

This presentation premiered at WaterSmart Innovations

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Real Time Water Budgets

“Driving Water Management in the Landscape”

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Overview

- ▶ City of Santa Rosa Utilities Department
- ▶ “Real Time Water Budgets”
- ▶ Tools for the Customer
- ▶ Landscape Paradigm Shift
- ▶ How to Get Started

City of Santa Rosa Utilities

Weather

- ▶ Wet winters (30" from Nov – Apr)
- ▶ Dry, warm summers (70°–90°)

Water and Sewer

- ▶ Water service for over 159,000 residents
- ▶ Over 51,000 connections
- ▶ 622 miles of water mains
- ▶ 7 billion gallons delivered annually
- ▶ Sewer service for over 215,000 residents
- ▶ 585 miles of sewer mains

Real Time Water Budgets

- ▶ **Evapotranspiration (ET):** is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues)¹.
- ▶ **Water Budget:** The amount of water needed to irrigate a landscaped area for a given period of time.



Real Time Water Budget (cont.)

- ▶ **Real Time Water Budget:** The amount of water needed to irrigate a landscaped area based on plant type of the landscaped area and ET during the billing period.

- ▶ **Formula:**

Real Time Water Budget =

$$\{[ET_o - EP] \times [LA_h + (LA_m \times 0.6)] \times CF\}$$

- ET_o (Reference Evapotranspiration)
- EP (Effective Precipitation)
- LA_h (landscape area high water use)
- LA_m (landscape area moderate and low water use)
- CF (Conversion factor) = 0.623 converts to gallons

Billing based on Real Time Budgets

Irrigation Accounts

Tier	Allocation	Rate \$/1,000 gallons ²
Tier 1	Up to 125% of Real Time Water Budget	\$3.51
Tier 2	126% – 200% of Real Time Water Budget	\$4.38
Tier 3	Over 200% of Real Time Water Budget	\$6.57

Implementation of Water Budgets

- ▶ **Getting Stated**
 - Board/Council (elected officials) support
 - Get buy in at a staff level from all departments
 - Utility Billing, Legal, Meter Readers, etc.
- ▶ **Prop 218**
 - California make sure to follow all legal and notification requirements for compliance.
- ▶ **Monthly Billing**
 - Imperative to making real time budgets work

Implementation (cont.)

1. Billing system compatibility
 - **Can it handle the calculations?**
2. Gather accurate square footage information
 - ArcGIS
 - **High resolution aerials w/parcel overlays**
 - Measuring wheels, landscape plans, etc.



Implementation (cont.)

3. Find reliable data source for ET
 - California Irrigation Management Information System (CIMIS)
 - Potential Issues:
 - Stations fail to report ET
 - Station maintenance
 - Manual data entry of ET
 - How to incorporate rainfall



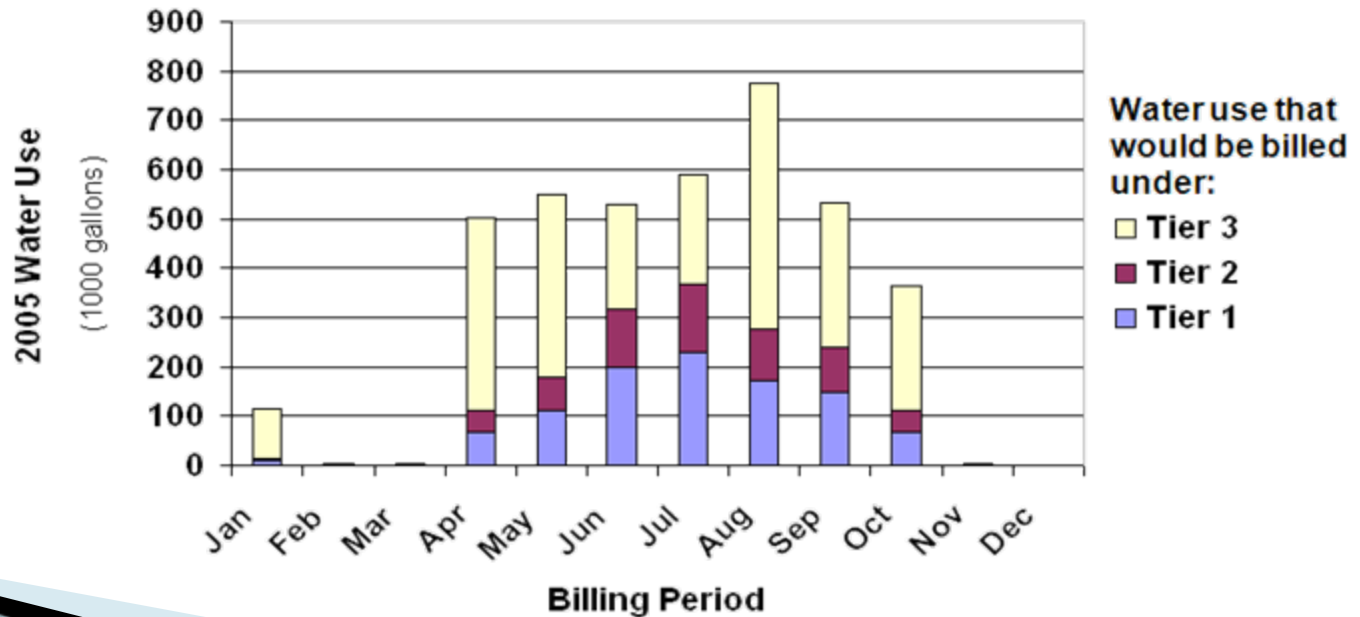
Implementation (cont.)

