

This presentation premiered at WaterSmart Innovations

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How to increase the effectiveness of water conservation programs through stakeholder collaboration for high volume water users

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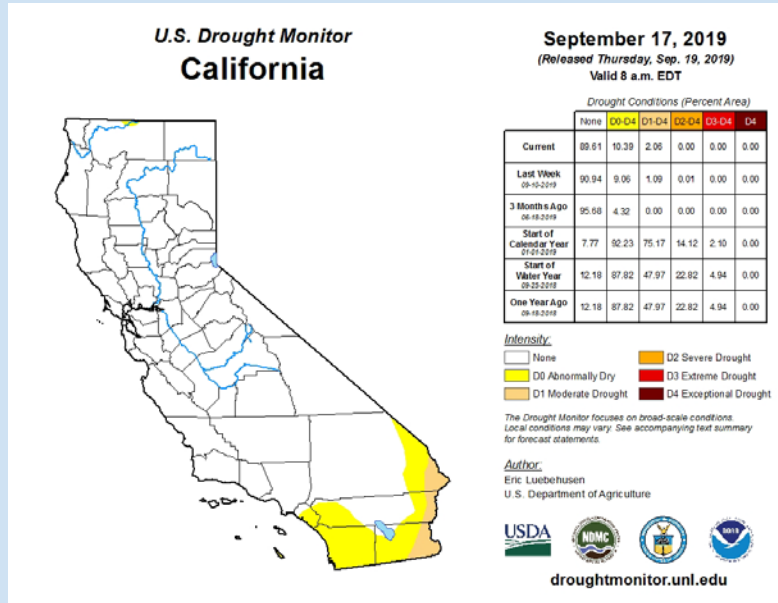
Introduction

The Program

Irrigation audit and evaluation programs are commonly offered by public utilities as a means to increase outdoor water efficiency while decreasing overall water-use.



The Program



In working towards compliance with upcoming state regulations, utilities advertise these programs to high water-use customers as they represent potential for significant water savings.

WATER SAVING REBATES

Residential

Residential

Landscape Transformation Program

About the Program

This new Metropolitan program rewards landscape designs that incorporate water-saving plants, technology, irrigation systems and hardware. The result may be a beautiful bee-butterfly-and-bird-attracting landscape that is sustainable and can save a significant amount of water. Rebates start at \$1 per square foot and may be more depending on additional local water agency incentives.

Eligibility

- A maximum of 1,500 square feet of turf removed per home is eligible for funding each fiscal year.
- The project must have a minimum of 250 square feet of turf removed in the front yard, or if the entire front yard is less than 250 square feet, all turf must be removed.
- There is a limit of one application per home per year.
- Areas which have already had turf removed are not eligible.
- Eligible areas for transformation include:
 - Front yards
 - A minimum of 250 square feet in the front yard is included, or if the entire front yard is less than 250 square feet, all turf is removed, or
 - Front yard was previously transformed.

Program Requirements

A simple landscape plan must be included with your application to illustrate the intended landscape transformation. The completed project area must be covered by at least five plants per 100 square feet.

Three inches of mulch must surround all plants. Mulch/rock/decomposed granite must cover any bare spaces within project area (no bare soil allowed).

The use of organic materials is recommended.

Converted areas must be designed to capture rainfall through infiltration into soil or on-site storage for reuse. Infiltration and rainwater capture techniques can include: rain gardens, rain barrels, cisterns, berms, swales or grades. Selected method should allow infiltration or capture of runoff and not channel to impervious surfaces. Projects must meet all local and regional requirements.



Premium High-Efficiency Toilets (PHETs)

Rebate: \$100 (1-1/GPF)

Irrigation Controllers

Rebate: \$150

Rebate: \$50 per station

Rain Barrels

Rebate: \$35 per barrel (two per household)

Rebate: \$350 (capacity of 200-1000+gal)

Irrigation Controllers

Rebate: \$150

Pop-up Spray Heads

Rebate: \$50 per station

Water Systems

Rebate: \$500

Water Urinals

Rebate: \$50

Steamers

Rebate: \$800

Steamers

Rebate: \$800

Steamers

Rebate: \$800

Steamers

Rebate: \$800

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Rebate: \$800

The Program

However, high water-use customers often do not take advantage of available programs due to multiple factors.

Replacing Your Lawn with a Water-Smart Garden

Learn to convert your thirsty lawn to a beautiful water-smart garden! Then, stroll over to the beautiful Pittsburg Living Green Garden and try out a SIMPLE, low-cost method of lawn conversion that doesn't require digging up your old lawn!

When: Saturday, November 19

Time: 9:30am to 12pm

Where: Pittsburg Library Community Room

Cost: \$20

The Goal

The goal is to provide a reasonable pathway for these customers to implement recommendations made by water efficiency staff in order to achieve significant water savings.

The Scope

The scope of this project has been limited to homeowners associations (HOA's) and public agency landscapes.

The Approach

The approach was two-fold; increase participation and interest among stakeholders and improve on the report for the customer.

