

Interregional Landscape Water Demand Reduction Program

I.1 Locally Not Cost-Effective Water Conservation Programs and Measures

In this section, it is demonstrated that the proposed Interregional Landscape Water Demand Reduction Program (Program) is “not locally cost effective,” meaning “the present value of the local benefits of implementing this water conservation program or measure is less than the present value of the local costs of implementing that program or measure.” Therefore, the Program is eligible for Proposition 84 2014 Drought Grant Funding.

This Water Demand Reduction Program provides support to water agencies throughout the Santa Ana River Watershed, as well as portions of the Upper Santa Margarita Watershed, to further their water conservation efforts and consequently lower overall water use. Implementation of the Program’s water demand reduction elements is intended to be complementary; together, these elements constitute the water demand reduction program.

This Program includes three main elements for achieving water conservation:

- *Turf Removal for Commercial/Institutional/Homeowners Association Parcels*
- *Technology-Based Information Systems*
- *Development of Conservation-Based Water Rates.*

As discussed in Attachment 3 (Section 3.4.1.4, “Supporting Water Efficiency Tools”), Aerial Imagery and Implementation of Watershed Coordination are integral supporting efforts to all three water conservation elements above and are included in each of the element’s costs provided in the analysis below.

The value of local costs and savings (benefits) analysis below is summarized in the following table:

Local Value”	Turf Removal	Technology-Based Information System	Conservation-Based Water Rates	Annualized Totals (\$)
Local Cost	\$3,340,487/yr	\$2,636,443/yr	\$4,476,017/yr	\$10,452,947
Local Saving	\$594,520/yr	\$2,880,040/yr	\$4,290,960/yr	\$7,765,520
<i>As indicated, local savings are significantly less than local cost and thus these tools are “Not Locally Cost Effective.”</i>				

I.1.1 Value of Local Costs

I.1.1.1 Turf Removal Value of Local Costs

Turf removal incentive programs have been implemented in the Santa Ana River Watershed for a number of years by Metropolitan Water District of Southern California (MWD) and other water agencies. Data from the individual turf removal projects indicate the average costs for commercial, institutional and homeowners’ associations (HOAs) to be \$6–\$9/square foot (SF) (average=\$7.50/SF) plus aerial imagery and implementation costs to remove turf and replace with lower water use landscaping.

To increase participation and hence program effectiveness, the proposed program, described in Attachment 3 (section 3.4.1.1), will integrate with other local incentive programs to increase the incentives to qualifying property owners up to \$3/SF—an additional \$1/SF to what MWD and other water agencies are offering. While a significant increase to past incentives, this incentive is still only one-third to one-half the actual cost to remove and replace

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turf with lower water use landscaping. “Non-functional” turf removal includes decorative turf landscaping as opposed to ball fields, parks, play areas, etc.

Actual cost, including the property owner’s investment, of removing 4,950,000 SF, the amount proposed throughout the Program area, and replacing with lower water demand landscaping at an average \$7.50/SF plus \$883,333 for share of aerial imagery cost and \$300,000 for implementation outreach cost for a total of \$38,308,333.

As the following analysis identifies, turf removal is “not locally cost effective.”

Turf Replacement Value of “Local Cost”

As discussed in detail in Attachment 3, section 3.4.1.1, “Turf Removal.”

- $4,950,000 \text{ SF of Turf Removal} = \$38,308,333$
- $\text{Using (A/P, 6\%, 20 yr life)} = 0.0872, \text{ Cost: } \$38,308,333 \times 0.0872 = \$3,340,487/\text{year “Local Cost.”}$

1.1.1.2 Technology-Based Information System Value of Local Costs

As discussed in Attachment 3, section 3.4.1.2, the Technology-Based Information System will be used as a complementary tool with the Turf Removal and Conservation-Based Water Rate elements of the Program. This is an information system that provides tailored contact with the water customer, presenting customized information based on their water use. It will educate and raise customer awareness of their individual water use relative to reasonable use. This element of the Program is analogous to the “WaterSmart” and “Smart Water Connect” type programs. Aerial imagery will be a tool and stakeholder implementation coordination is included in this element, as with the others, to develop water budgets and target high water users.

