

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





Performance-Based Irrigation Management Works!

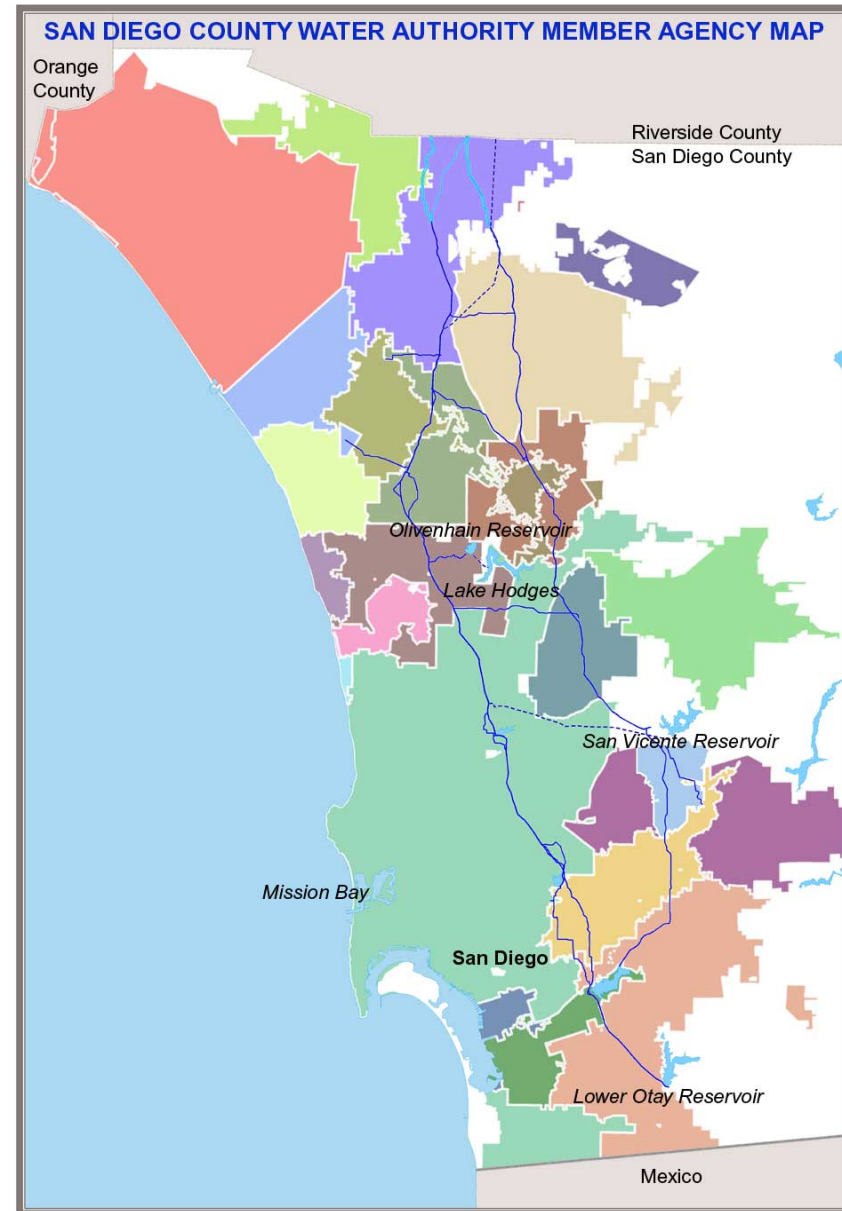
WSLEP Final Results

WaterSmart Innovations Conference
October 5, 2017

Carlos Michelon
Principal Water Resources Specialist

San Diego County Water Authority

- Wholesale water agency created by State Legislature in 1944
 - 36-member Board of Directors
 - 24 Member Agencies including Camp Pendleton
 - Serves 3.3 million people and region's \$222 billion economy
- Service Area
 - 950,000 acres
 - 97% of county population



WaterSmart Landscape Efficiency Program (WSLEP)

Partners and Collaborators



WSLEP: An All-In Approach

A multi-faceted, performance-based irrigation management program requiring at least a 20% water use reduction

