

# This presentation premiered at WaterSmart Innovations

[watersmartinnovations.com](http://watersmartinnovations.com)





**Man-Power and Technology: Implementing Tiered Rates**  
**Irvine Ranch Water District**  
Natalie Pavlovski-October 2009



# Topics

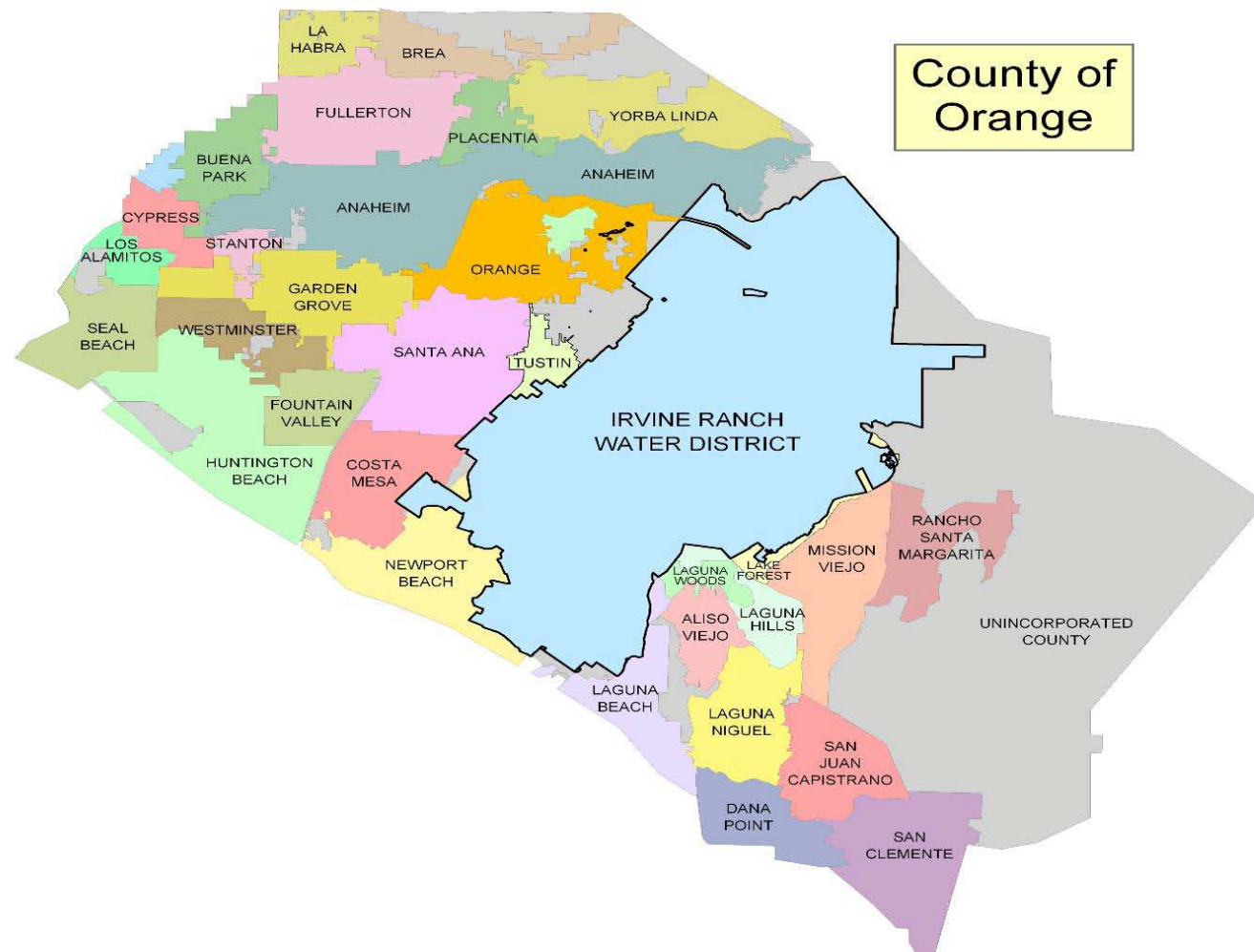
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- Transition from uniform rate billing to an allocation-based tiered rate structure
  - Irvine Ranch Water District service area
  - Background on allocation-based rates
  - How it works
  - Development and Implementation of Rate Structure and Allocations for LAWD service area.
  - Results