Effective program advertising to high water use customers and communication among all stakeholders continues to be vital in reaching high water-use customers and keeping them invested throughout the process

New Report Format Includes

- Customized water budgets based on site data Including: Distribution Uniformity, Overall Plant Type, Localized Weather Data, Effective Precipitation (offsetting wet months) and Cost per Water Unit

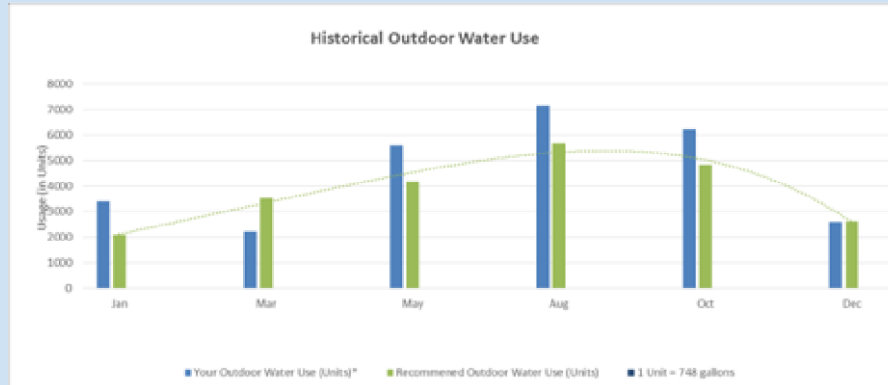
Average between Average Above and Highest ET Station													
For Report:	2.41	3.16	3.76	5.66	5.53	7.25	7.92	7.22	5.72	4.03	2.95	2.11	57.68
Estimated Annual Landscape Water Need													
Total Landscape Area in Square Feet (Measured during the site inspection)	54,800												
Distribution Uniformity Factor	0.65												
Overall Plant Type (Enter number from Table 5)	0.60												
Conversion Factor	0.62												
Estimated Annual Landscape Water Need in Gallons	1,808,987												
Estimated Annual Landscape Water Need in HCF Billing Units	2,418.0												
Month	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Total
Water Budget (Gallons)	226,280	179,236	126,234	92,362	66,175	75,427	99,105	117,766	177,512	173,278	227,221	248,391	1,808,987
Water Budget (Units)	303	240	169	123	88	101	132	157	237	232	304	332	2,418
Every Month Billing													
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	
Actual Use (Units)	724	645	881	908	1008	827	1056	1051	958	1162	920	913	11053
Estimated Outdoor Water Use (Units)	724	645	881	908	1008	827	1056	1051	958	1162	920	913	11053
Indoor Water Budget (Units)	0	0	0	0	0	0	0	0	0	0	0	0	0
Outdoor Water Budget (Units)	132	157	237	304	304	332	303	240	169	123	88	101	2490
Combined Water Budget	132	157	237	304	304	332	303	240	169	123	88	101	2490
Over/Under water Usage	592	488	644	604	704	495	753	811	789	1039	832	812	8563
1 Unit = 748 gallons	0.00		0.00		0.00								

New Report Format Includes

Custom water budgets based on site needs

YTD Outdoor Use	27159 Units
Irrigated Landscaped Area	354,891 Sq. Ft.
Annual Outdoor Water Budget	22923 Units

Potential Savings	
Outdoor Water Savings	4236 Units
Estimated Annual Water Savings in gallons	3,168,528 gallons



New Report Format Includes



Weathermatic Smartlink irrigation controllers were observed throughout your association. These controllers have four programs, three start times per program, and a water budget adjustment feature. All of these features were utilized in the creation of the irrigation schedule. The irrigation schedule represents the July water needs for the four hydro-zones observed during the landscape evaluation. These hydro-zones consist of: pop up sprinklers on turf, rotors on turf, rotors on medium water use shrubs, and rotors on low water shrubs. The monthly water budget chart provides seasonal adjustments to help reduce the amount of water being applied during the cooler months.

Customized Irrigation Schedule with Monthly Adjustments

Controllers:

Location: Near 1031 St. Andrews Dr

Program	Stations	Mon	Tues	Wed	Thur	Fri	Sat	Sun	
Program 1	1	5		5		5		5	Two Start Times
Program 1	2	5		5		5		5	Two Start Times
Program 1	3	5		5		5		5	Two Start Times
Program 1	4	5		5		5		5	Two Start Times
Program 1	5	5		5		5		5	Two Start Times
Program 1	6	5		5		5		5	Two Start Times
Program 1	7	5		5		5		5	Two Start Times
Program 2	8			40					Two Start Times
Program 2	9			40					Two Start Times
Program 1	10	5		5		5		5	Two Start Times
Program 1	11	5		5		5		5	Two Start Times
Program 1	12	5		5		5		5	Two Start Times
Program 1	13	5		5		5		5	Two Start Times
Program 1	14	5		5		5		5	Two Start Times
Program 1	15	5		5		5		5	Two Start Times
Program 1	16	5		5		5		5	Two Start Times

New Report Format Includes

Local Rebates that are applicable to the site



*Commercial
Rebates*

Common Barriers

In- Field	Barrier for Implementation
System Maintenance and Repairs	Return on Investment
Excess Pressure	Stakeholder Communication
Irrigation Scheduling & Over-watering	Not Following Recommendations
Outdated Irrigation Systems	Professional Training
Not Utilizing 'Smart' Functions	