**Irrigation
Management**

Norming
(Audits, Water
Budgets, Meter
Reading)

**Financial
Incentives**

**Direct-Install
Hardware**

**Professional
Training &
Technical
Assistance**

**Workforce
Development**

PERFORMANCE

Timeline & Highlights

2008-09

MLP

2013-15

WSLEP I

2017-19

WSLEP II



WSLEP Objectives

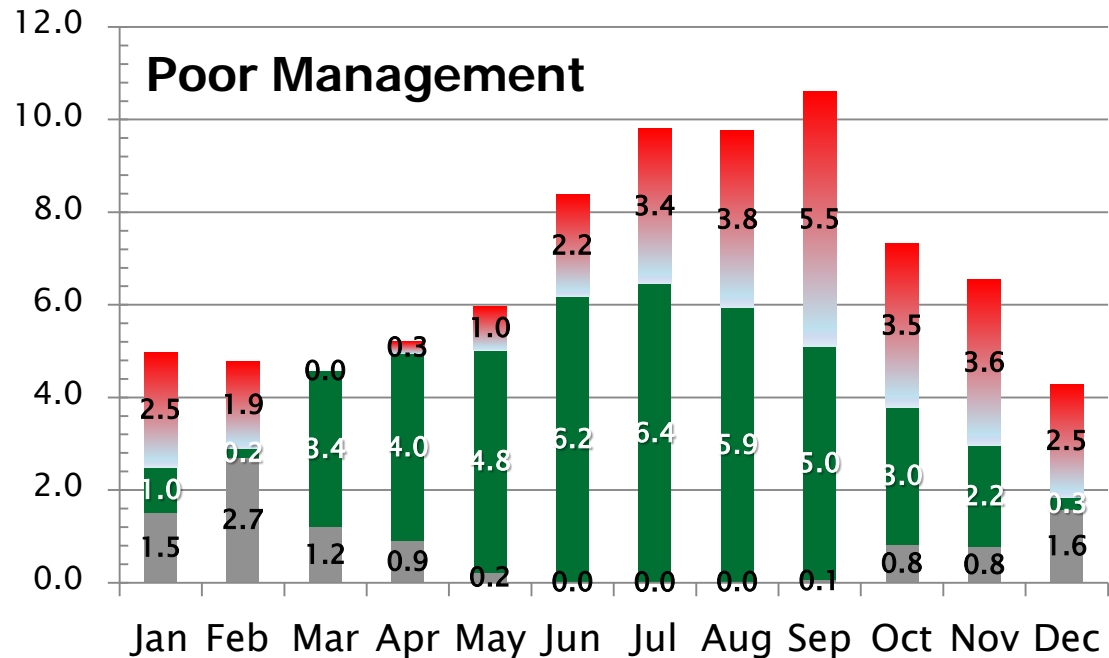
- Manage irrigation to a water budget (20 four-acre sites)
- Achieve robust water savings (at least 20%)
- Test new implementation method (via contractors)
- Public-private partnerships (SDG&E, CLCA)
- Achieve a high level of customer satisfaction

Common Irrigation Problems



Priorities

- Leak detection
- Pressure Regulation
- Distribution Uniformity





WSLEP Incentives

1. Site enrollment..... \$100 per site
2. Calculation of water savings potential..... \$500 per site
3. **Hardware procurement**..... up to \$5,000 per site
4. **Hardware installation**..... up to \$5,000 per site
5. **Irrigation management** \$1,200 per site
6. Performance fee (20% reduction)..... \$1,700 per site
7. Customer satisfaction survey \$100 per site

TOTAL up to \$13,600 per site

Irrigation Management Requirements

Landscape Water Budget (AB 1881) – MWELO 2010 Version

$$\text{MAWA} = (\text{ET}_o) \times (.62) \times ((\text{ETAF } 0.7) \times (\text{Landscape Area}) + (0.3) \times (\text{SLA}))$$

$$\text{ETWU} = (\text{ET}_o) \times (.62) \times \text{PF} \times \text{HA/IE}$$

