. The other two people in the center and right are looking at a large sheet of paper, possibly a site plan or irrigation diagram. In the background, there are residential houses, trees, and a clear sky with some clouds.

Methods



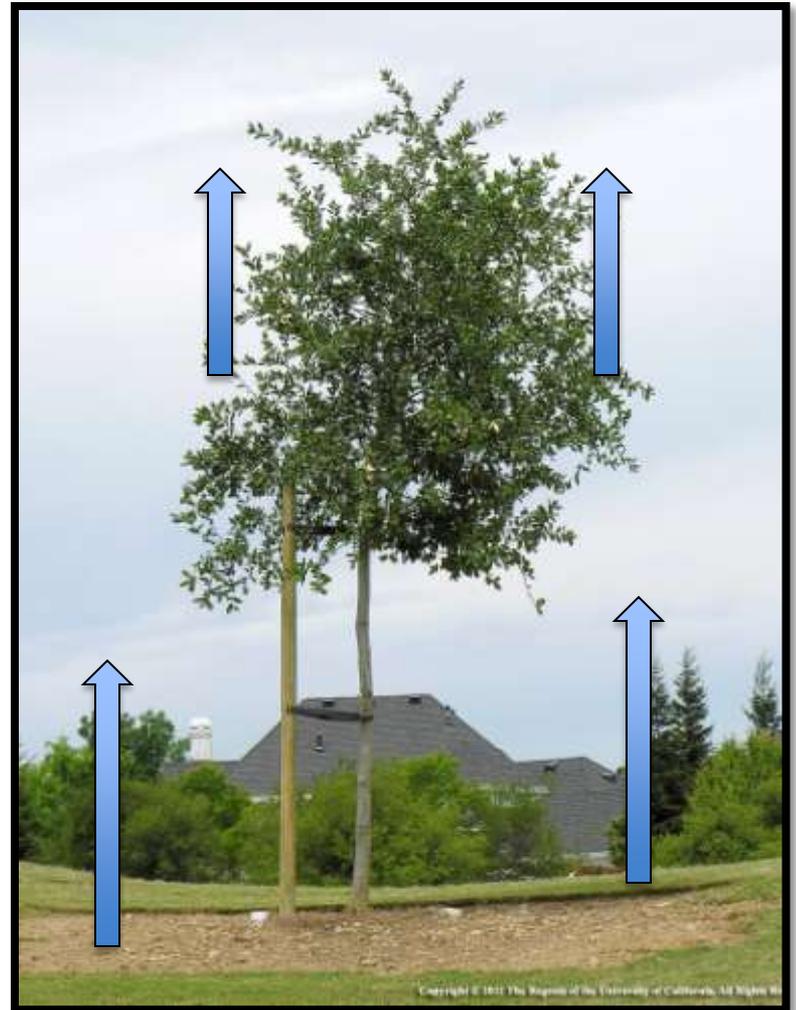
- Schedule water to hit the ETAF TARGET of 0.7
- Monitor sites for health and appearance



ETAf- *What is it?*

(Evapotranspiration Adjustment Factor)

- **Evapotranspiration (ET):**
water loss to the air
 - *by evaporation from the ground +*
 - *transpiration from plants (like exhaling)*
- **Affected by wind, sun, humidity, temperature**



Reference ET or ET_0

- Amount used by grass
- Varies by region
- Stations collect data
- CIMIS reports it-
*California Irrigation
Management Information
System*



<http://wwcimis.water.ca.gov/>

Reference ET or ET₀

- *All other plants compared to this amount used by cool-season grass*

Plant Factor		
High	0.7 – 1.0	70-100%
Moderate	0.4 – 0.6	40-60%
Low	0.2 - .04	20-40%
Very Low	<0.10	<10%

Evapotranspiration Adjustment Factor (ETAF)- *What is it?*

A Number!

