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# Dirt Cheap Water: The MWDOC WUE Master Plan - \$415/AF - What?

Water Smart Innovations Conference  
2014

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2013

ORANGE COUNTY  
WATER USE EFFICIENCY  
MASTER PLAN



The Family of Orange  
County Water Agencies

# **Presentation Content**

- **Who is the Municipal Water District of Orange County?**
- **Why Water Use Efficiency?**
- **What is a Water Use Efficiency Master Plan?**
- **Master Plan Development**
- **What is in the Master Plan?**
- **First year implementation progress report**



# Municipal Water District of Orange County, California

Water wholesaler and resource planning agency

- Ensure a reliable supply of imported water
- 28 cities/retail water agencies

Governed by seven-member elected board of directors

Service area: 600 sq. miles

Service area population:

- Nearly 2.3 million

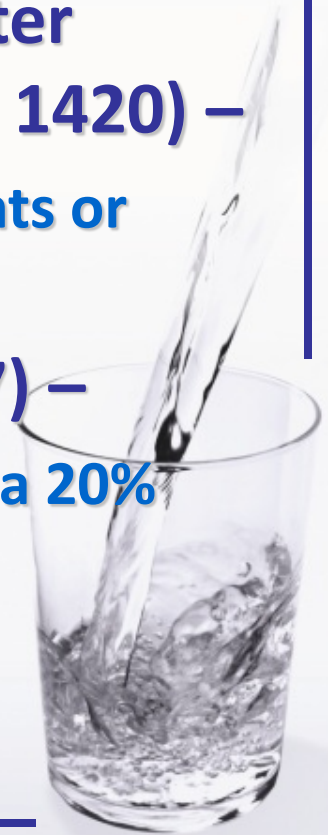


You are Here



# Background – Why Water Use Efficiency?

- **California Constitution: Article 10 Water –**
  - “.....waste or unreasonable use ..... be prevented, and that the conservation of such waters is to be exercised”
- **Water Demand Management Measures: Water Management Grant or Loan Funds (2007, AB 1420) –**
  - Conditions eligibility for water management grants or loans
- **The Water Conservation Act of 2009 (SBx 7-7) –**
  - Requires urban retail water providers to achieve a 20% reduction in per capita water use by 2020





# **Background – Why Water Use Efficiency?**

**(continued)**

- It is part of Southern California's Integrated Resources Plan for water supply reliability
- It is the least expensive water supply opportunity in OC
- It provides multiple benefits:
  - Energy savings
  - Dry-weather runoff reduction
  - Non-point source pollution prevention
- It helps to manage water supply costs to water agencies and consumers



# **What is a Water Use Efficiency Master Plan?**

**A 5-year road map for implementation  
of cost-effective, stakeholder-supported,  
water use efficiency programs for  
Orange County, California**



# Process for Developing the Master Plan

## Steps

- Hired a Technical Consultant and Facilitator
- Held three stakeholder meetings to gather input
- Utilized the Alliance for Water Efficiency Water Conservation Tracking Tool

## Themes

- Rigorous Analytics and Open Process
- Participatory
- Transparent and Empirical Planning Basis



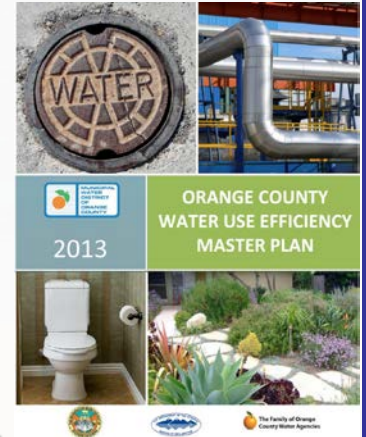
***A & N Technical Services Inc.***





# What is in the Water Use Efficiency Master Plan?

- Executive Summary
- Overview and Strategy
- Planning Process
- Demand Assessment and Savings Potential
- Water Savings Goal and Compliance Assessment
- Possible Projects, Programs, and Policies
- Recommended Projects, Programs, and Policies
- Implementation Plan