# IRWD Service Area

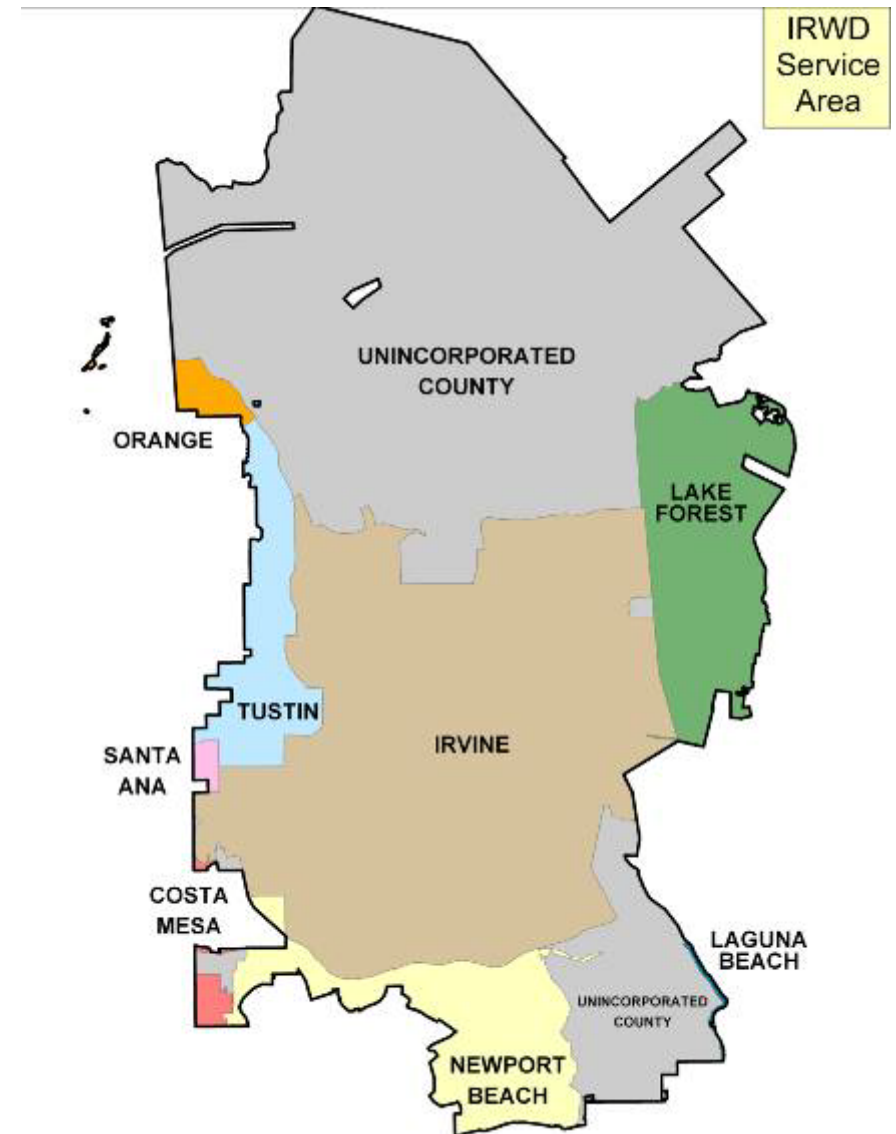
- Service area of 179 square miles is more than 20% of Orange County, California





## Service Area

- Serves all or portions of:
  - City of Irvine
  - City of Lake Forest
  - City of Tustin
  - City of Newport Beach
  - City of Costa Mesa
  - City of Orange
  - Unincorporated Orange County





## An Allocation Based Rate Structure...

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- Uses property-specific water budgets
- Rewards those who use water wisely
- Penalizes inefficient water-use



# Tiered Rate Structure History

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## First Implemented in 1991:

- Equitable
- Revenue Stability
- Keeps Rates Low for Customers
- Demonstrated Water Savings
- Provides Funding for Water Use Efficiency Programs