Average Plant Factor/Irrigation Efficiency
(decimal) (decimal)

e.g. : **0.8**/0.625 = 1.28

Cool-season turf

Evapotranspiration Adjustment Factor (ETAF)- *What is it?*

- **2010 – Model Water Efficient Landscape Ordinance (MWELO or WELO)**

- **Water Budgets (MAWA)**

$$(ET_0) \times (ETAF) \times (\text{Area in ft}^2) \times (.62) = \text{Gals.}$$

– **uses ETAF of 0.8 with**

- **PF of 0.5**
- **Irr. Eff. Of 0.625**

Project Goal - Reduce ETAF (Plant Factor/Irrigation Efficiency)

current: $0.5 / 0.625 = 0.8$

Plant factor

Irrigation Efficiency

Stays the same >

Must increase

Increases >

Must increase even more

Decreases >

May stay the same

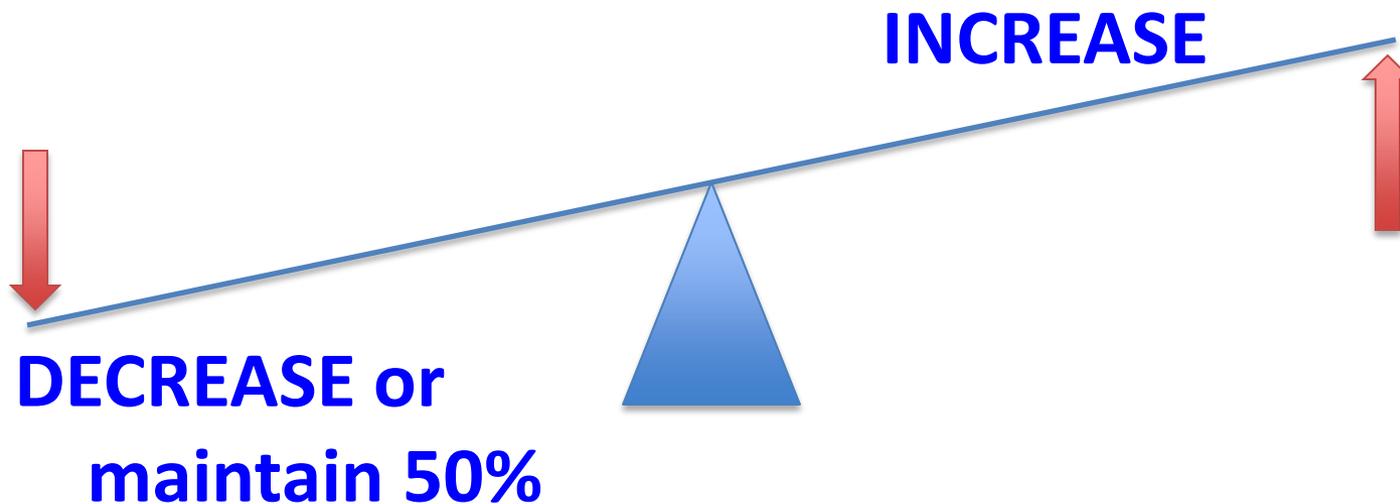
Project Goal - Reduce ETAF (Plant Factor/Irrigation Efficiency)

Goal: $0.5 / 0.71 = 0.7$

STRATEGIES

Plant factor (water needs)

Irrigation Efficiency



Methods revisited

- Optimize the irrigation
- Schedule to meet target
- Monitor plant health
- Measure actual water use

