

# Proposed Return on Investment Calculator for Irrigation Efficiency Improvements

Joe Berg, WUE Programs Manager  
Municipal Water District of Orange County



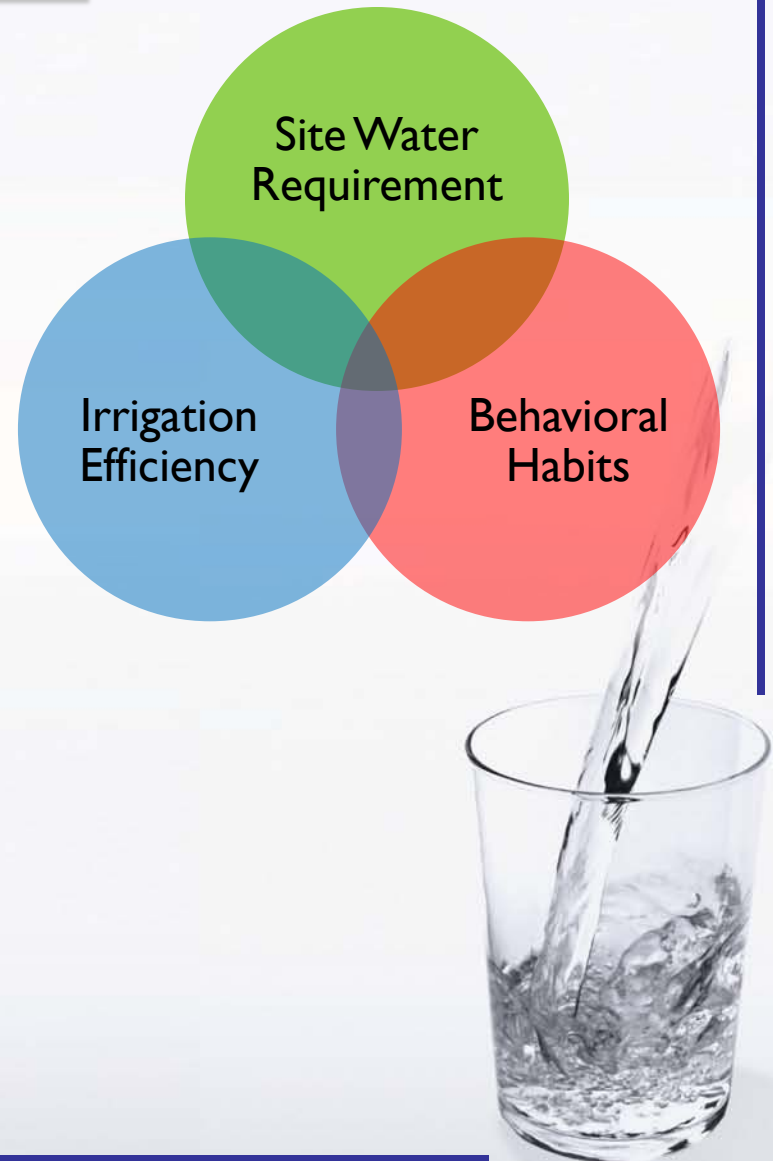
# Why create the ROI calculator?

- Educate/empower the landscape contractor:
  - Sell work that saves water, reduced runoff, etc.
- Provide technical expertise
- Cost effective and leverages current staff and programs
- Years to payback ineffective industry standard



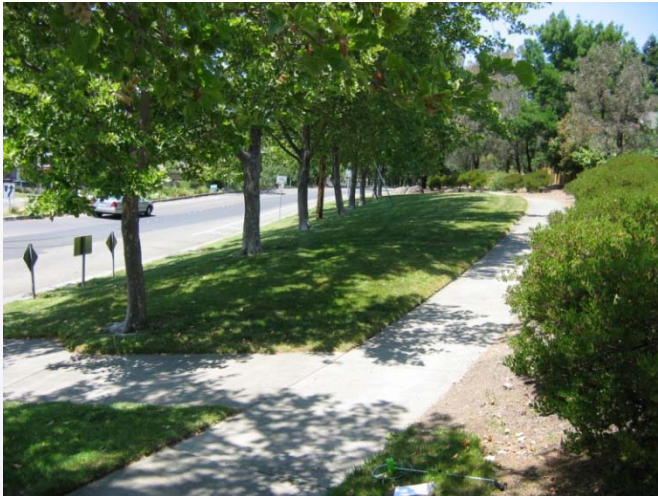
# What is it?