System Maintenance and Repairs



Excess Pressure



Irrigation Scheduling & Over-Watering



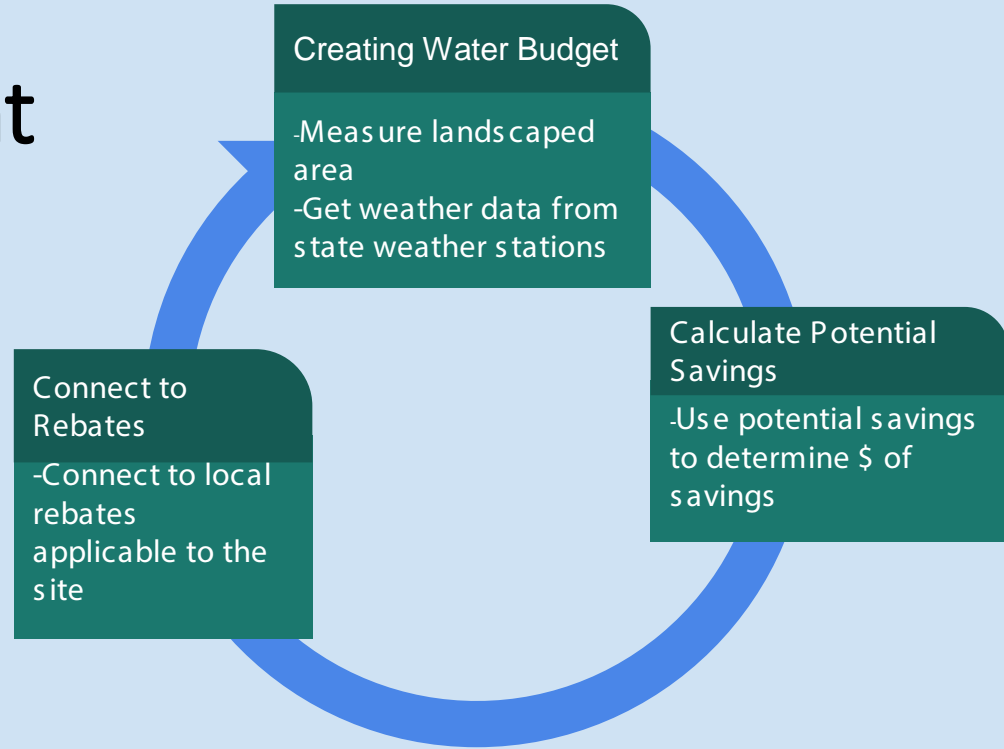
Outdated Irrigation Systems



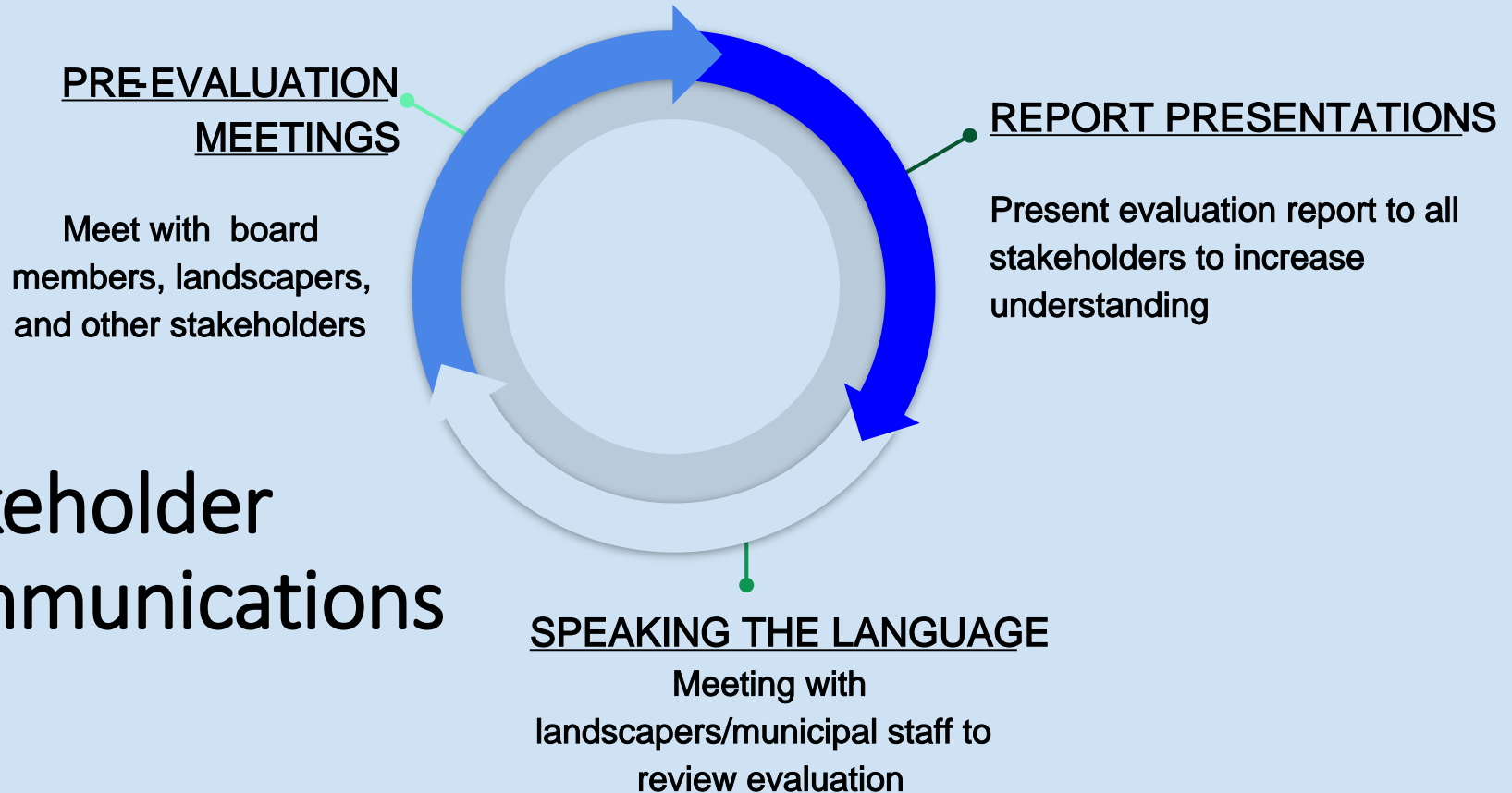


Problem Flowchart

Return on Investment



Stakeholder Communications



Recommendations Not Being Followed



Post Evaluation Meetings

Customized Irrigation
Plan

- Six month phone call and site visit

- Twelve month phone call and site visit