# Rate Structure Reduces Water Use

- Since Rates Adopted in 1991:
  - Average Water Use Dropped from 4.4 AF/ac/yr. To 1.9 AF/ac/yr.
  - Stabilization of Dry Weather Runoff
  - Changes in Plant Material Selection - more “California Friendly” landscaping



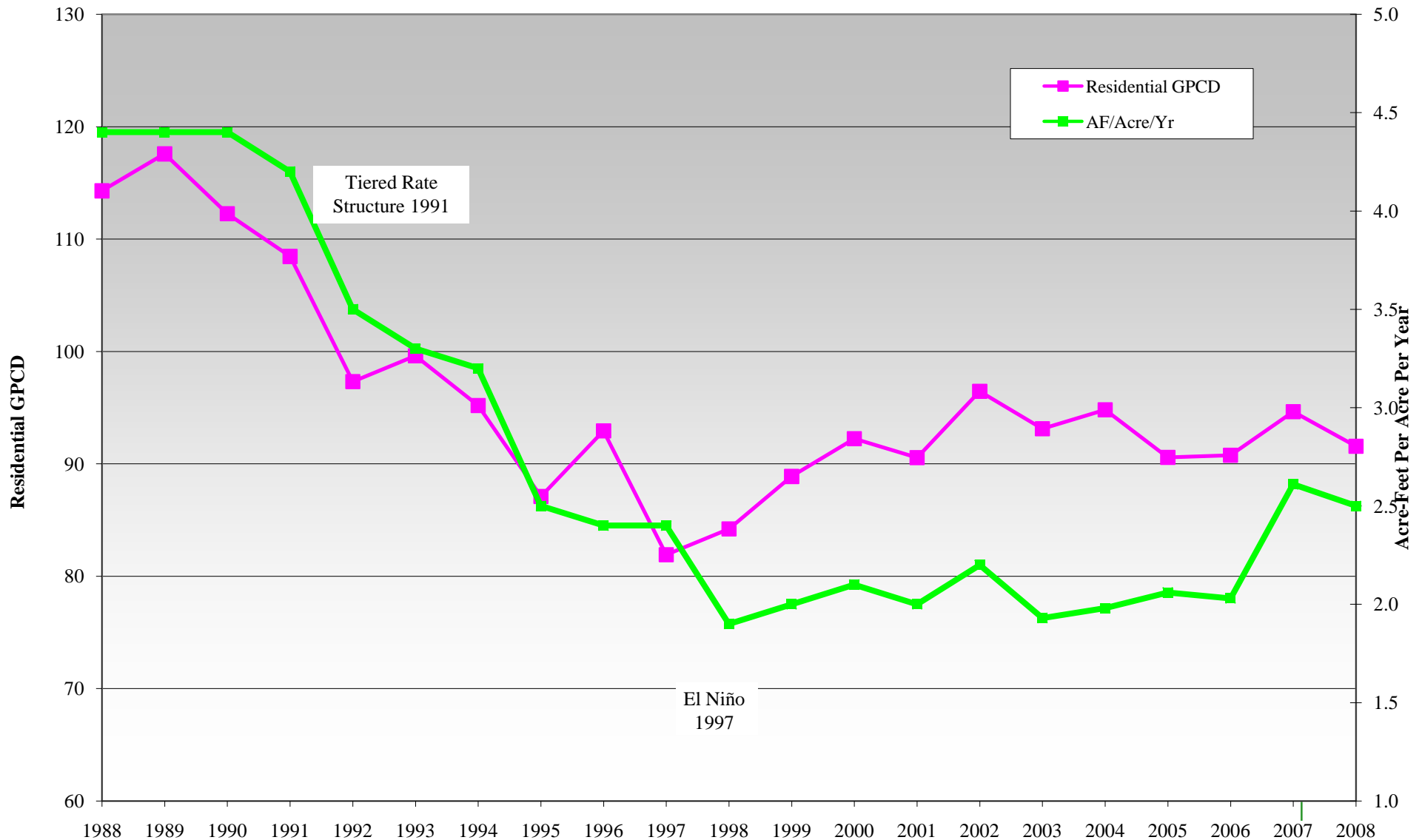
- From 1992 to 2000:
  - Irrigated Area Doubled
  - Water Use Increased by 3%





# Rate Structure Results-Dedicated Irrigation

## IRWD Residential and Landscape Water Usage 1988-2008





# Rate Structure Water Savings-Residential

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- Average annual water use for residential customers
  - water use decreased 7-8% after the implementation of the tiered rate structure.