**Maximum Applied
Water Allowance**

*Gallons per year
depends on ...*

**Estimated Total
Water Usage in gallons**

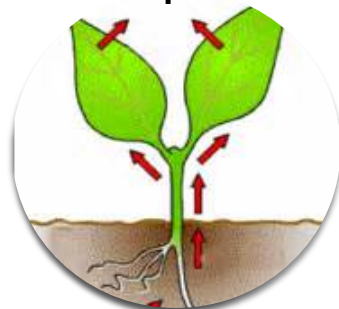
Should be less than
MAWA



Size of Area



Irrigation
Efficiency



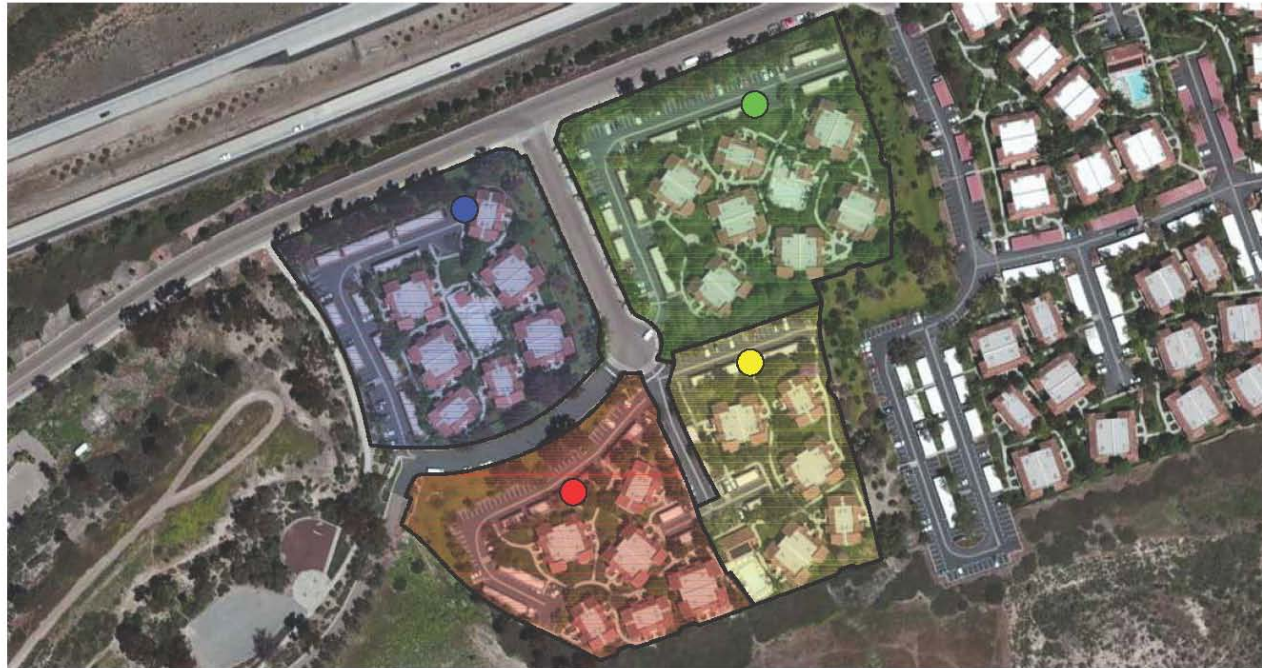
Evapotranspiration



Plant Factor

Irrigated Area Per Meter - Sample Map

Target:
4-acre
average
per site



WATER METER LEGEND

●	SERIAL: 89896308 TURF AREA: 19,120 SQ FT (0.44 ACRES) SHRUB AREA 41,040 SQ FT (0.94 ACRES)
●	SERIAL: 09160218 TURF AREA: 26,460 SQ FT (0.61 ACRES) SHRUB AREA 36,530 SQ FT (0.84 ACRES)
●	SERIAL: 18000022 TURF AREA: 30,090 SQ FT (0.69 ACRES) SHRUB AREA 45,090 SQ FT (1.03 ACRES)
●	SERIAL: 18003897 TURF AREA: 19,490 SQ FT (0.48 ACRES) SHRUB AREA 21,700 SQ FT (0.50 ACRES)

SUNRIDGE

A 92129

TOTAL IRRIGATED TURF: 95,160 SQ FT (2.18 ACRES)
TOTAL IRRIGATED SHRUB: 144,360 SQ FT (3.31 ACRES)

3-YEAR HISTORICAL AVERAGE	7,661 H.C.F.
MAWA (ETAF=.7, ETc=45.73)	6,355 H.C.F.
WATER SAVINGS POTENTIAL	1,306 H.C.F.