- **Consumption breakout**
  - **Separates out consumption**
    - **Site water requirement**
    - **Irrigation efficiency**
    - **Behavioral habits**
- **Multiple upgrade options**
  - **3 hydrozones, 8 upgrade options**
- **Financial analysis**
  - **Years to Payback**
  - **Net Present Value**
  - **Rate of Return**



# Methodology

- Reduce site water requirement
  - Change plant factor
  - Stop irrigating
  - Cap/abandon/mulch



# Methodology (cont)

- **Improve irrigation efficiency**
  - **Increase distribution uniformity**
    - **Convert spray to drip**
    - **Match/reduce precipitation rates**
    - **Improve head layout**
  - **Regulate excessive pressure**



# Methodology (cont)

- Improve behavioral habits (management)
  - Controller programming/SMART technology
  - System checks/implementing repairs/meter reads
  - Soil management (aeration, mulch, compost teas, etc)



# Questions

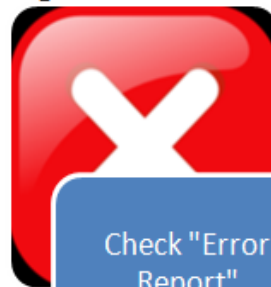


# Stepping through the calculator

- Overview



Fill in worksheets  
Step 1-4



Check "Error  
Report"  
worksheet.

If errors are identified fix  
before proceeding



View "Financial  
Results"  
worksheet

Enter Code to Unlock Calculator

1	▲▼	4	▲▼	7	▲▼	5	▲▼
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Calculator is Ready for Inputs

Prepared By:	<input type="text"/>
Prepared For:	<input type="text"/>
Site Address	<input type="text"/>



# Stepping through the calculator (cont)

- Step 1: Rates and Usage

### Water Use, Rates & Rebates

**1 Billing Structure**

Units  
 1,000 Gallons     CCF / HCF

Tiered Rates  
 No     Yes

5%  Average Rate  
 Increase

# of Tiers  
 1  
 2  
 3  
 4  
 5  
 N/A

**3**

	Price per 1000 Gallons	% of Water Use by Tier
Tier 1	\$ 4.75	39%
Tier 2	\$ 6.47	23%
Tier 3	\$ 9.71	38%
		0%
		0%

**2 Annual Water Use & ET Information (1000 Gallons)**

Years	ETo (net)	Tier 1	Tier 2	Tier 3	Total
2008	36	450	270	445	1165
2009	36	450	270	445	1165
2010	36	450	270	445	1165

**4 Estimated Rebate**

Turf Conversion	\$ 2,500.00
Other Rebates	\$ 3,500.00



# Stepping through the calculator (cont)

- Step 2: Site and Upgrades (by hydrozone)
  - Upgraded Landscape

Upgraded Landscape		High Water Use Plants		Moderate Water Use Plants		Low Water Use Plants	
Water Saving Inputs	Upgrades	Square Feet	Project Costs	Square Feet	Project Costs	Square Feet	Project Costs
0%	No Upgrades						
100% <input type="button" value="▲"/> <input type="button" value="▼"/>	Stop Irrigating						
	Cap / Abandon / Mulch	5,000	\$ 7,500				
DU 0.00 <input type="button" value="▲"/> <input type="button" value="▼"/>	Convert to Drip and/or Change Plant Material						
PF 0.00 <input type="button" value="▲"/> <input type="button" value="▼"/>							
0.80 <input type="button" value="▲"/> <input type="button" value="▼"/>	Irrigation Efficiency Upgrades (1)	5,000	\$ 6,250				
0.90 <input type="button" value="▲"/> <input type="button" value="▼"/>	Irrigation Efficiency Upgrades (2)			10,000	\$ 25,000		
0% <input type="button" value="▲"/> <input type="button" value="▼"/>	Soil Management: Soil treatment, Mulch, Etc.	<input type="radio"/> Yes <input checked="" type="radio"/> No		<input type="radio"/> Yes <input checked="" type="radio"/> No		<input type="radio"/> Yes <input checked="" type="radio"/> No	
0% <input type="button" value="▲"/> <input type="button" value="▼"/>	Global IRRG Upgrades: Pressure regulation, Etc.	All irrigated areas					



