### This presentation premiered at WaterSmart Innovations

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# 20 Years in the Making *Building a Comprehensive Landscape Program*

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CITY OF SANTA ROSA WATER CONSERVATION





### Overview

- City of Santa Rosa
- What Were the Building Blocks?
- Results
- Lessons Learned
- Looking Forward
- Q&A





## **Overview: City of Santa Rosa**

- Population = 169,000
- Provide service to:
  - 44,000 Residential
  - 3,000 MFR
  - 3,000 CII
  - 1,700 Dedicated irrigation
  - 39 Receiving recycled water
- Deliver approx 20,000 acre-feet of water per year
- Treat approx 6 billion gal/year







### Water-Use Efficiency Program Accomplishments

- Saving 4,500 acre feet/year
  - Reducing GHG's by over 18 million lbs per year
- Suite of landscape programs
- Creating training/tools to support the industry
- Utilizing real time ETo budget based tiered rate billing
  - Dedicated irrigation accounts at 50% of ETo





# What were the building blocks?

- Started in 1976-77 in response to the drought
- Further established in 1990s
- Signatory to California Urban Water
   Conservation Council (CUWCC) MOU in 1998
- Outdoor focus early 2000's
- Landscape measurements







# Building Blocks: 76'-77' Drought

- 37% reduction in water consumption
- Many leaks repaired
- Beginning of water conservation ethic







# Building Blocks: 1990's

- Supply Concerns
  - Wholesale water agency long term supply, transmission capacity
    - Improve Water–Use Efficiency
- Wastewater treatment plant limitations
  - Short and long term ability to treat
    - Treatment capacity
    - Discharge prohibition (May-Oct)







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# Building Blocks: 1990's

- Water–Use Efficiency Implementation
  - 1<sup>st</sup> Coordinator and staff hired
  - Aggressive community engagement
  - Turf–Time established
  - Water Efficient Landscape Policy Adopted 92'
  - "Go Low Flow" Program ~\$6mil, 50k toilets
  - Irrigation efficiency campaign
  - Workshops, Awards, Outreach
  - Report cards
  - Policy supporting conservation implementation/effect on rates







# Building Blocks: CUWCC BMP's

- One of only two agencies to have completed all 14 previous BMP requirements\*
  - BMP 1 Residential indoor/outdoor
    - 1,200 audits per year
  - BMP 5 Large Landscapes with water budgets
    - 72% complete 2001
    - 93% complete 2004
    - 100% complete 2006
- AB2717

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- Task Force
- Workgroups





\*According to P.O.W.E.R.



### **Building Blocks: Outdoor Focus**



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# **Building Blocks: Outdoor Focus**

### Innovation

- Tiered rate structure/plan developed
- ET Controller study: DWR Prop 13 grant
- NASA grant to develop land cover map
- Landscape Water Advisory Group (LWAG)
- Education/Outreach
  - Water Efficiency Calculator
  - City Parks/Large Landscape audits
  - Top 100 Irrigators
- Incentive programs
  - Service Split Incentive Program
  - Irrigation Efficiency Rebate Program





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### Building Blocks: Landscape Measurements (2005–2006)

- Two years to complete:1,700 meters
- Gather accurate square footage information
   ArcGIS
  - High resolution aerials w/parcel overlays
  - Measuring wheels, landscape plans, etc.





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### Results

 Real time ETo budget based, tiered rate billing structure (2007)

Tier	Allocation	Rate \$/1,000 gallons*
Tier 1	Up to 125% of Real Time Water Budget	\$4.80
Tier 2	126% – 200% of Real Time Water Budget	\$6.53
Tier 3	Over 200% of Real Time Water Budget	\$9.81

Real Time Water Budget = {[ETo – EP] x[LAh + LAm) x 0.7)] x CF}

- •ETo (Reference Evapotranspiration)
- •EP (Effective Precipitation)
- •LAh (landscape area high water use)
- •LAm (landscape area moderate and low water use)
- •CF (Conversion factor) = 0.623 converts to gallons



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- Illustrates potential cost savings
- Calculate ROI on upgrades
- Ongoing site water management



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### Green Exchange Rebate Program (2007)

### Irrigation Efficiency Upgrades

- \$100 max residential
- \$1,000 max (per meter) commercial

### Cash for Grass

- \$0.50/sq. ft
- 500 sqft max residential
- 5,000 sqft max (per meter)-commercial
- Pre inspection or workshop
- Post inspection
- \$\$ upon installation completion







#### Square Feet of Grass Removed





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#### Grass Removal Density







- Rainwater Harvesting Rebate (2009)
  - Estimated Peak Month Gallons of Landscape H20
  - \$0.25 Per Gallon of Storage
  - Pre <u>and</u> Post inspection required
  - \$\$ upon installation completion











- Graywater Reuse Rebate (2010)
  - \$75 per fixture (bathtub, shower, clothes washing machine)
  - Sustained reduction
    - \$200 for every 1,000 gallons of sustained reduction in monthly water consumption
  - Must be diverted to a landscaped area
  - Workshop and post inspection











### Landscape Professional' Workshops



2008

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2010

2011

Water Sense

- Water Efficient Landscape Ordinance 2010
  - Goal: create a regional landscape ordinance
  - Stakeholder group: Cities, counties, planners, water conservation, landscape architect, landscape contractors, environmentalist, etc.
  - Convened monthly meetings to develop ordinance
  - Policy adopted by majority of agencies



### Tools for the Landscape Professional



**WaterSense** 

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Irrigating to 50% Eto





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### Lessons Learned

- Can't start with advanced tools without base foundation
- Encourage adaptability of staff/programs to changing stakeholder needs
  - Economy
  - Weather
  - Social trends









### Lessons Learned (cont)

- Partnership Approach
  - Agencies
  - Landscape Professionals
  - Customers
- Proactive not Punitive











### Lessons Learned (cont)

### Programmatic Development

- Inspire change
- Make it easy
- Be Strategic
  - Short and long term goals
- Get involved!







# Lessons Learned (cont) Programmatic synergies





### Lessons Learned (cont)

### Customer Service is Invaluable







# Looking Forward

- Social Influence/market transformation
  - Rating systems
  - Professional competency
- AMI based systems
  - Real time feedback
  - More measurement = more management
- Business know-how
  - Loan programs
  - ROI calculations

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# Looking Forward (cont)

- Whole systems, watershed approach
  - Resource management
    - Water, soil, energy, air...
  - Minimize impact
    - Reduce waste
    - Mitigate climate change
  - Stormwater connection
    - Runoff reduction
    - Water quality
    - LID

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### Questions



