

# Project Completion Report

Proposition 50, Project 1

*Integrated Landscape and Agricultural  
Efficiency Programs*

SDIRWM RAC Meeting

February 1, 2017



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Principal Water Resources Specialist

## Overview

- ▶ Acknowledgements
- ▶ Project recap
- ▶ Accomplishments



## Acknowledgements

### Funding Agencies and Collaborators



San Diego Conservation  
Action Committee

SAN DIEGO COUNTY



FARM BUREAU



A & N Technical Services, Inc.  
San Diego, Los Angeles



3

## Project Recap

### Budget

Costs	Amount (\$)
Grant expenditures	\$2,032,344.11
Matching funds	\$3,357,306.00
Total project costs	\$5,389,650.11

*\*Additional costs incurred by participating homeowners  
and for outreach funded by SDCWA*



4

## Project Recap

### Schedule

Action	Dates
Grant proposal	October 2007
Effective Date	June 2008
Contract Execution	July 2010
Project Completion	February 2016

*Completion report submitted June 30, 2016*



5

## Project Recap

### Work Plan

Project Components
1. Agricultural Water Use Efficiency Audits, Assessment and Research
2. Web-Driven Water Budget Implementation Assistance
3. CII and Residential Landscape Retrofits
4. Branding Outreach and Education
5. Regional Landscape Model Ordinance Report
6. Landscape Conservation Research and Development



6

## Project Purpose

- ▶ Increase water use efficiency
- ▶ Reduce reliance on imported water supplies
- ▶ Improve local and regional water quality
- ▶ Expand regional integration
  - Conservation efforts
  - Ordinances consistent with the Regional Landscape Ordinance

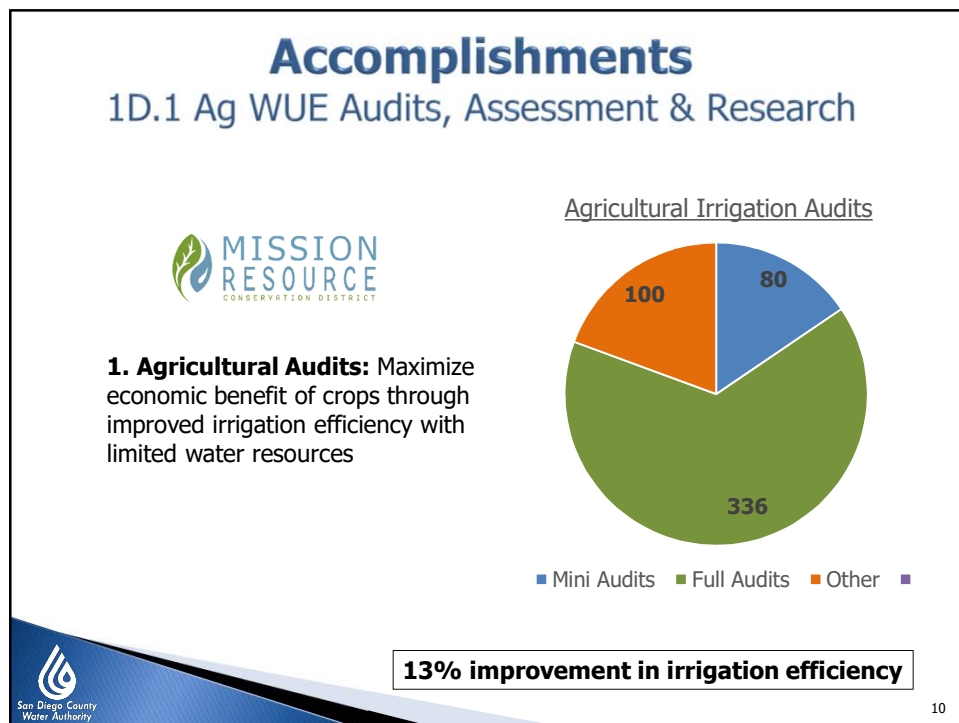
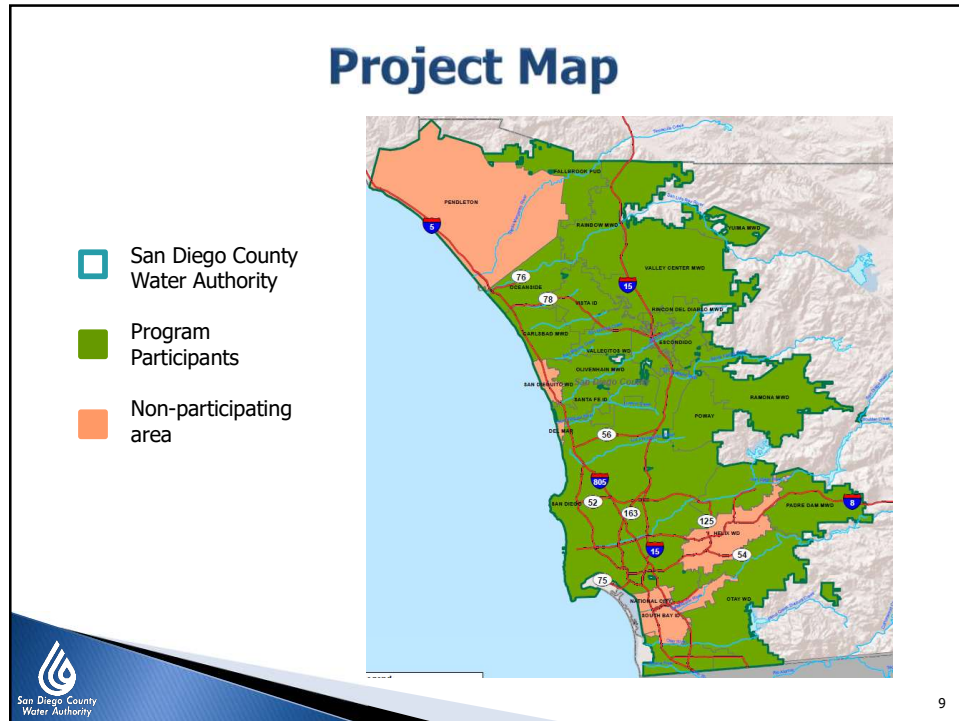