4. Notify, notify, notify

Acct #: [REDACTED]
Address: [REDACTED]

High Water Use Plants: 21241 Sq ft
Low & Moderate Water use Plants: 38971 Sq ft

Your Site's 2005 Irrigation Water Use
Under the 2007 Tiered Rate Structure



Tools for the Customer

Trainings:

- ▶ **Water–Wise Gardening Series (residential)**
 - Three part series that focuses on: Low Water Use Plants, Irrigation Efficiency and Drip Irrigation
- ▶ **Qualified Water Efficient Landscaper (contractors)**
 - Train landscapers on efficient water management in the landscape.

Topics range from: irrigation systems and plants to irrigation scheduling and selling water management to customers.

QWEL can be used by your local Utility too!!!

2nd program recognized by the US EPA WaterSense program as an Irrigation Auditor training program



Tools for the Customer (cont.)

Water Bill Information

OUR RECORDS INDICATE:

Service Type: Commercial
Usage Type: Irrigation
High Water Use Plants (sq ft): 8,411
Other Plants (sq ft): 7,636
Parcel#: 013360010
Backflow Device? Yes
Well on Property? No
Inside Santa Rosa City Limits? Yes
Total ETO this Period: 2.13
Total Rainfall 2.88 Adjusted Rainfall: 1.93
Adjusted ETO this Period: 1.00

This month you used 158,000 gallons of water. Your water budget this month was 8,000 gallons.

Water Usage Charge was calculated as follows:

Tier 1 (up to 125% of water budget) 10.0 thous. gal x \$3.51 = \$35.10

Tier 2 (126-200% of water budget) 6.0 x \$4.38 = \$26.28

Tier 3 (over 200% of water budget) 142.0 x \$6.57 = \$932.94

Landscape Water Use Report

Water use was 19.75 times (1,975%) the estimated water needs of plants at this site. You can save water and money by improving irrigation practices. To request a free water use analysis that identifies your potential water and money savings, please call 543-3988.

Tools for the Customer (cont.)

Public Information:

▶ Website & Calculator

http://ci.santa-rosa.ca.us/departments/utilities/water...
CITY OF SANTA ROSA
WATER CONSERVATION
Skip To: Content | Footer | Accessibility | Printer Friendly | Font Size: [X]
HOME CALENDAR VISITORS RESIDENTS BUSINESS GOVERNMENT DEPARTMENTS
City of Santa Rosa & Department of Utilities & Water Conservation
Water Conservation Links
Residential Rebates
Business Rebates
Turf Time
Water Waste Report Form
Water Use Efficiency Calculator
Water Conservation Policies
Free Services
Landscape Standards
Water Supply Planning
Water Service Tips
Events
WATER CONSERVATION PROGRAM
Search Santa Rosa
More Information
2008 Water Rates
Qualified Water Efficient LANDSCAPERS
Front Row (L to R): Dan Huelrath, Deb Lane, Janette Morris
Back Row (L to R): Sean Hottel, Gail Chavez, Randy Barron
WATER CONSERVATION NEWS:
WATER WATCH PATROL BY SANTA ROSA

▶ Turf-Time

Turf-Time
543-3466
Los cambios de estación y de clima afectan su césped dramáticamente. Turf-Time puede ayudar. Los requisitos de riego del césped se basan en la información del clima actual* y se actualizan semanalmente.
• Llame Turf-Time al 543-3466 cada semana para escuchar los requisitos semanales de riego de césped
• Ponga a su controlador de irrigación para que regue temprano en la mañana
• Utilice horarios de irrigación repetidos y separe cada horario de irrigación por una hora para permitir el agua empapar la tierra
• Revise su sistema de irrigación en busca de fugas y roturas
• Llame a la línea de Conservación de Agua al 543-3985 para información adicional
*Basado en la información sobre el clima del Sistema de Información de Manejo de Irrigación de California (CIMIS)

www.srcity.org/turftime

www.srcity.org/wc

Tools for the Customer (cont.)

Public Information (cont.):

- ▶ Water Awareness Month Activities
 - Proclamation
 - Water Smart Expo
 - Water Conservation Awards
 - School Poster Contest
 - Downtown Markets
- ▶ Water Watch Patrol
 - Over 500 reports in 2007



Tools for the Customer (cont.)