# Rates - Residential

Monthly water service charge		\$7.75 (up to a 1" meter)	
	Tier	Percent of Allocation	Cost per ccf
Commodity charge	Low Volume	0 - 40%	\$0.91
	Base Rate	41 - 100%	\$1.15
	Inefficient	101 - 150%	\$2.33
	Excessive	151 - 200%	\$4.65
	Wasteful	201+%	\$9.30



# Rates-Commercial Industrial & Institutional & Dedicated Irrigation

<b>Tier</b>	<b>Rate (per ccf*)</b>	<b>ET Index Percent of Usage (by month)</b>
<b>Low Volume</b>	\$0.91	0-40%
<b>Base Rate</b>	\$1.15	41-100%
<b>Inefficient</b>	\$2.33	101-110%
<b>Excessive</b>	\$4.65	111-120%
<b>Wasteful</b>	\$9.30	121%+

\*\*CII accounts do not include a low volume tier



# Residential Base Allocations

- Single-Family Residence

- 4 Occupants
- 55 Gallons Per Person Per Day
- 1,300 Square Feet of Landscaping



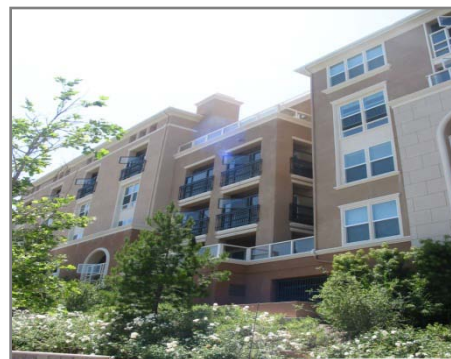
- Townhouse/Condominium

- 3 Occupants
- 55 Gallons Per Person Per Day
- 435 Square Feet of Landscaping



- Apartment

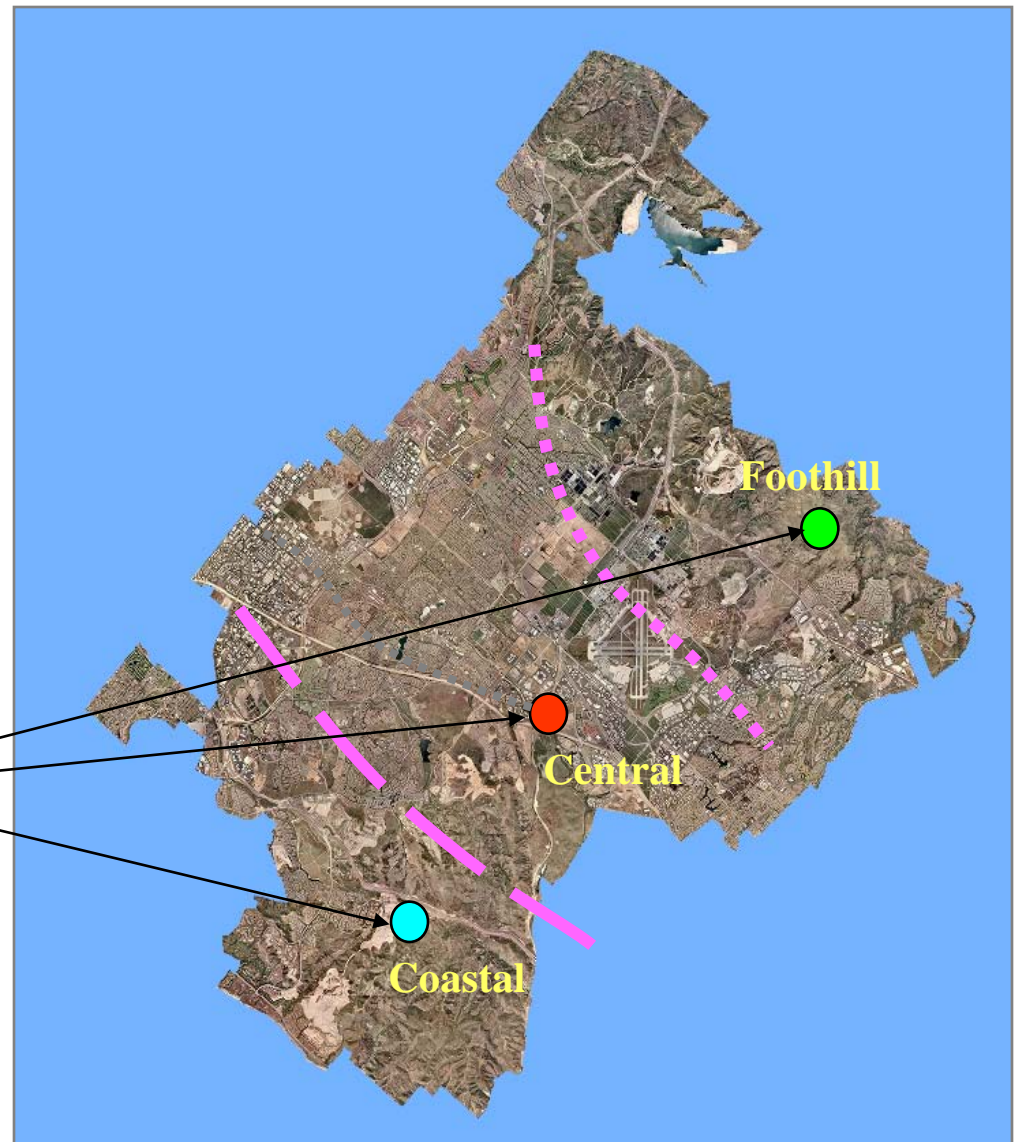
- 2 Occupants
- 55 Gallons Per Person Per Day
- No Landscaping