- During the evaluation all plant classifications, irrigation type, soil type, and localized weather data are used to generate a customized irrigation schedule

Professional Training

Offer QWEL Training

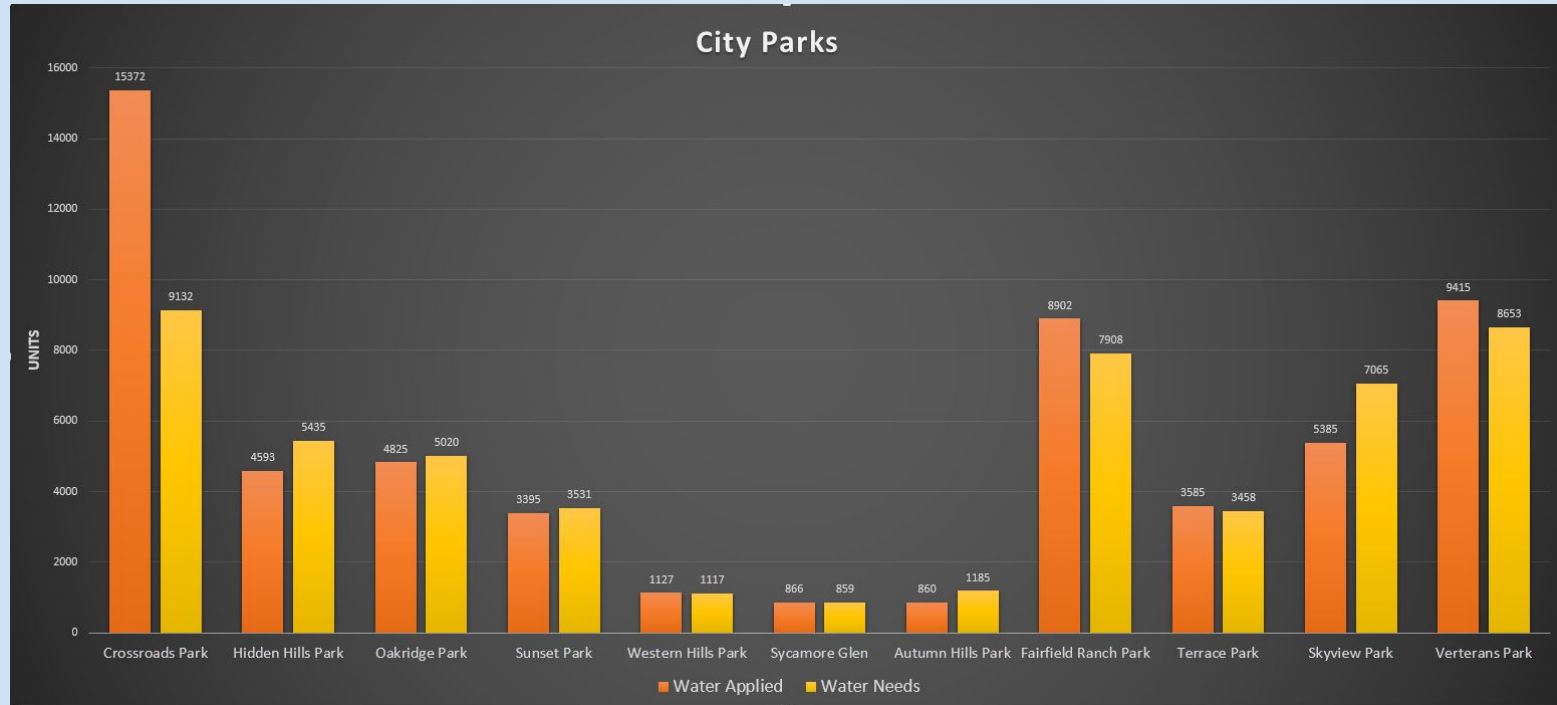
- Qualified Water Efficient Landscaper certification
- EPA WaterSense certified course focusing on sustainability and water management

Lunch and Learns

- Bring in speakers on relevant topics
- Advertise through local irrigation and landscape businesses
- Offer CEU's