Rebate Programs:

▶ Green Exchange Program

Program	Residential	Commercial
Cash for Grass	0.50/sqft up to \$250	0.50/sqft up to \$2500
Irrigation Upgrades	Up to \$350	Up to \$3500

Additional Information:

- ▶ Free Landscape Audits
- ▶ Water Use Analysis and Mailings
- ▶ High Water Use Calls to Customers

How Have Customer Responded

- ▶ Green Exchange Rebate Program (1st Year)
 - Over 245,000 ft² removed
 - \$60,000 in irrigation upgrades

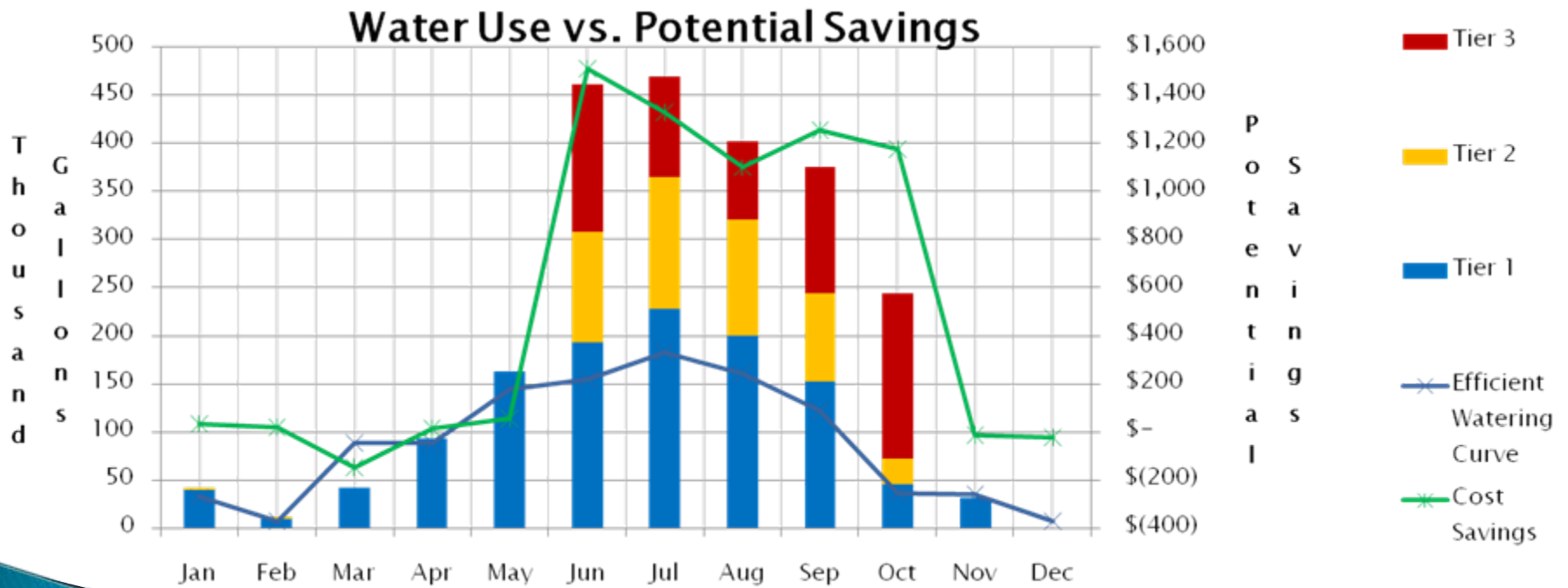
- ▶ Landscape Audits

Activity	Previous rate structure	Tiered rates w/ “Real Time Budgets”
Residential Audits	40–60	600–700
Irrigation Audits	15–20	100–125

- ▶ Voluntary Conservation in 2007 & 2008
 - 15% end use reduction
- ▶ Irrigation accounts at 100% of water budget
 - 25% of accounts never exceed Tier 1

Landscape Paradigm Shift

- ▶ Breaking down the barriers
 - Not enough money budgeted
 - Tier 3 expense vs. renovations



Landscape Paradigm Shift (cont.)

- ▶ Breaking down the barriers (cont.)
 - How do I know what to fix
 - Certified staff perform audits
 - Certified Landscape Irrigation Auditor, Irrigation Association



Landscape Paradigm Shift (cont.)

- ▶ Breaking down the barriers (cont.)
 - Landscaper/Property Manager/City relationship

Party	Previous Mindset	Current
Landscaper		
Property Manager		
City (water retailer)		

How to Get Started

Real Time Water Budgets:

- ▶ Staff up
- ▶ Invest in the technology (GIS & Good Aerials)
- ▶ Start early with landscape measurement
- ▶ Commitment to maintaining square footages

Customer Service:

- ▶ Keep your customers informed
- ▶ Give customers tools to ease the transition (rebates, water analysis, audits, etc.)
- ▶ Develop relationships

Questions

I wish it was that easy!!!