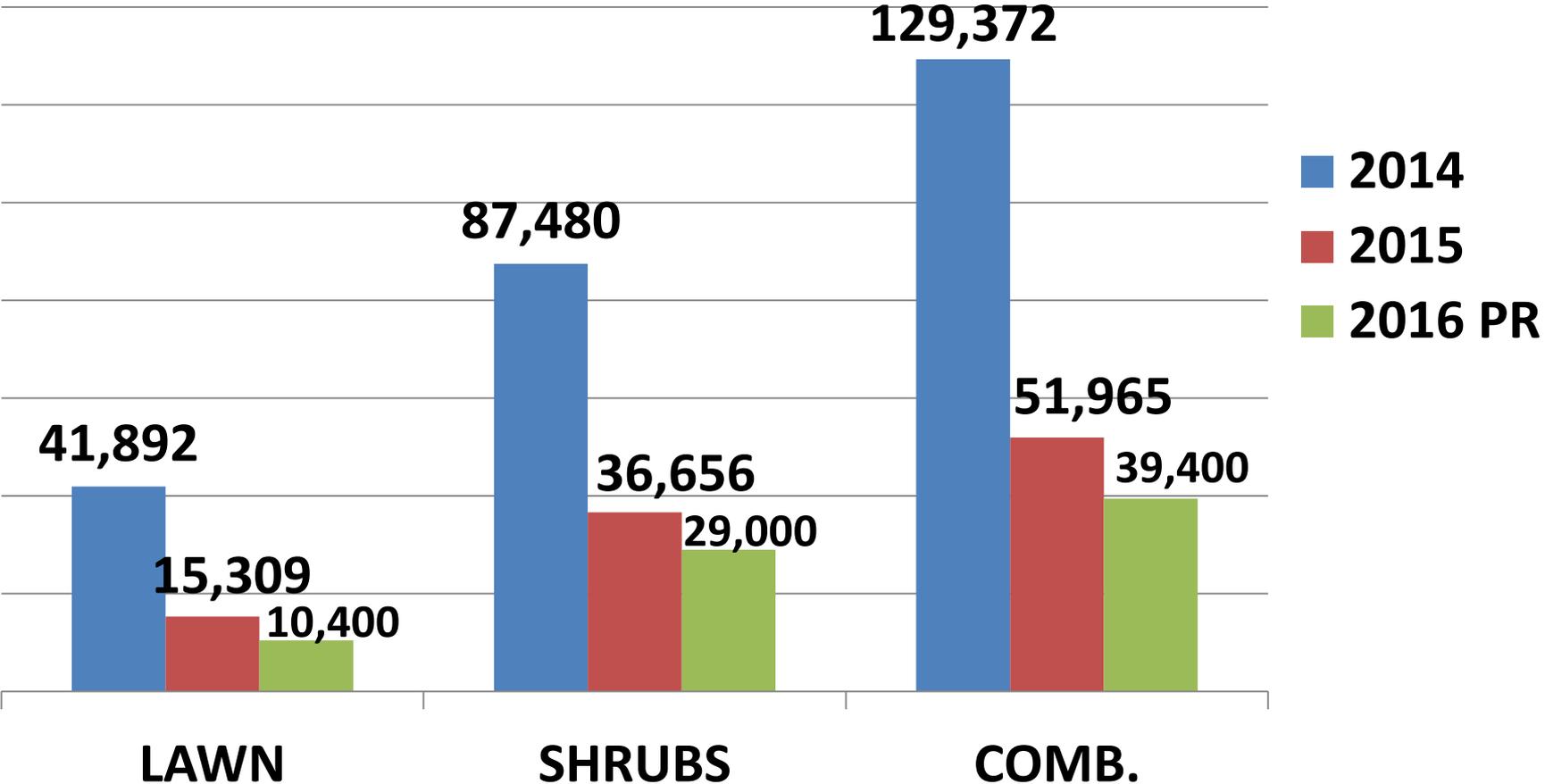
True or False?

The State water reduction goals were met
and the sites
remained healthy.