Figures

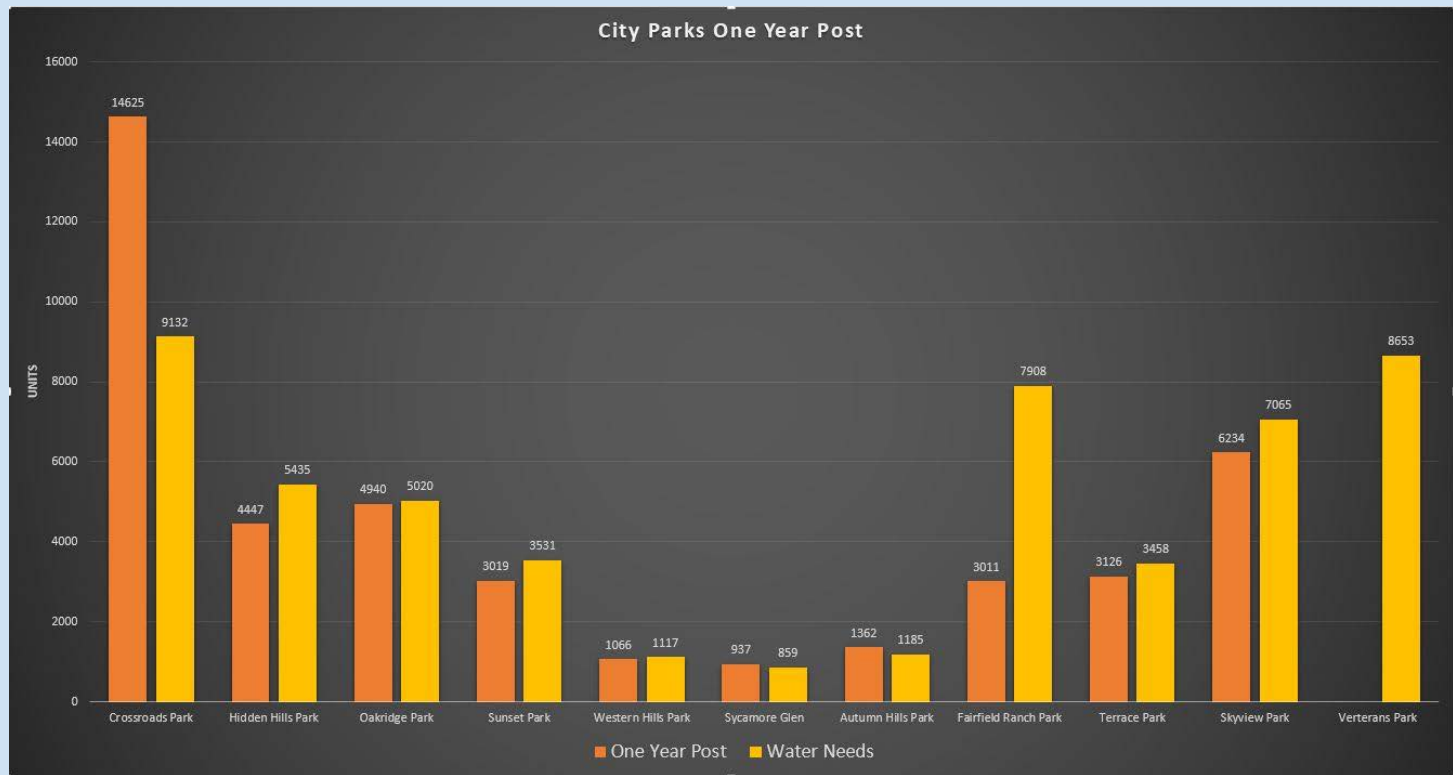
Usage vs. Water Budget



Summary of Findings

- Parks Over Budget: 6
- Parks Under Budget: 5
- Combined Park Usage: 58325 HCF - 134.1 Acre Feet
- Combined Park Budget: 53363 HCF – 122.7 Acre Feet
- Combined Savings: 8140 HCF – 18.7 Acre Feet