# Landscape Allocations

- Based upon landscaped area and real time evapo-transpiration
  - Warm season turf
  - Irrigation system efficiency - 71%
- IRWD has three weather stations (IRWD originally used historic Eto data)







# Commercial Allocations

- Based upon:
  - Historic Use
  - Equipment (e.g. cooling towers, processes)
  - Number of Employees





# Need for Water Conservation????

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- Water use by IRWD customers is lower than LAWD customers who were not subject to the allocation based tiered rate structure

– Analysis of Water Conservation  
After Rate Structure Implementation.

Kennedy/Jenks Consultants



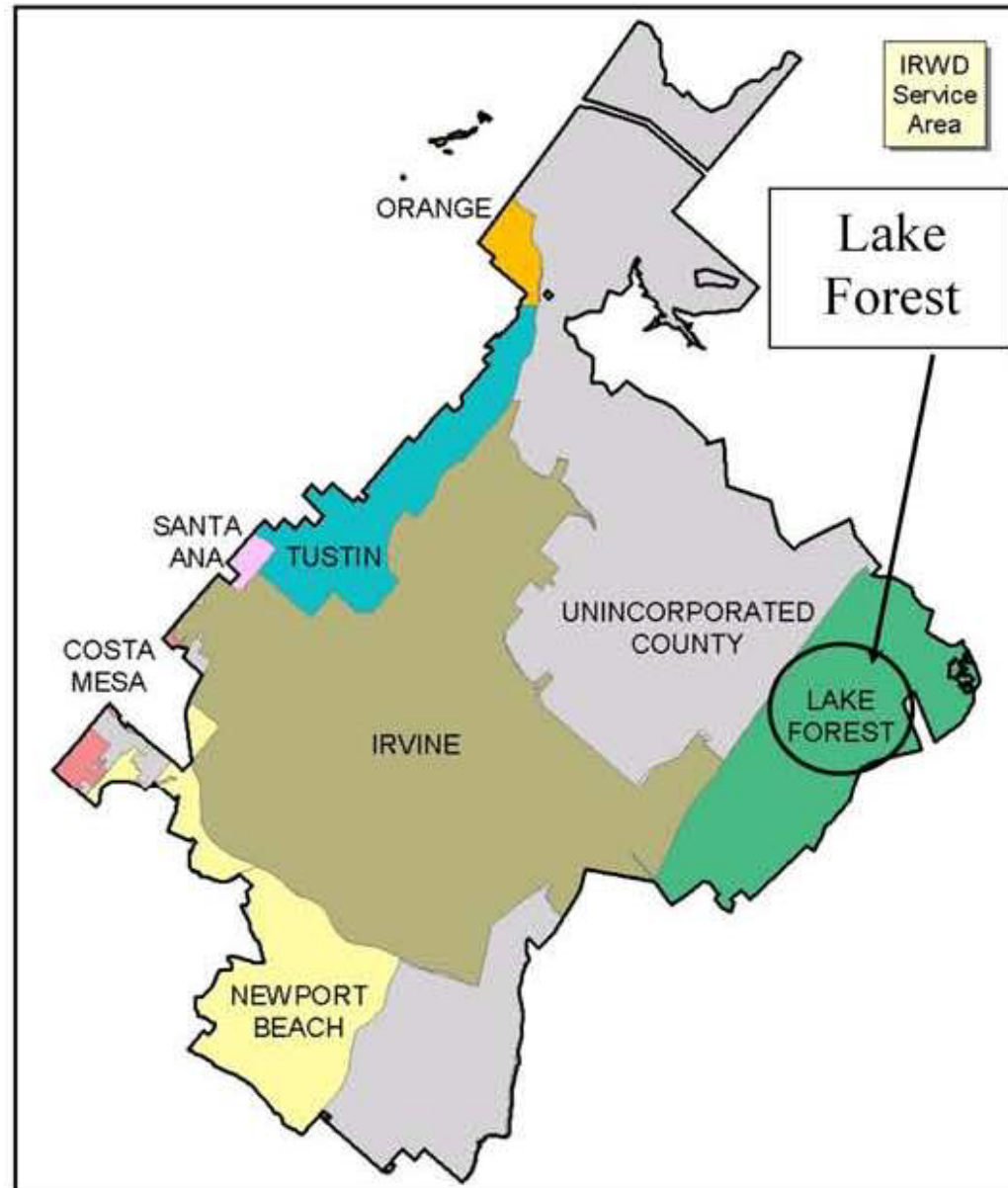


# Overview of Los Alisos Rate Area Transition

- Consolidation with the Los Alisos Water District (LAWD) in 2001
- 12,000 accounts:
  - Single Family Residential: 8,055
  - Multi-Family Residential: 2,784
  - Commercial, Industrial, Institutional: 759
  - Dedicated irrigation: 736
- Board approved transition to Tiered Rates in October 2008 from uniform rate structure
- Allocation-Based Rate Structure effective July 1, 2009
- Allocations calculated on same basis as rest of IRWD



# Lake Forest Location in IRWD Service Area





## Issue with LAWD Service Area



- Residential land uses, lot sizes, and irrigated area are much more variable than Irvine
- Concern with application of water allocations and water requirements to maintain eucalyptus trees (prevalent in Lake Forest)



# Challenge

How to implement equitable water-budgets in a non-homogenous area?





# A Cookie Cutter Approach to Water Conservation is...



*Not Always the Answer*



# Transition Process

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- Interdisciplinary Team
- Perform Billing Software Programming
- Utilization of Geographic Information Systems
- Customize Tiered Rate Allocations
- Test Bills
- Proactive Outreach Campaign





# Interdisciplinary Team

- Consultants and Temporary Employees
- Information Services
- Water Conservation
- Customer Service
- Public Affairs
- Finance





# Billing and Software Programming

- Create Billing codes for LAWD service area rates
- Enable programs to allow upload of variances for Commercial, Industrial & Institutional Base Index, and Landscape and Residential Acreage







# Geographic Information Services

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- All residential meters in Lake Forest were GPS'd.
- Meter information was connected to Parcel Data.
- Formula from previous rate transition was utilized.



