This presentation premiered at WaterSmart Innovations

watersmartinnovations.com
Performance-Based Irrigation Management Works!

WSLEP Final Results

WaterSmart Innovations Conference
October 5, 2017
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

**Poor Management**

<table>
<thead>
<tr>
<th>Month</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.5</td>
<td>1.9</td>
<td>3.4</td>
<td>4.0</td>
<td>4.8</td>
<td>6.2</td>
<td>3.4</td>
<td>3.8</td>
<td>5.5</td>
<td>3.5</td>
<td>3.6</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>2.7</td>
<td>1.2</td>
<td>0.9</td>
<td>0.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
<td>0.8</td>
<td>0.8</td>
<td>1.6</td>
</tr>
</tbody>
</table>

San Diego County Water Authority
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

MAWA = \( (\text{ET}_0) \times (0.62) \times ((\text{ETAF} \times 0.7) \times (\text{Landscape Area}) + (0.3) \times (\text{SLA})) \)

ETWU = \( (\text{ET}_0) \times (0.62) \times \text{PF} \times \text{HA}/\text{IE} \)

Maximum Applied Water Allowance
Gallons per year depends on …

Estimated Total Water Usage in gallons
Should be less than MAWA

Evapotranspiration
Size of Area
Irrigation Efficiency
Plant Factor
Irrigated Area Per Meter - Sample Map

Target:
4-acre average per site

WATER METER LEGEND

<table>
<thead>
<tr>
<th>SERIAL</th>
<th>TURF AREA</th>
<th>SHRUB AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>88896308</td>
<td>19,120 SQ FT (0.44 ACRES)</td>
<td>41,040 SQ FT (0.94 ACRES)</td>
</tr>
<tr>
<td>09160218</td>
<td>26,460 SQ FT (0.51 ACRES)</td>
<td>36,530 SQ FT (0.84 ACRES)</td>
</tr>
<tr>
<td>18000022</td>
<td>30,090 SQ FT (0.69 ACRES)</td>
<td>45,090 SQ FT (1.03 ACRES)</td>
</tr>
<tr>
<td>18003897</td>
<td>19,490 SQ FT (0.48 ACRES)</td>
<td>21,700 SQ FT (0.50 ACRES)</td>
</tr>
</tbody>
</table>

SUNRIDGE

TOTAL IRRIGATED TURF: 95,180 SQ FT (2.18 ACRES)
TOTAL IRRIGATED SHRUB: 144,380 FT (3.31 ACRES)

3-YEAR HISTORICAL AVERAGE: 7,681 H.C.F.
MAWA (ETa=.7, ET0=45.73): 6,355 H.C.F.
WATER SAVINGS POTENTIAL: 1,306 H.C.F.
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

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

- 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)

<table>
<thead>
<tr>
<th>AVG Annual Consumption</th>
<th>AVG Annual Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre–Intervention</td>
<td>Post–Intervention</td>
</tr>
<tr>
<td>5,035</td>
<td>3,479</td>
</tr>
</tbody>
</table>

San Diego County Water Authority
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
Carlos Michelon
Principal Water Resources Specialist
San Diego County Water Authority
(858) 522-6756
cmichelon@sdcwa.org

watersmartsd.org

sustainablelandscapessd.org