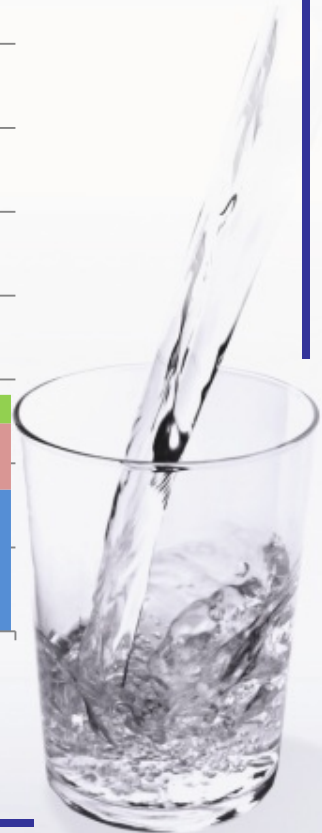
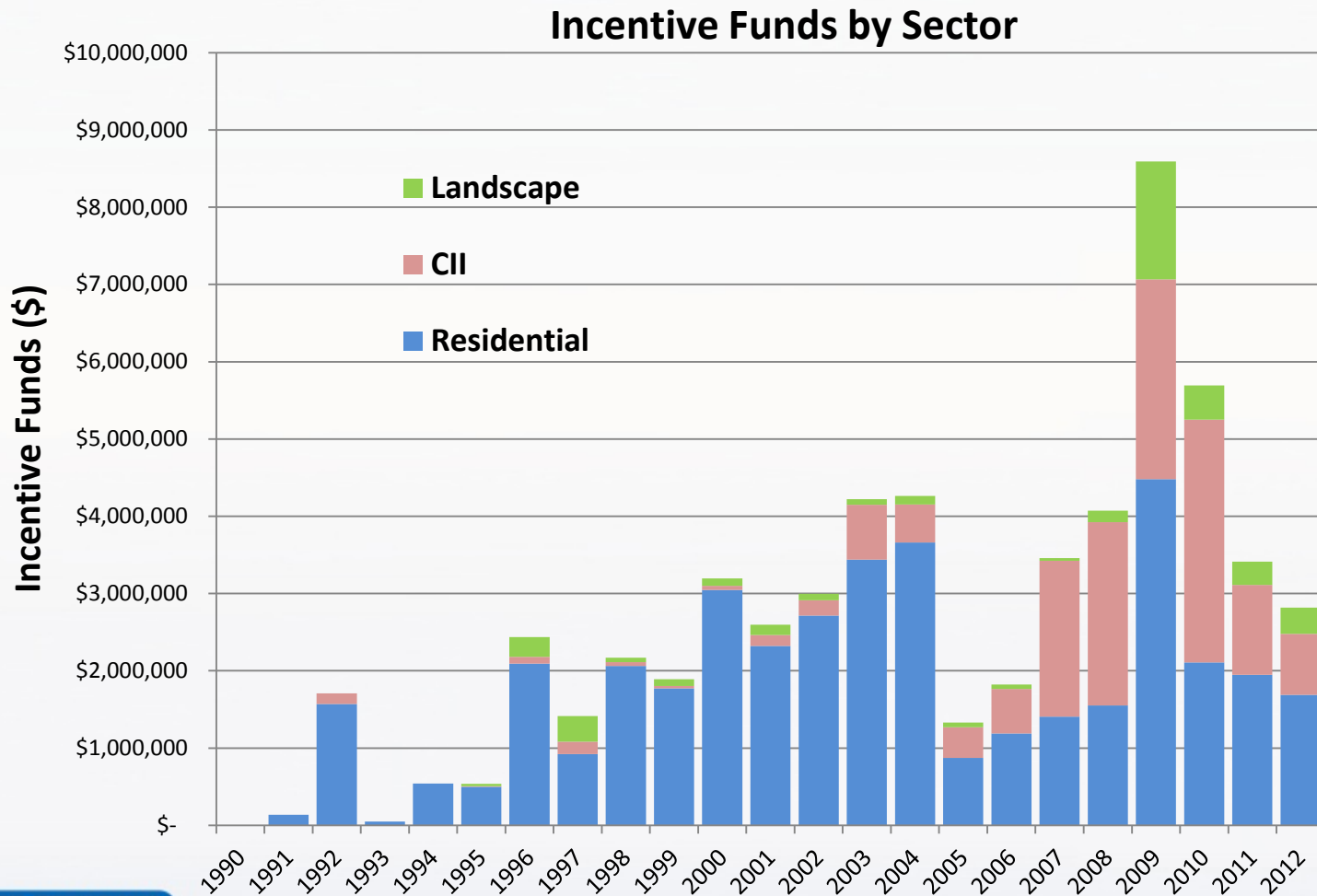
# Program Evaluation Criteria

## Criteria considered in selecting Programs

- Cost – Effectiveness from different perspectives
- Certainty of Savings—Measurement, Evaluation, and Verification
- Innovation—Breaks new ground, removes implementation uncertainty, transforms market
- Market Potential – Possible savings based on segment
- Ease of Implementation, Adaptability
- Potential for Future Grant Funding
- Complies with Local, State, and Federal
- Collaboration — Avoids mandates, empowers implementers
- Broad Support – Water agencies, customers, stakeholders, builds a common understanding of WUE in OC