Results- Site 1

Lawn- 2 zones- 814 ft²

Shrubs- 2 zones – 984 ft²

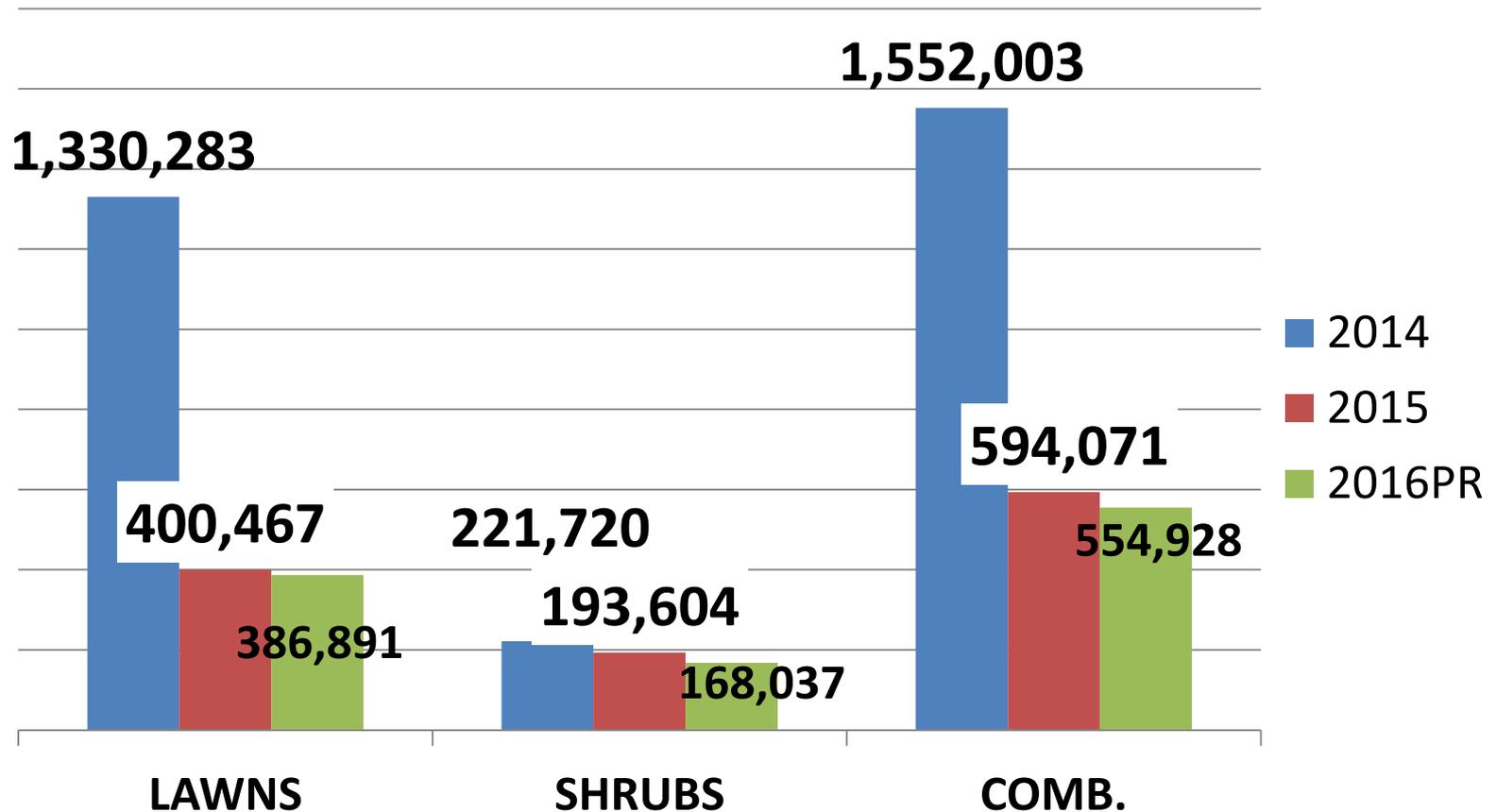


Combined savings of 90,000 Gallons!