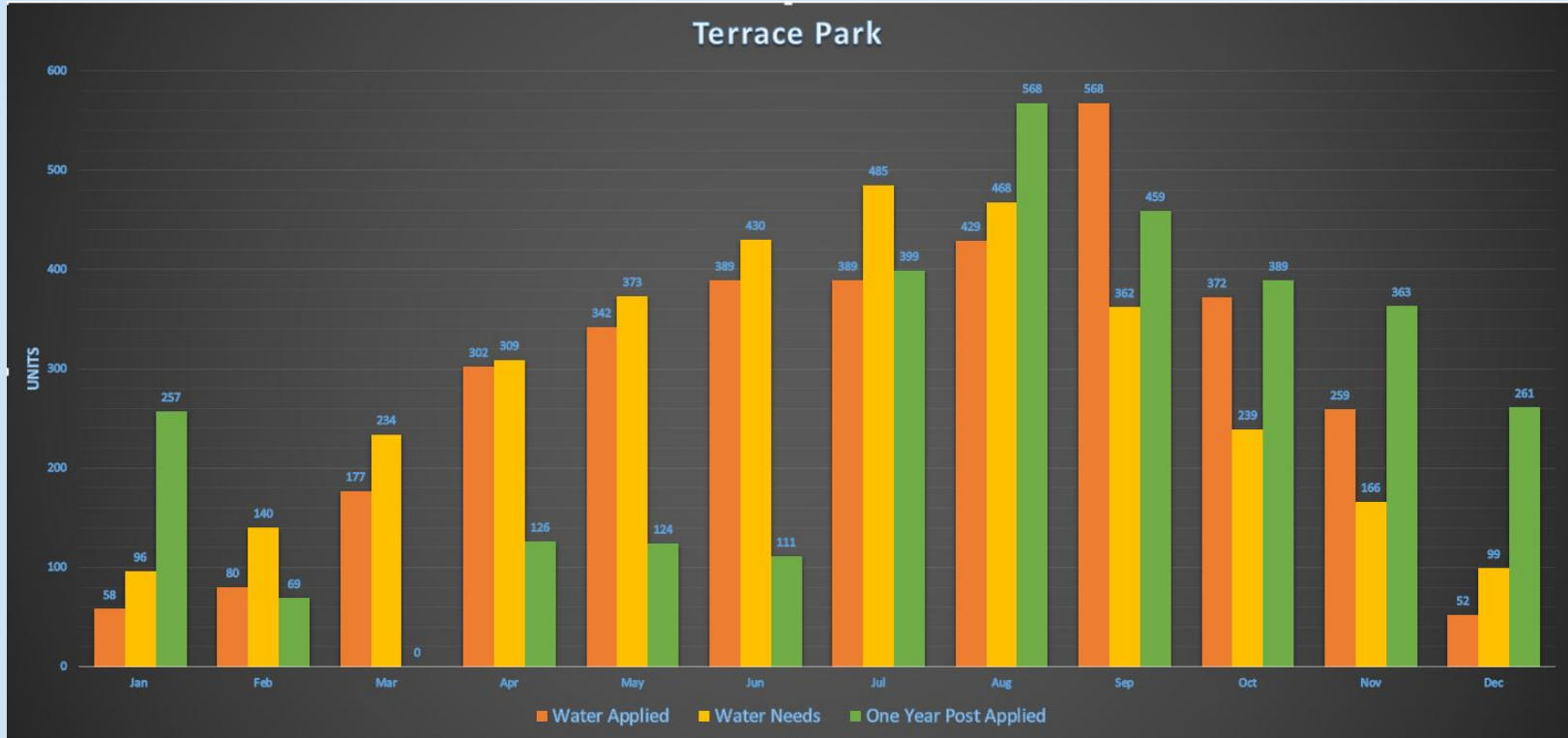
Post Year Usage vs. Water Budget



Summary of Findings

- Parks Over Budget: 4
- Parks Under Budget: 7
- Combined Park Usage: 54689 HCF – 125.7 Acre Feet
- Combined Park Budget: 53363 HCF – 122.7 Acre Feet
- Combined Usage Reduction Post: 3636 HCF – 8.4 Acre Feet