# Past Achieved Program Activity



# Understanding Demand: Use by Market Sector

Customer Class	Share (%)	Demand (AF)	Number of Accounts
Single Family <i>Indoor and Outdoor</i>	43.9%	237,658	612,389
Multi-Family <i>Indoor and Outdoor</i>	15.8%	85,462	65,026
Commercial, Industrial and Institutional <i>Indoor and Outdoor</i>	21.5%	116,226	63,426
Dedicated Irrigation	6.0%	32,638	12,680
Recycled	6.7%	36,010	7,597
Non-Revenue Water	6.1%	32,982	
	<b>Total</b>	<b>540,976</b>	<b>761,118</b>



Source: Orange County Water Suppliers Water Rates and Financial Information (2011) MWDOC



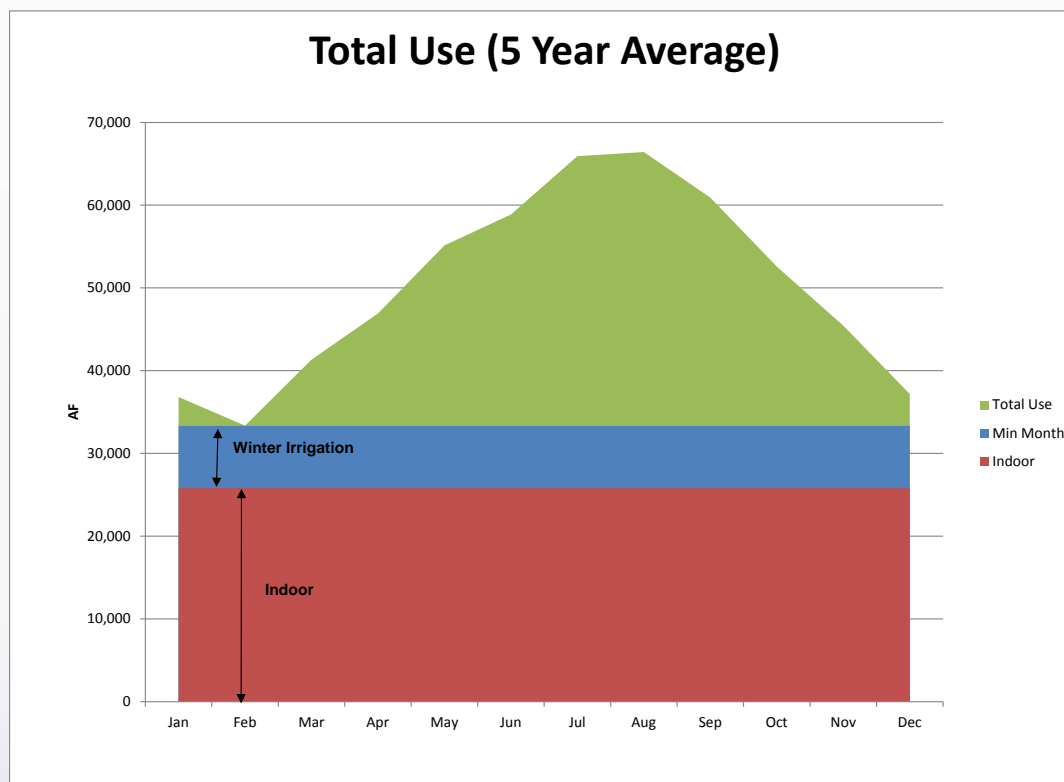
# Estimated Customer Water Use by MWDOC-Defined Market Sectors

Estimated Use by MWDOC Market Sector	Demand (AF)	Percent
Residential (Indoor)	181,363	36%
Landscape	246,075	48%
Commercial, Industrial, Institutional (Indoor)	80,556	16%



# Indoor vs Outdoor Water Use

	Average Annual Water Demand	Percent
Indoor	309,667	52%
Outdoor	291,227	48%





# What is the Conservation Potential?

Sector, Measures, End Uses	Stage	Description of Potential	Potential
<b>Residential Indoor</b>			
Toilets	Late	Small number 3.5gpf, ULF to HET, >HET?	Low
Faucets, Aerators, Flow Restrictors	Late	Small remaining potential	Low
Showerheads	Late	Very low flow rates, behaviour	Low
Clothes Washers	Mid	Low saturation	High
Pressure Regulating Valves	Pilot, Research	Covers all end uses	High
Surveys, Education, Outreach	Ongoing	Gateway program, behaviour	Low
Conservation Rates	Developing	Covers all end uses	High
<b>Landscape</b>			
Controllers	Mid	SF Residential large remaining potential	High
Nozzles	Early	Large remaining potential	High
Turf Replacement, Low Water Plants	Early	Huge technical potential; small economic potential	High
Artificial Turf	Early	Huge technical potential; small economic potential	High
Pressure Regulating Valves	Pilot, Research	Covers all end uses	High
Surveys, Education, Outreach	Ongoing	Gateway program, behaviour	Low
Conservation Rates	Developing	Covers all end uses	High
<b>CII (Non-Landscape)</b>			
Toilets	Late	Small number 3.5gpf, ULF to HET, >HET?	Low
Urinals	Mid	High traffic sites	Mid
Faucets, Aerators, Flow Restrictors	Late	Small remaining potential	Low
Showerheads	Mid	Sports facilities, accomodation	Mid
Food Service Equipment	Mid	Needs short pay back	Mid
Laundry	Mid	High water use is economic incentive	High
Industrial Processes and Manufacturing	Early	Acceptance, regulatory issues, competitiveness	High
Cooling	Mid	Needs short pay back	High
Pressure Regulating Valves	Pilot, Research	Covers all end uses	High
Surveys, Education, Outreach	Ongoing	Gateway program, behavior	Low
Conservation Rates	Developing	Covers all end uses	High