Results- Site 2

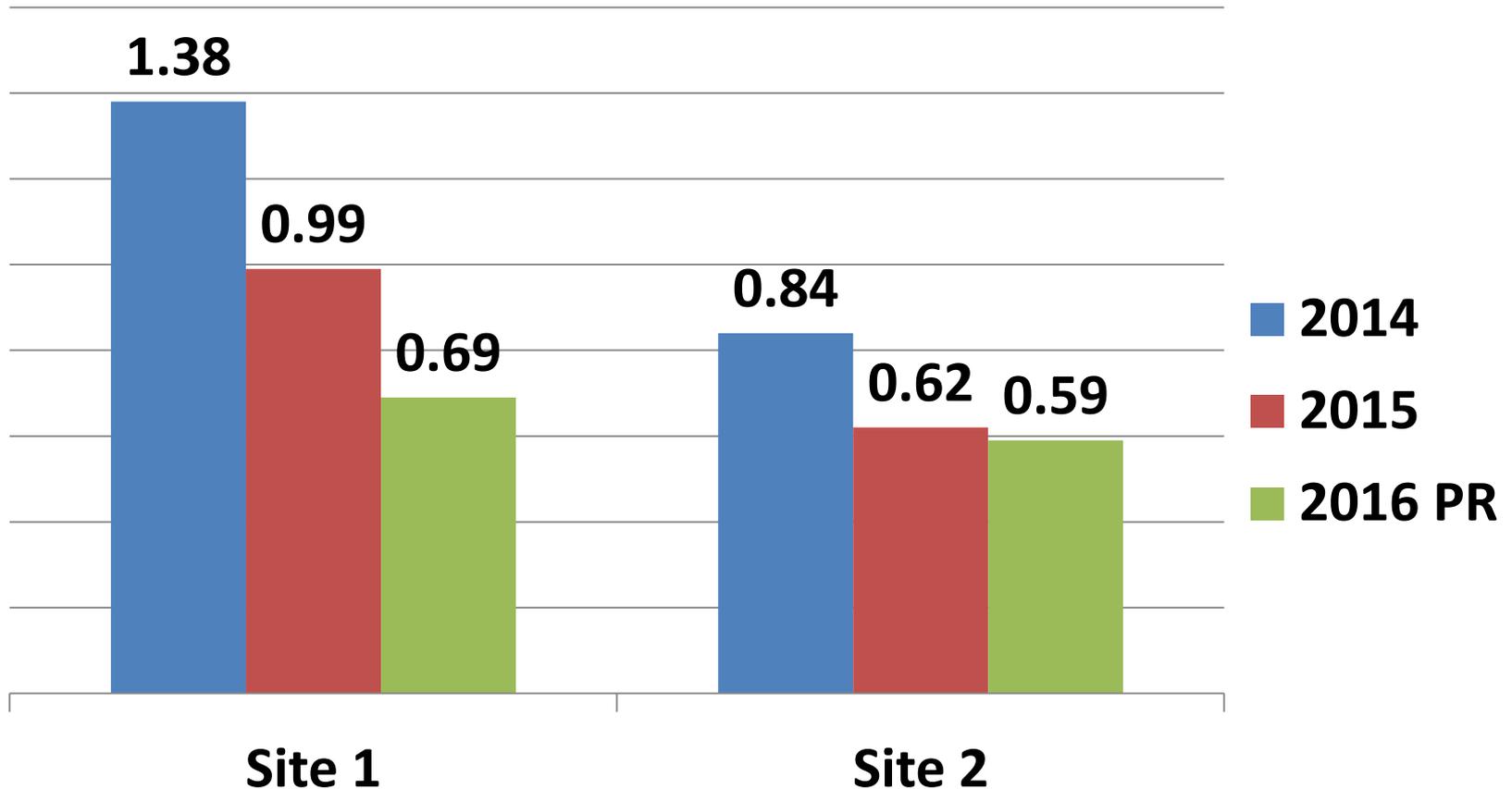
Lawn- 3 zones- 23,530 ft²

Shrubs- 3 zones – 786 ft²



Combined savings of almost 1M Gallons!

ETAF Reductions- goals met!



No irrigation-related pest or disease issues.



**You *can* reduce your water use
AND
keep your sites healthy and
attractive!**

QUESTIONS?