WATER MANAGEMENT CERTIFICATION PROGRAM

A WaterSense Labeled Program

An elite performance-based landscape industry certification established in 2007

Certification Requirements

- Classroom training
- Pass written test
- Irrigation audit training
- Enroll & manage a site to budget 12 mos.
- Maintain certification by continuing to manage a site to budget in lieu of CEUs

Use CLCA database to create landscape water budgets and track irrigation



WSLEP Implementation

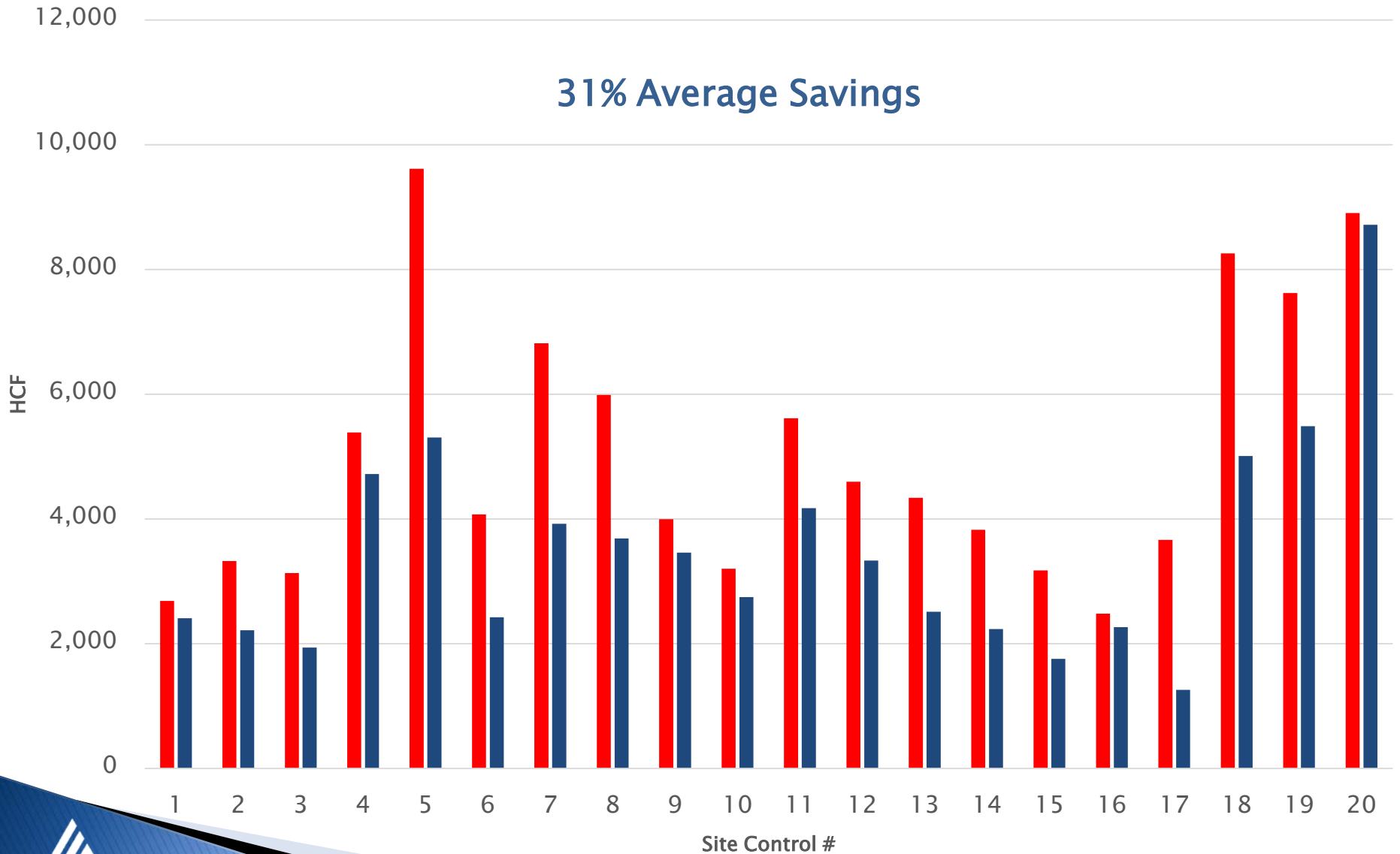
20 Participating Sites

- Apartments (1)
- HOAs (12)
- HOA Owned Parks (2)
- Industrial Complex (1)
- Municipal Parks (4)

WSLEP I – Change in Annual Consumption

■ Pre-Intervention ■ Post-Intervention

31% Average Savings



WSLEP Implementation

9 Participating Contractors

- Benchmark Landscapes, Inc.
- Coastal Pacific Landscape Management
- Earthwise Industries
- Heritage Landscape Services, Inc.
- Landscapes USA
- Nissho of California
- Treebeard Landscape
- Tierra Verde Resources, Inc.