- $\text{Cost for 150,600 customers} = \$2,636,443/\text{year “Local Cost.”}$

1.1.1.3 Conservation-Based Water Rates Value of Local Costs

Conservation-based water rate structures use pricing to encourage water use efficiency. Economics has proven that as a commodity price increases, demand for that commodity will decrease. Conservation-based water rates that provide increasing tiered rates for excessive or wasted water used have shown to save significant amounts of water through behavioral change.

The value of “Local Costs” incurred is calculated to be the initial cost to implement plus the increased local water rates paid by customers not conserving, paying for water in the upper tiers of the rate structure. Just as the increased water rates provide incentive to many to conserve water due to price, others do not conserve and pay a higher price for their water consumption than if the conservation-based water rates were not implemented. This additional “local cost” to rate payers that don’t conserve must be linked to the cost of service (per Propositions 26 and 218), and is often used to fund conservation programs. For the comparison analysis below, average water rates from conservation-based rate structures implemented in Southern California include an average “reasonable” water use rate of \$3/hundred cubic feet (ccf) and a “wasteful” or “excessive” water use rate of \$5/ccf, with approximately 5% of customers paying the upper tiered rates.

- $\text{Cost to Implement Conservation-Based Rates for 10 agencies} = \$3,165,333$
 $\text{or Annualized (Using (A/P, 6\%, 20)} = 0.0872) = \$3,165,333 \times 0.0872 = \$276,017/\text{year}$
- $5\% \text{ of usage (4,821 AF/year or 2,100,000 ccf) is at the higher } \$5/\text{ccf tier,}$
 $\text{additional “local cost” by rate payers} = 2,100,000 \text{ ccf/year} \times (\$5/\text{ccf} - \$3/\text{ccf}) = \$4,200,000/\text{year}$
- $\text{Total “Local Cost”} = \$276,017 + \$4,200,000 = \$4,476,017/\text{year “Local Cost.”}$

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1.1.2 Value of Local Benefits

1.1.2.1 Turf Removal Value of Local Benefit

As discussed in Attachment 3, section 3.4.1.1 “Turf Removal,” the documented water savings from turf removal and replacement with less intensive irrigated landscape is 44 gallons/SF/year. The value of the local benefit is the cost savings of less imported water purchased at MWD’s Tier I Treated Water Rate of \$890/AF.

- 44 gallons/SF/yr = The difference in annual irrigation requirements between turf and replacement landscaping (see Attachment 3, section 3.4.1.1, “Turf Removal”)
- MWD Tier I Treated Rate = \$890/AF
- 4,950,000 SF Turf Removed × 44 gallons/SF/yr = 668 AF/year water conserved
- 668 AF/year water saved × \$890/AF = \$594,520/year reduced imported water costs.

1.1.2.2 Technology-Based Information System Value of Local Benefit

As discussed in Attachment 3, section 3.5.1.2, the Technology-Based Information System element of the program is projected to conserve an average of 3,236 AF/year over the first 3 years.

- 150,600 customers participation projected to result in 3,236 AF/year water use reduction
- MWD Imported Water Cost (Tier I Treated) = \$890/AF
- Value of “Local Benefit” = 3,236 AF/year × \$890/AF = \$2,880,040/year “Local Benefit.”

1.1.2.3 Conservation-Based Water Rates Value of Local Benefits

The value of the “Local Benefit” of water conservation is calculated as the amount of imported water not required to be purchased due to water conservation. For this analysis, we have used the MWD Tiered I Treated water cost of \$890/AF for the imported water cost. For reference to the basis of calculating the amount of water projected to be conserved in this element of the program, see Attachment 3, section 3.6.1.3.

- 4,821 AF/year Water Savings projected for this program element
- MWD Imported Water Cost (Tier I Treated) = \$890/AF
- Value of “Local Benefit” = 4,821 AF/year × \$890/AF = \$4,290,960/year.