## Residential Allocations

### Allocation Categories and Variances:

- Single Family Residents – 4 occupants
- Pool
- Irrigated Area (Turf, ET adjusted)





## Dedicated Irrigation

- Obtaining Landscape Measurements at Multi-meter sites
- Hired and Trained Temporary Employees
  - Irrigation System Operation
  - Measurement Techniques
  - Meter Reading





## Commercial, Industrial, Institutional



- Analyzed three years of data
- Contacted customers with unusual water use patterns
- Conducted water use surveys
- Created Base Index



# Testing Testing 1...2...3

## Test Bills

- New Rates
- May Water Usage
- 10% Wasteful
- 20% Excessive tier

\*\*For internal use only.



## Rate Structure - Residential

<b>TIER</b>	<b>BREAK POINT (% of Allocation)</b>		<b>RATE</b>
<b>Low Volume</b>	<b>0 - 40%</b>		<b>\$1.40</b>
<b>Base</b>	<b>41-100%</b>	<b>Base rate</b>	<b>\$1.48</b>
<b>Inefficient</b>	<b>101-110%</b>	<b>2x base</b>	<b>\$2.75</b>
<b>Excessive</b>	<b>111-120%</b>	<b>4x base</b>	<b>\$4.65</b>
<b>Wasteful</b>	<b>120+%</b>	<b>8x base</b>	<b>\$9.30</b>





## Rate Structure

### Commercial, Industrial & Institutional (CII)

<b>TIER</b>	<b>BREAK POINT (% of Allocation)</b>	<b>RATE</b>
<b>Low Volume</b>	<b>0 - 40%</b>	<b>\$1.40</b>
<b>Base</b>	<b>41-100%</b>	<b>\$1.78</b>
<b>Inefficient</b>	<b>101-110%</b>	<b>\$2.75</b>
<b>Excessive</b>	<b>111-120%</b>	<b>\$4.65</b>
<b>Wasteful</b>	<b>121+%</b>	<b>\$9.30</b>

**\*\*CII accounts do not include a low volume tier**



## Rate Structure- Landscape Irrigation

<b>TIER</b>	<b>BREAK POINT (% of Allocation)</b>	<b>RATE</b>
<b>Low Volume</b>	<b>0 - 40%</b>	<b>\$1.40 potable \$0.82 reclaimed</b>
<b>Base</b>	<b>41-100%</b>	<b>\$1.78 potable \$1.03 reclaimed</b>
<b>Inefficient</b>	<b>101-110%</b>	<b>\$2.75 potable \$2.10 reclaimed</b>
<b>Excessive</b>	<b>111-120%</b>	<b>\$4.65 potable \$4.19 reclaimed</b>
<b>Wasteful</b>	<b>121+%</b>	<b>\$9.30 potable \$8.37 reclaimed</b>





# Effective Public Outreach Campaign

- Direct Contact
- IRWD Website and Links
- Informational Papers
- Public Workshops
- On-site Survey





## Direct Contact

- Test script
  - “We are not trying to sell you anything”
- Trouble-shoot
  - Toilets
  - Irrigation leaks
- Variances to Standard Allocation
  - Medical
  - Additional people etc.
- In-home Residential Surveys
  - In-house Cross Training Opportunities





# Website Links



- About IRWD
- Free Programs
- Customer Service
- Payment Options
- Business Center
- Engineering
- Employment
- Conservation
- Water Quality
- Recycling
- Environment
- Water Education
- Media Information
- Water Facts
- Links
- Contact IRWD
- Account Access**

## HOW CAN YOU HELP SAVE WATER?

It's easier than you think!

Learn more about incentives, conservation tips and devices we provide to help customers reduce their monthly water bills while saving water!

Conservation Tips

Fall Landscape Workshop - Sign Up Now

### Helpful Water-Saving Links

- Residential Water Bill Calculator (proposed rate change July 1)
- IRWD Conservation Rate Structure
- Monthly Landscape Watering Schedule
- ET Hotline (949) 453-5451
- Residential Rebates
- Commercial & Landscape Rebate
- Lake Forest Rate Structure Transition
- Variance Request



## Water Bill Calculator

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- Single family customers can calculate bills for their rate area based on the proposed allocation changes and rate increases scheduled for July 1, 2009
- Web-based. [www.irwd.com](http://www.irwd.com)
- Requires valid account number
- Fully operational by May 3, 2009