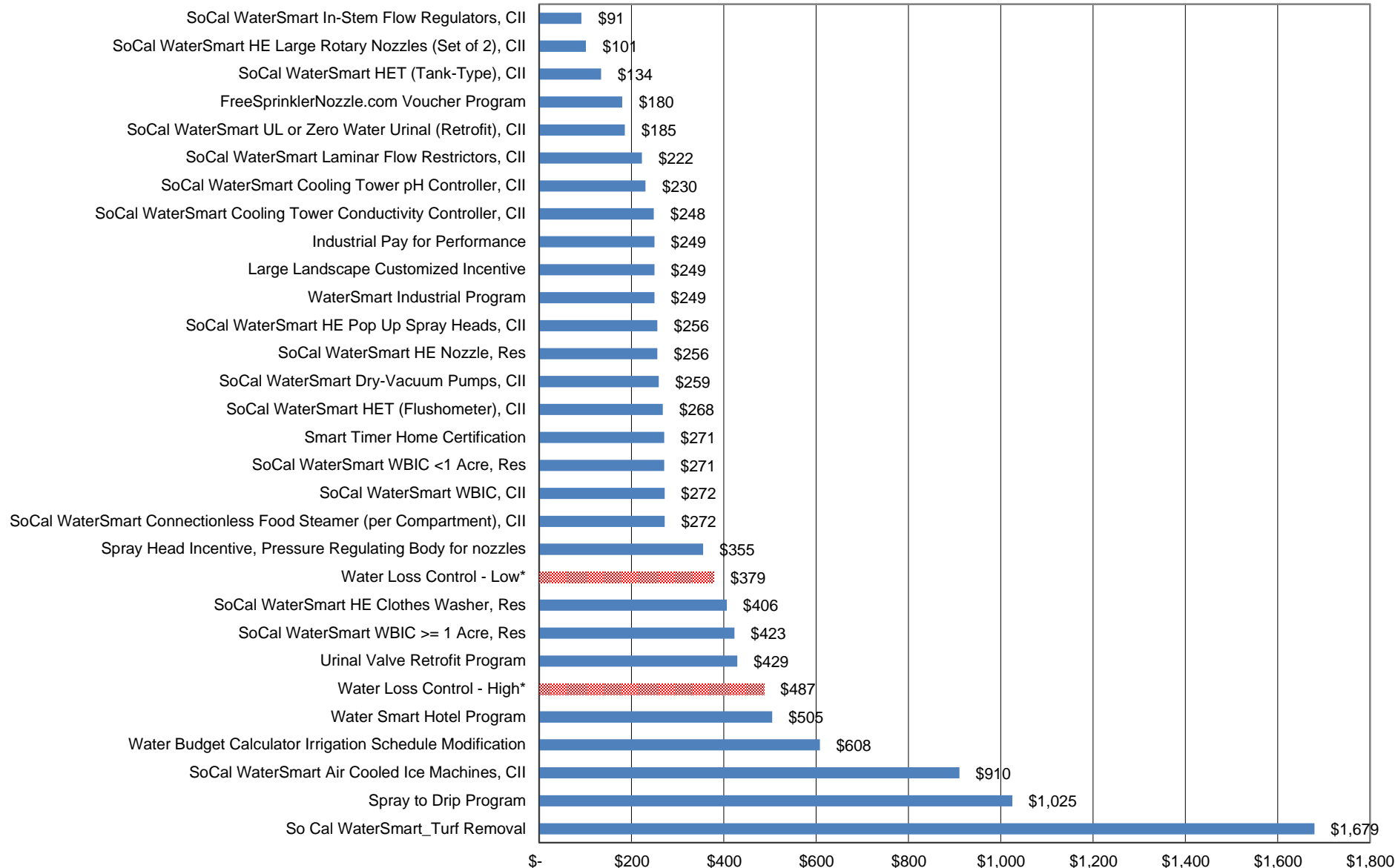
# Technical Potential in the Rough

- Technical potential does not consider economics, institutional constraints, implementation feasibility, regulatory issues, and some esthetic qualities.
- It is meant to provide enough water to sustain health, lifestyle, and the economy.