# Stepping through the calculator (cont)

- Step 3: Management (cont)

### Management

Multipliers	Current	Upgraded
Irrigation Multiplier	1.56	1.10
Management Multiplier***	2.68	1.50

Management Contract   
  Upgrades   
  None

1

One time Upgrade/Equipment Costs: \$ 2,250.00

2

Irrigation and Site Management Multiplier****	Deficit Irrigation	0 - 0.99
<div style="display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 12px;">No Waste</div> <div style="font-size: 24px; margin: 0 10px;">↕</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 12px;">Wasteful</div> </div>	1.00	1.00
	1.10	1.10
	1.20	1.20
	1.30	1.30
	1.40	1.40
	1.50	1.50
	2.0 +	2.0 +

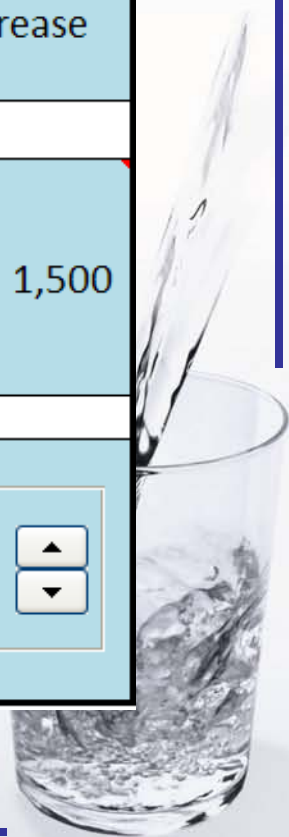
Consumption to Budget	Current	Upgraded
Budget (plant needs)	100%	100%
Irrigation Inefficiencies	56%	10%
Management Inefficiency	168%	50%
<b>Total</b>	<b>325%</b>	<b>160%</b>



# Stepping through the calculator (cont)

- Step 4: Financial Inputs

Financial Inputs	
Customer's cost of capital?	3% <input type="button" value="▲"/> <input type="button" value="▼"/>
Estimated number of years that the water and maintenance savings will be sustained from the proposed landscape changes?	10 <input type="button" value="▲"/> <input type="button" value="▼"/>
Include decreased/increased maintenance costs and/or indirect benefits (i.e. reduced: hardscape damage, window washing, etc.) in the ROI calculations?	<input checked="" type="radio"/> Yes - Decrease <input type="radio"/> Yes - Increase <input type="radio"/> Do Not Include
Decrease or increase as a result of the landscape changes?	Decrease
Average <u>annual</u> amount that maintenance costs and/or indirect benefits will decrease or increase as a result of landscape changes?	\$ 1,500
Average rate of inflation for maintenance costs and indirect benefits/costs?	5% <input type="button" value="▲"/> <input type="button" value="▼"/>



# Stepping through the calculator (cont)

- **Financial Summary Results**
  - **Years to Payback**
  - **Net Present Value**
  - **Rate of Return**

Financial Summary Results								
	Project Cost	Annual Water Savings	Annual Maintenance Savings	Years to Payback	Net Present Value	Annual Rate of Return	Annual Units of Water Saved	% Reduction
<b>Summary of All Upgrades (no rebates)</b>	\$ 41,000	\$ 5,431	\$ 1,500	7	\$ 35,362	16.2%	771	66%
<b>Summary of All Upgrades (rebates)</b>	\$ 35,000	\$ 5,431	\$ 1,500	7	\$ 41,362	20.3%	771	66%