- Western Gardens Landscaping, Inc.

Industry Recognition

Happy Participants!



Summary of Methods & Results

Managed Landscapes Program

2008-09

MLP

- 1 Irrigation Contractor
- Targeted recruitment
- Audits & Repairs
- Irrigation Control HW (Proprietary)
- Multiple sites

36%
Overall Savings

Summary of Methods & Results

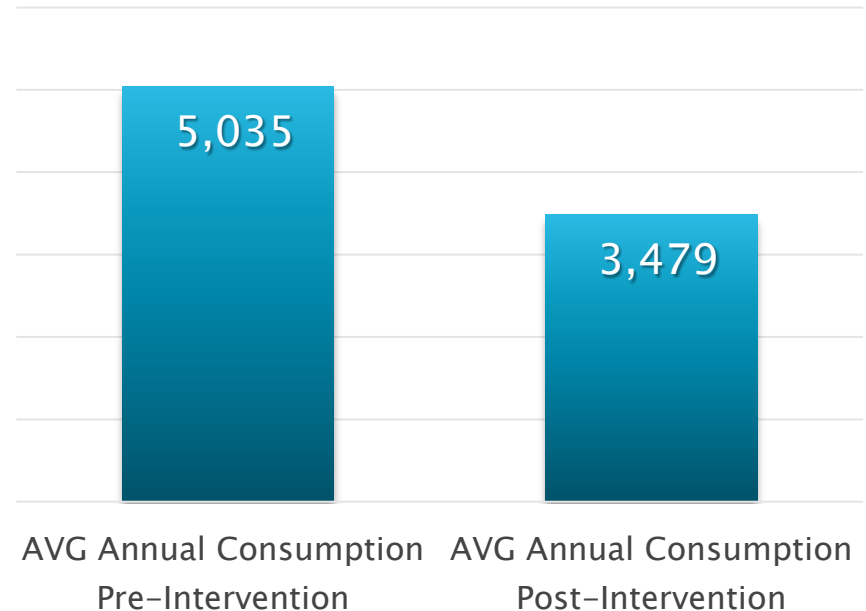
WaterSmart Landscape Efficiency Program

2013–15

WSLEP

- 1 Program administrator
- 9 Maintenance contractors
- Market-driven recruitment
- Audits & repairs
- Distribution HW (Leak repair, Pressure reg., & DU)
- Multiple sites & contractors
- Training & tech. asst.

31%
Overall Savings
(HCF)



Next Phase – WSLEP II

2017-2019 Implementation

2017-19

WSLEP

- 1 Program Administrator
- Targeted recruitment
- Audits & Repairs
- Flow Sensing, Control, Pressure & DU
- Training & Tech. Asst.
- Multiple sites & contractors

**20% Min.
Targeted
Savings**



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