Use by Marketing Sector	Demand (AF)	Low		High	
Residential (Indoor)	181,363	10%	18,136	20%	36,273
Landscape	246,075	15%	36,911	50%	123,038
CII	80,556	10%	8,056	30%	24,167
Total	507,994	12%	63,103	36%	183,477

# Cost Effectiveness Analysis-Existing Programs

**Conservation Activities Sorted by Unit Cost**  
(\$ per acre foot saved)



# Program Implementation Approaches



CII



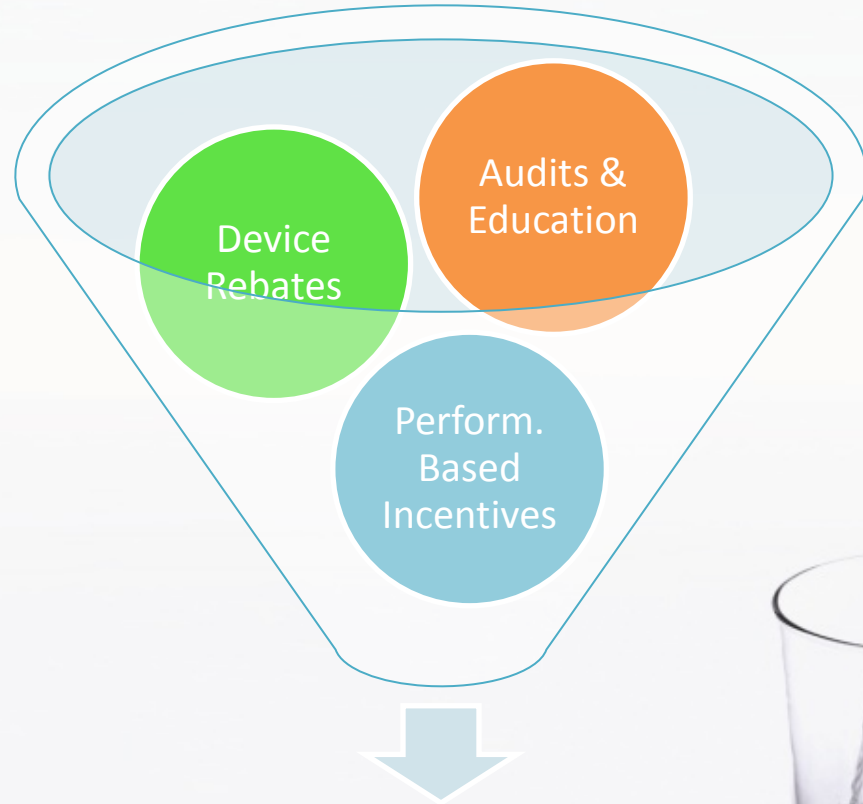
Landscape



Residential