## Project Goals and Objectives

- ▶ Increase agricultural water use efficiency
- ▶ Increase landscape irrigation efficiency
- ▶ Educate public on water use efficiency
- ▶ Improve water quality

Total anticipated water savings: 3,600 AFY





## Accomplishments

### 1D.1 Ag WUE Audits, Assessment & Research



#### 2. Agricultural Assessment:

Mapping (GIS) assessment of ag lands by acreage and crop type within SDCWA's service area for long-term demand forecast model



**Assessed 56,840 Acres of Ag Land  
(41% Avocados)**



11

## Accomplishments

### 1D.1 Ag WUE Audits, Assessment & Research

#### 3. Ag WUE Research:

##### ALTERNATE CROPS:

- ▶ The Avocado Irrigation Trials Report
  - Soil-moisture (tensiometer) and evapotranspiration (ET) irrigation systems led to higher avocado yields
  - High cost of systems only practical for smaller groves
  - ET-based systems better yields than tensiometer-based systems
- ▶ Blueberry Irrigation Trials Report
  - Blueberries as alternative high-value crop
  - Blueberries have higher water use co-efficient than avocados, but only have to be watered part of the year



12

## Accomplishments

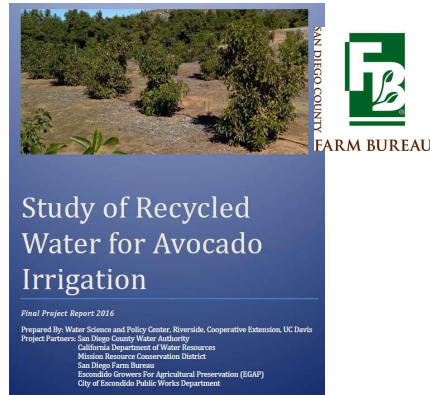
### 1D.1 Ag WUE Audits, Assessment & Research

#### 3. Ag WUE Research (Continued):

a. **ALTERNATE CROPS:** The Avocado Irrigation Trials Report and Blueberry Irrigation Trials Report document irrigation practices research, including:

- Avocado yield with soil- and weather-based irrigation
- Blueberries as alternative high-value crop

b. **USE OF RECYCLED WATER:** Study of Recycled Water for Avocado Irrigation outlines optimal recycled water treatment level and irrigation practices for avocados



**Recycled water safe for avocados  
with proper irrigation management**



13

## Accomplishments

### 1D.1 Ag WUE Audits, Assessment & Research

#### 4. Agricultural Water Management Plan Evaluation:

- ▶ Completed the Agricultural Water Management Program (AWMP) Evaluation Report in 2011, which analyzed the program's water savings and cost effectiveness.
- ▶ The report included:
  - Consumption patterns for pre- and post-audits;
  - Water savings derived from the implementation of the AWMP
  - An assessment of AWMP cost-effectiveness
  - Recommended improvements to the AWMP implementation processes.



14

## Accomplishments

### 1D.2 Web-Driven Water Budget Implementation Assistance

#### 1. Water Budget Intern Program Implementation:

- ▶ Partnership with Cuyamaca College
- ▶ Training of 14 water budget interns
- ▶ Placement at 11 member agencies
- ▶ Water Budget program is actively used to this day by the City of San Diego



**Interns generated 2,900 water budget and landscape measurements**



15

## Accomplishments

### 1D.2 Web-Driven Water Budget Implementation Assistance

#### 2. Incentives to Reduce Water Use (Pilot):

- ▶ Targeted high water users
- ▶ Audits, retrofits, and education
- ▶ Landscape area measurement; home surveys; large landscape surveys; reports and water budgets; weather based irrigation controllers
- ▶ Established water budget and provided incentives to help achieve target



**250 residential audits & retrofits.  
Estimated water savings: 1,447 AF**



16



## Accomplishments

### 1D.3 CII & Residential Landscape Retrofits

**1. Enhanced Conservation Programs (ECP) Retrofit Pilot Program:** Holistic retrofits that adhere to the Model Water Landscape Efficient Ordinance (Res. and CII)

- 3 Res. sites (5,505 ft<sup>2</sup>)
- 5 CII sites (17,754 ft<sup>2</sup>)

**2. Turf Rebate Program:**

\$1.50/sq.ft. incentive to replace existing turf with WaterSmart landscaping consistent with MWELO.