Bill Calculator



# General Watering Guidelines

## Eucalyptus Species in Southern California Urban Landscapes



**UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION**

2009

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**Attention Lake Forest property managers and home owners associations!**

## **Don't miss this COST-SAVING water-use forum**

**with Irvine Ranch Water District's water conservation staff  
at Lake Forest City Hall, Council Chambers, August 25, 6 to 8 p.m.**

Water billing topics covered:

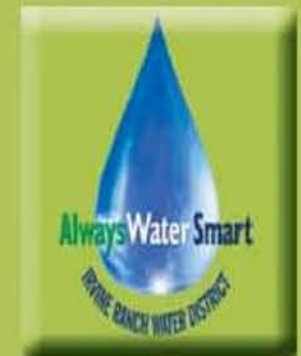
- How your water allocation is determined
- How the new tiered water rates work
- What to do if you get a penalty on your water bill

Landscape irrigation efficiency topics:

- How to select a good landscape maintenance contractor and what to include in your contract with them
- How the landscape certification program works
- Why it's important to water less in September through November
- What to know about weather-based irrigation controllers, aka "Smart Timers"
- Rebate program updates

Additional commercial property topics discussed:

- How your base index is determined
- Indoor leak detection tips
- Methods for working with multiple tenant properties



RSVP to: [sturges@irwd.com](mailto:sturges@irwd.com) and include your name and property address(es).





## On-site Surveys

- Tenant increase or decrease?
- New Equipment?
- Overwatering?
- Leaky plumbing fixtures?
- Verify landscape measurements
- Provide rebate information





# Rate Structure Implementation Results







# Test Bill - May 2009 Usage

		VARIANCE APPLIED			
Previous Read	Current Read	Usage (in CCF)	Usage in Gallons	748 Gallons = 1 CCF	
3008	3061	53	39644		
				5/06/09	\$71.45
BALANCE FORWARD					\$ .00
USAGE - LOW VOLUME	9 @ 1.400		\$12.60		
USAGE - CONSERVATION BASE RATE	14 @ 1.780		\$24.92		
USAGE - INEFFICIENT	12 @ 2.750		\$33.00		
GE - EXCESSIVE	11 @ 4.650		\$51.15		
GE - WASTEFUL	7 @ 9.300		\$65.10		\$186.77
WATER SERVICE CHARGE					\$9.60
SEWER SERVICE CHARGE					\$16.60
<b>Potential Penalties</b>					
<b>\$149.25</b>					
YOUR ALLOCATION FOR THIS BILL IS		23 CCF			
BILL CALCULATION BASED ON		.08 ACRES			



# Actual Bill- July Water Usage

BILL IMAGE						
B	6/26/09	7/30/09	3102	3133	31	CCF
THANK YOU FOR YOUR PAYMENT 7/21/09						\$86.95
BALANCE FORWARD						\$0.00
40% water use reduction						
USAGE - LOW VOLUME				12	1.400	\$16.80
USAGE - CONSERVATION BASE RA				19	1.780	\$33.82
TOTAL - USAGE						\$50.62
WATER SERVICE CHARGE						\$9.60
Actual Penalties						
SEWER SERVICE CHARGE						\$0
YOUR ALLOCATION FOR THIS BILL						31 CCF
BILL CALCULATION BASED ON						.08 ACRES
REVENUE ALLOC. TO NTS				\$50.62	@ 2%	\$1.01
PAYMENT DUE						8/21/09 \$76.82
----- END OF BILL GENERATED @ 14:44:40 -----						



## On-going Customer Outreach

- Staff continues to conduct outreach to high use customers
- Customers can request leak adjustments, establishment period, additional people, and pool refills once a year.
- Fewer audits that require obtaining landscape area





# Allocation-Based Rate Structure Successfully Implemented

- Lower Water Use in Lake Forest Service Area
- Customer Outreach Pays Off
- Actual Bills
  - 2% of customers in the wasteful tier
  - 4% into the excessive tier



# Rate Structure Implementation: A Twelve Month Process

- Form Interdisciplinary Team
- Perform Billing Software Programming
- Geographic Information Services
- Develop and Apply Tiered Rate Allocations
- Test Billing
- Proactive Outreach Campaign



Always Water Smart

# Questions?

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