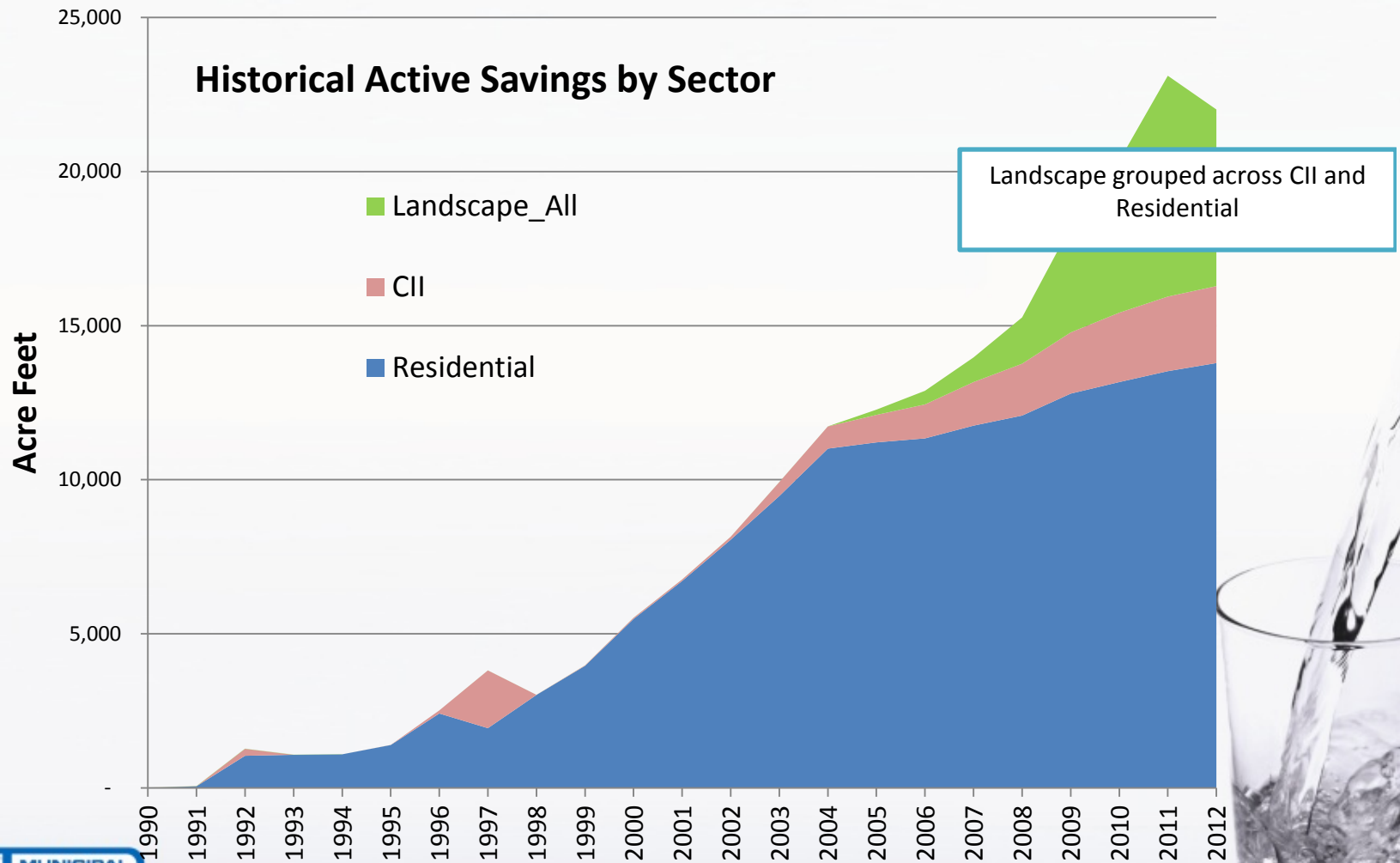
Utilities Operations



**Water Savings**



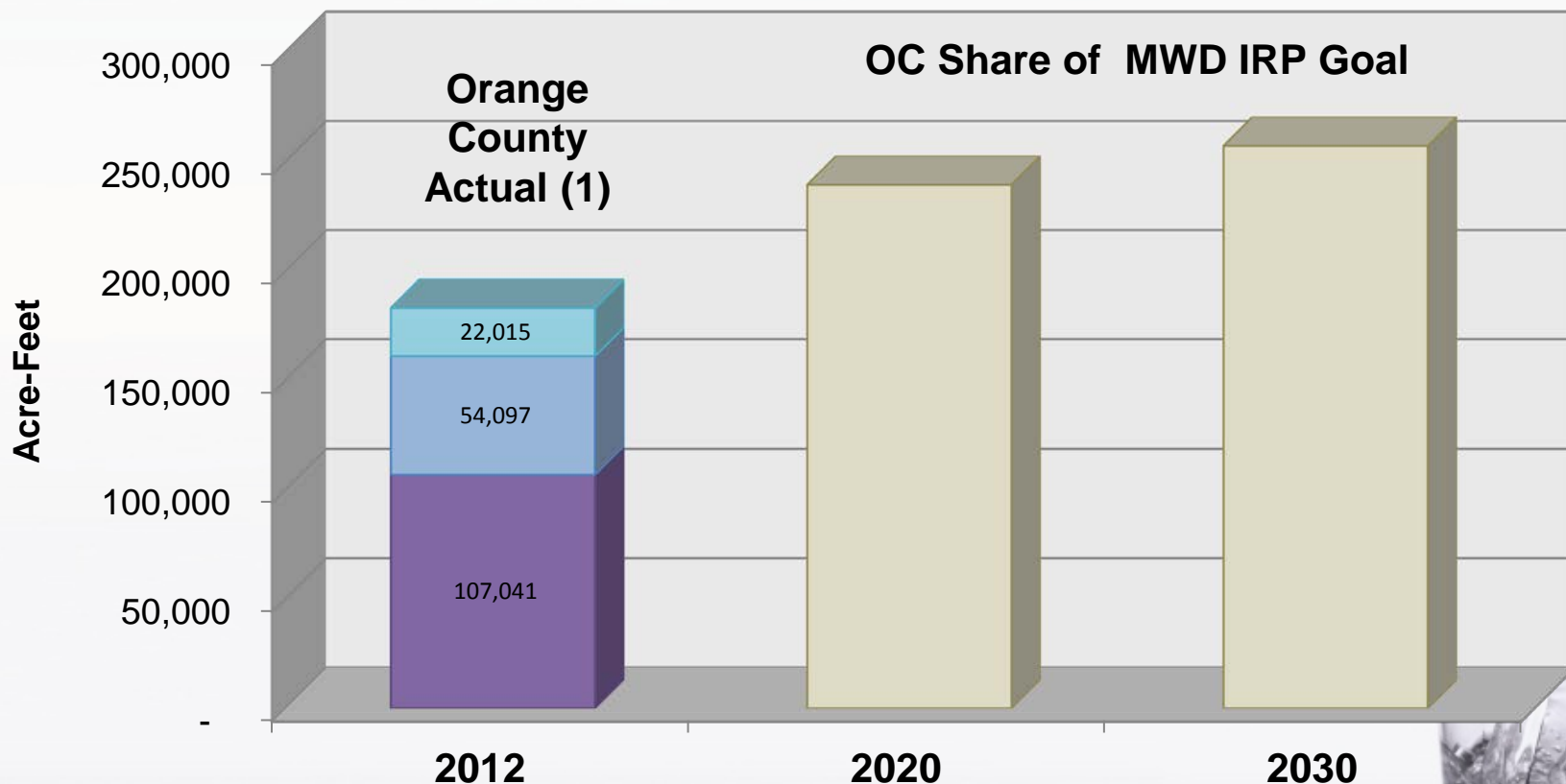
# Historical Active Savings by Sector



# Orange County Water Use Efficiency Goal

## Metropolitan Integrated Resources Plan (IRP)

■ Recycled Water ■ Passive Savings ■ Active Savings ■ IRP 20x2020 Goal



(1) Represents today's achievements in recycled water and water use efficiency from a base year of 1990.