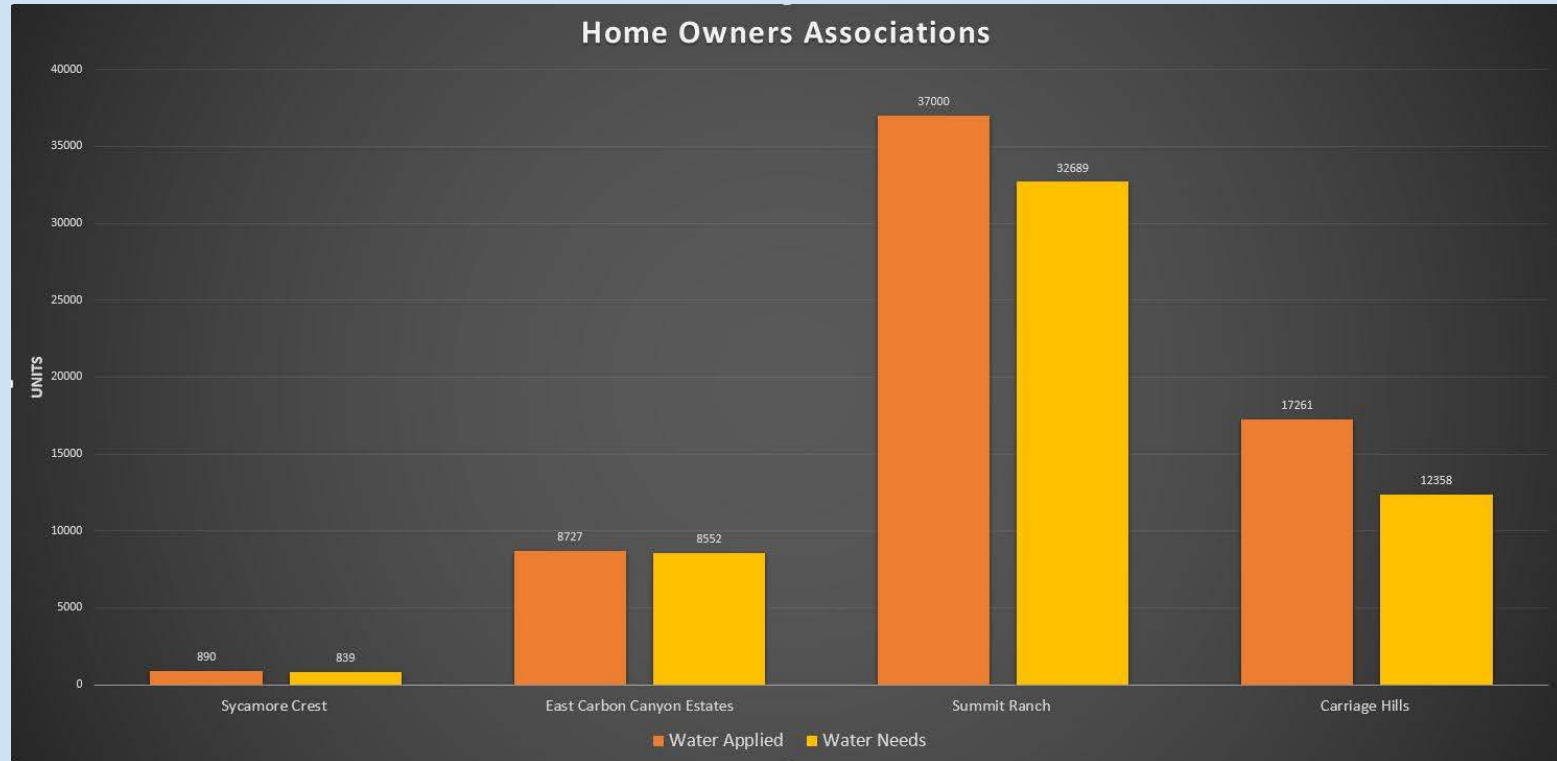
Usage by the Month



Summary of Findings

- Pre Audit Usage: 3585 HCF – 8.2 Acre Feet
- Post Audit Usage: 3126 HCF – 7.2 Acre Feet
- Post Usage Savings: 459 HCF – 1.0 Acre Feet

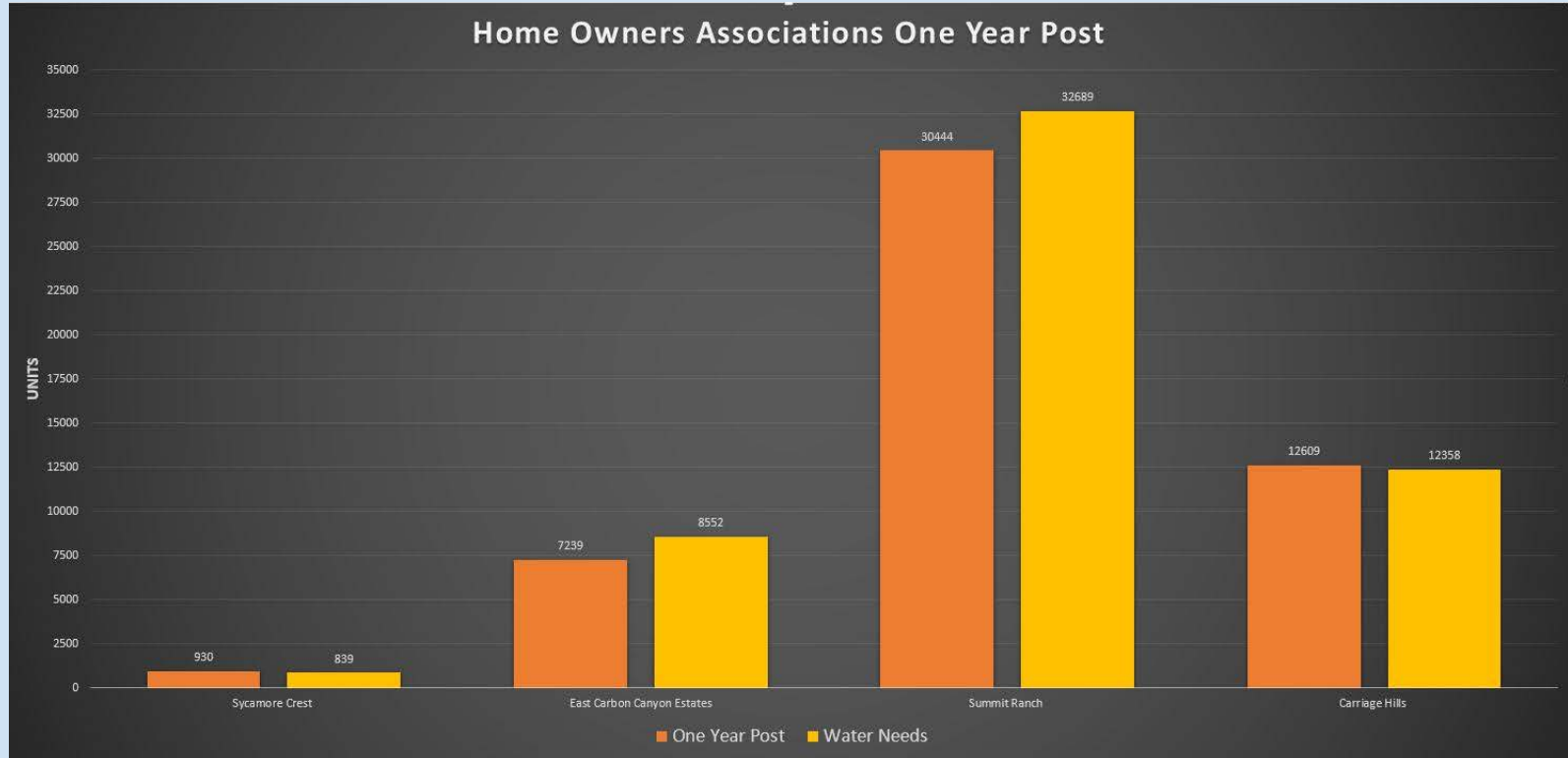
Usage vs. Water Budget



Summary of Findings

- HOA's Over Budget: 4
- HOA's Under Budget: 0
- Combined HOA Usage: 63878 – 146.8 Acre Feet
- Combined HOA Budget: 54438 HCF – 125.1 Acre Feet
- Combined Usage Savings Pre: 9440 HCF – 21.7 Acre Feet