- 20 member agencies participated
- 479 Res. and 50 CII projects
- 756,564 sq.ft. converted (2013-15)



**Estimated Water Savings of 13.7% water savings/site on avg.**



17

## Accomplishments

### 1D.4 Branding Outreach and Education

**WaterSmart Branding Study:**

Completed a branding study that resulted in the creation of the region's "WaterSmart" brand identity for water use efficiency programs.

- ▶ Determined the effectiveness of various potential water conservation messages
- ▶ Crafted new program collateral materials and website content
- ▶ Conducted outreach to potential participants

**Activities and Results**

- ▶ Hosted 3<sup>rd</sup> Water Conservation Summit in 2009
- ▶ Held annual exhibit at San Diego County Fair
- ▶ Homeowner landscape contest
- ▶ Demonstration site at SDCWA headquarters



A BETTER WAY TO BEAUTIFUL



**Launched "WaterSmart" brand**



18

## Accomplishments

### 1D.5 Regional Landscape Model Ordinance Support

#### San Diego Conservation Action Committee



#### Local Adoption of MWELO

- ▶ Supported Conservation Action Committee's activities and "Model Ordinance Workgroup"
- ▶ Developed a regional model ordinance tailored for jurisdictions throughout San Diego County
- ▶ 18 cities and the County adopted Water Efficient Landscaping Ordinances


**Estimated Water Savings:  
30 AF over 5 years**



19

## Accomplishments

### 1D.5 Regional Landscape Model Ordinance Support (Cont'd)



#### Conservation Action Committee

[HOME](#)   [CONTACT US](#)

All San Diego County land-use agencies must enact a water-efficient landscaping ordinance by 2010.

#### WATER EFFICIENT LANDSCAPING ORDINANCES

(Please note: this page is not being updated regularly)

**Model Ordinances**

- [Regional Model Landscape Ordinance \(Final\) 11-20-09](#)
- [State's Landscape Ordinance \(Final\)](#)

**Adopted Ordinances**

- [City of Carlsbad's Landscape Ordinance](#)
- [City of Chula Vista's Landscape Ordinance](#)
- [City of Coronado's Landscape Ordinance](#)
- [City of Del Mar's Landscape Ordinance](#)
- [City of El Cajon's Landscape Ordinance](#)
- [City of Encinitas' Landscape Ordinance](#)
- [City of Escondido's Landscape Ordinance](#)
- [City of Imperial Beach's Landscape Ordinance](#)
- [City of La Mesa's Landscape Ordinance](#)
- [City of Lemon Grove's Landscape Ordinance](#)
- [National City's Landscape Ordinance](#)
- [City of Oceanside's Landscape Ordinance](#)
- [City of Poway's Landscape Ordinance](#)
- [City of San Diego's Update Municipal Code w/ Ordinance \(Nov. 09\)](#)
- [City of San Marcos' Landscape Ordinance](#)
- [City of Santee's Landscape Ordinance](#)
- [City of Solana Beach's Landscape Ordinance](#)



20

## Accomplishments

### 1D.6 Landscape Conservation Research and Development

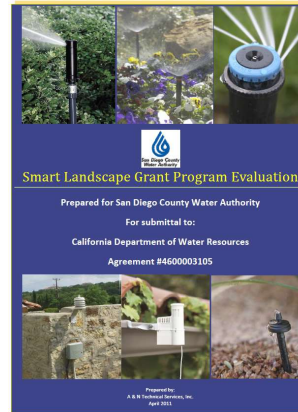
#### Smart Landscape grant Program Evaluation:

- ▶ Evaluated 312 sites (Component 3)
  - 235 residential
  - 77 CII sites
- ▶ Irrigation hardware upgrade was cost effective for savings

**Honeywell**  
Utility Solutions



**A & N Technical Services, Inc.**  
San Diego, Los Angeles



**Water Savings Estimates:**  
**Multi-family Sites: 10.8% reduction**  
**CII Sites: 20.5% reduction**



San Diego County  
Water Authority

21

## Accomplishments

### 1D.6 Landscape Conservation Research and Development

#### Water Budget Pilot

#### Evaluation (Component 2):

- ▶ Evaluated 246 participants
  - Improved targeting of customers would be more cost effective
  - Water savings not as high as initially projected



San Diego County  
Water Authority

22