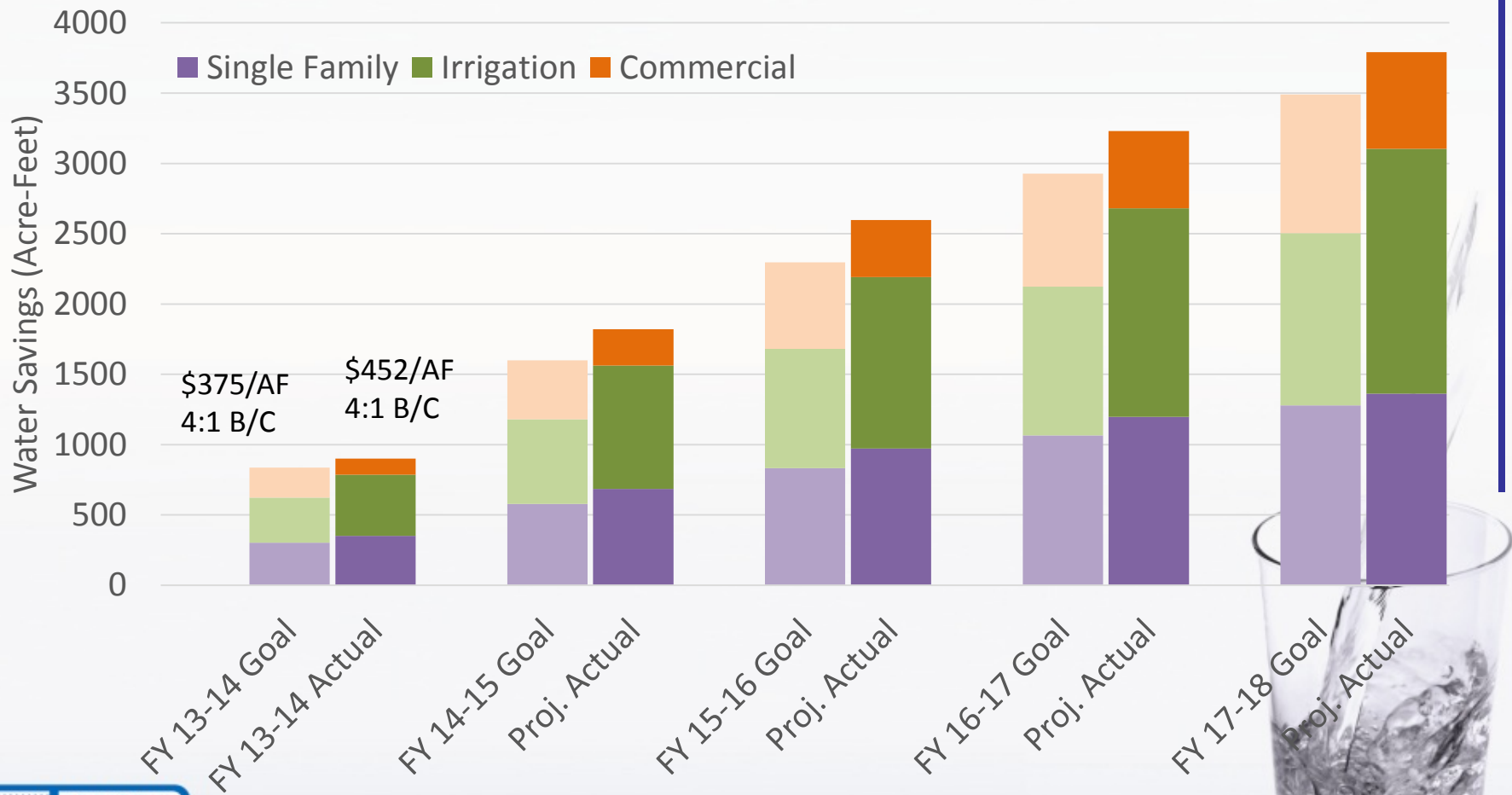




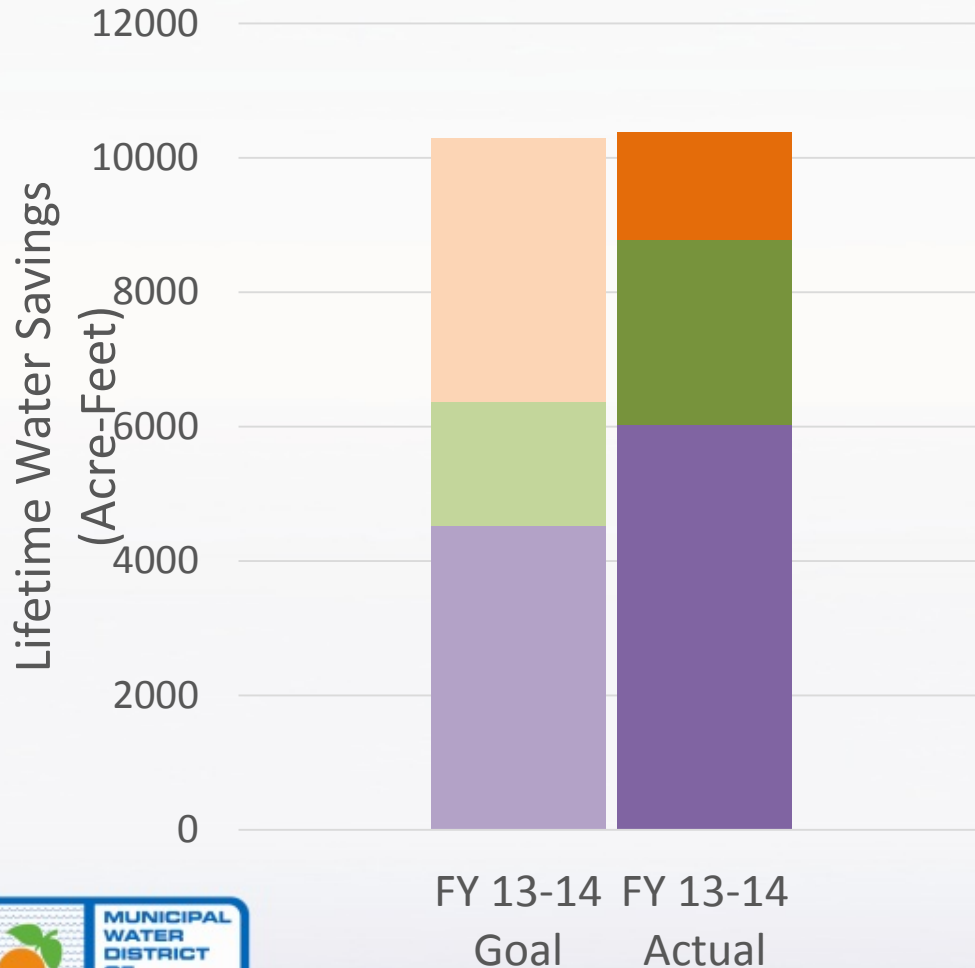
# Orange County WUE Master Plan

## FY 13-14 Annual Update

### Active Water Savings



Orange County WUE Master Plan  
FY 13-14 Annual Update  
**FY 13-14 Lifetime Active Water Savings**



**Commercial**

Top Interventions:

- High Efficiency Toilet, Tank Type (963 AF)
- Industrial Process Improvement (450 AF)
- UL/Zero Water Urinals (118 AF)

**Irrigation**

Top Devices:

- Rotating Nozzles (1,227 AF)
- Turf Removal (592 AF)
- HOA Landscape Budget Reports (484 AF)



# *Questions?*

## Contact Information

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**SMART** ABOUT **WATER**