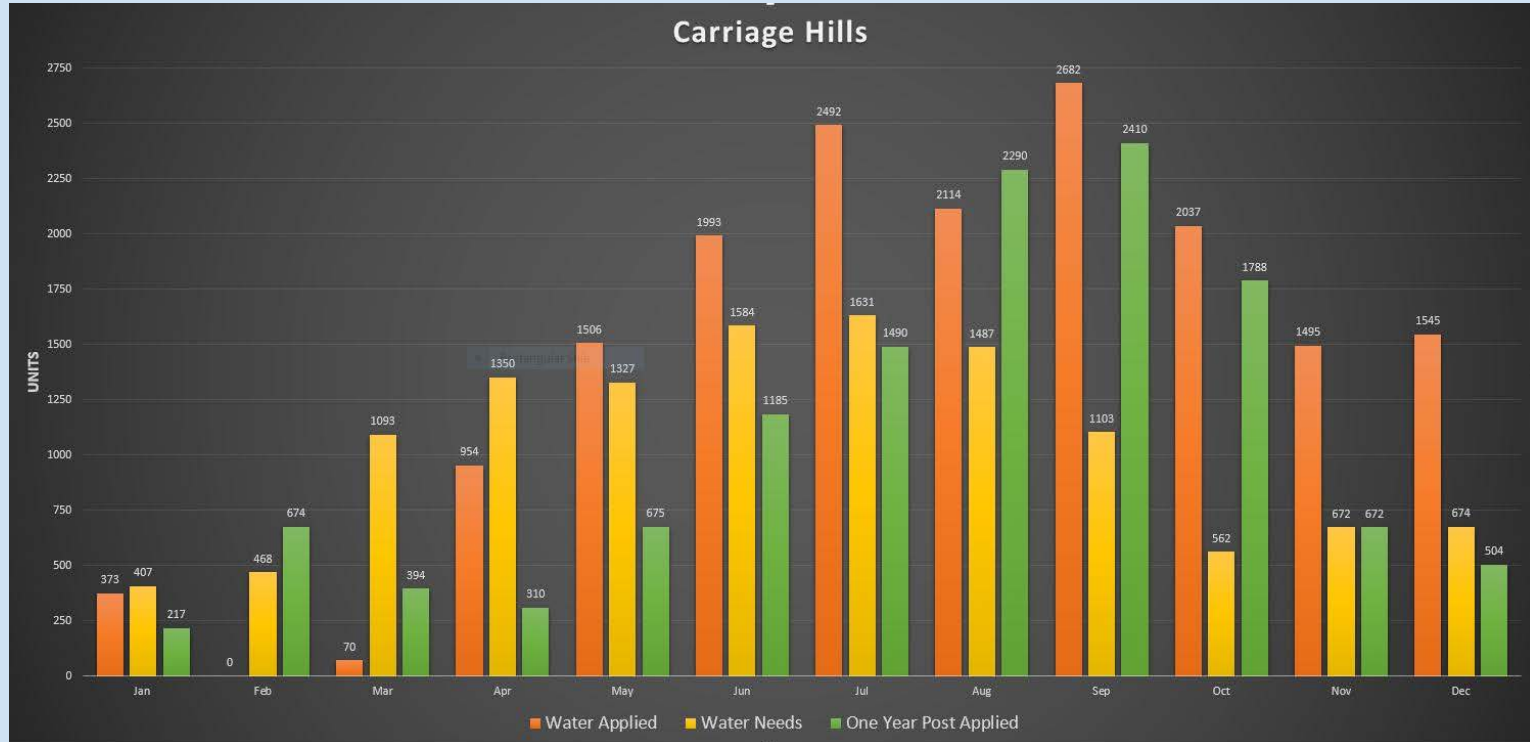
Post Year Usage vs. Water Budget



Summary of Findings

- HOA's Over Budget: 1
- HOA's Under Budget: 3
- Combined HOA Usage: 51222 HCF – 117.7 Acre Feet
- Combined HOA Budget: 53363 HCF – 125.1 Acre Feet
- Combined Usage Reduction Post: 12656 HCF – 29.1 Acre Feet

Usage by the Month



Summary of Findings

- Pre Audit Usage: 17261 HCF – 39.7 Acre Feet
- Post Audit Usage: 12609 HCF – 28.8 Acre Feet
- Post Usage Savings: 4652 HCF – 10.9 Acre Feet

Conclusions

What We Learned

- Significant potential savings in both HOAs and PALs
- Minimum system maintenance decreases overall efficiency
- Effective communication between stakeholders
- Outdated irrigation systems, minimum maintenance, and over-watering
contribute to high water-usage patterns
- Consistent advertising
- Proaction vs. reaction

Takeaways

Further monitoring is needed to establish short vs. long-term trends and changes in water usage behavior

Questions?

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