An Economic Analysis of Xeriscaping

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Nature of Work: Xeriscaping is a term coined in Colorado in 1981 to describe a seven-step approach to water conservation in the landscape; 1. Proper planning and design; 2. Practical turf areas; 3. Efficient irrigation; 4. Soil improvements; 5. Mulching; 6. Appropriate plant selection; and 7. Maintenance to reduce water needs. The environmental and aesthetic benefits of Xeriscaping are well-documented in the literature (3,6,7,8). However, there is little information available on the economic benefits of Xeriscaping when renovating an existing landscape to make it more water-efficient.

Average retail prices of plants and materials were used to estimate installation costs.

In this study, a residential landscape model was utilized to compare water use and costs of water, sewage (a cost relative to water usage) and maintenance before and after a Xeriscape renovation (Figure 1). Note the changes in water-use zones. In addition, the following assumptions were made: (1) the high water-use zone would receive 1-inch of irrigation once a month from November to March; (2) the medium water-use zone would receive 1-inch of irrigation once a month from April to October and no supplemental water from November to March; (3) the low water-use zone would receive no supplemental water once the plants were established. These assumptions were based on Georgia Cooperative Extension Service recommendations (5).

To compare water and sewage costs, residential water rates and sewage rates for nine cities in Metro Atlanta during 1990 were obtained from the Atlanta Regional Commission (1). Average monthly water costs for these cities were $6.53 for the first 2,000 gallons consumed and $2.41 for each additional 1,000 gallons. Sewage costs, assessed according to water consumption, were $5.04 for the first 2,000 gallons and $1.69 for each additional 1,000 gallons.

A computerized cost estimator (2) was utilized to estimate equipment, labor and material costs of landscape maintenance before and after the renovation. Labor cost was charged at a rate of $10/hour.

Average retail prices of plants and materials were used to estimate installation costs. Labor costs were not included because it was assumed that the client would install the landscape himself. These costs were then compared tot eh combined savings in water costs, sewage costs and maintenance costs to project a return of investment.

Results and Discussion: As a result of the Xeriscape renovation, total irrigated area was reduced by 3,403 square feet (Table 1). This factor, combined with the change in water use within the designated zones, resulted in a projected annual water savings of 27,437 gallons. The Xeriscape renovation resulted in $66.12 savings on annual water cost and $46.36 savings on sewage cost.

Renovation reduced the turf area by 3551 square feet, increased the ornamental area by 1001 square feet, and diverted 2200 square feet of irrigated to non-irrigated mulch (Table 2). Less supplemental irrigation, combined with less frequent fertilization and conservative pruning, resulted in a substantial reduction in maintenance requirements of the Xeriscape and a projected annual savings of $237 in maintenance costs.

Although this landscape renovation required an investment of $1245 (Table 3), the combined annual savings ($66.12 (water) + $46.36 (sewage) + $237 (maintenance) = $349.48) helped justify the expense. The model showed a complete return on investment in three years (Table 4). A comparable bank return on $1245 investment at 8% interest would require approximately nine years.

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Significance to the Industry: The economic benefits of Xeriscaping can be a powerful marketing tool for landscape professionals. Landscape architects are encouraged to conduct a similar analysis of their designs to convince their clients that Xeriscapes not only save water...they save money.

***NOTE:** Figure 1 and Tables 1-4 appear on the following two pages*

Literature Cited

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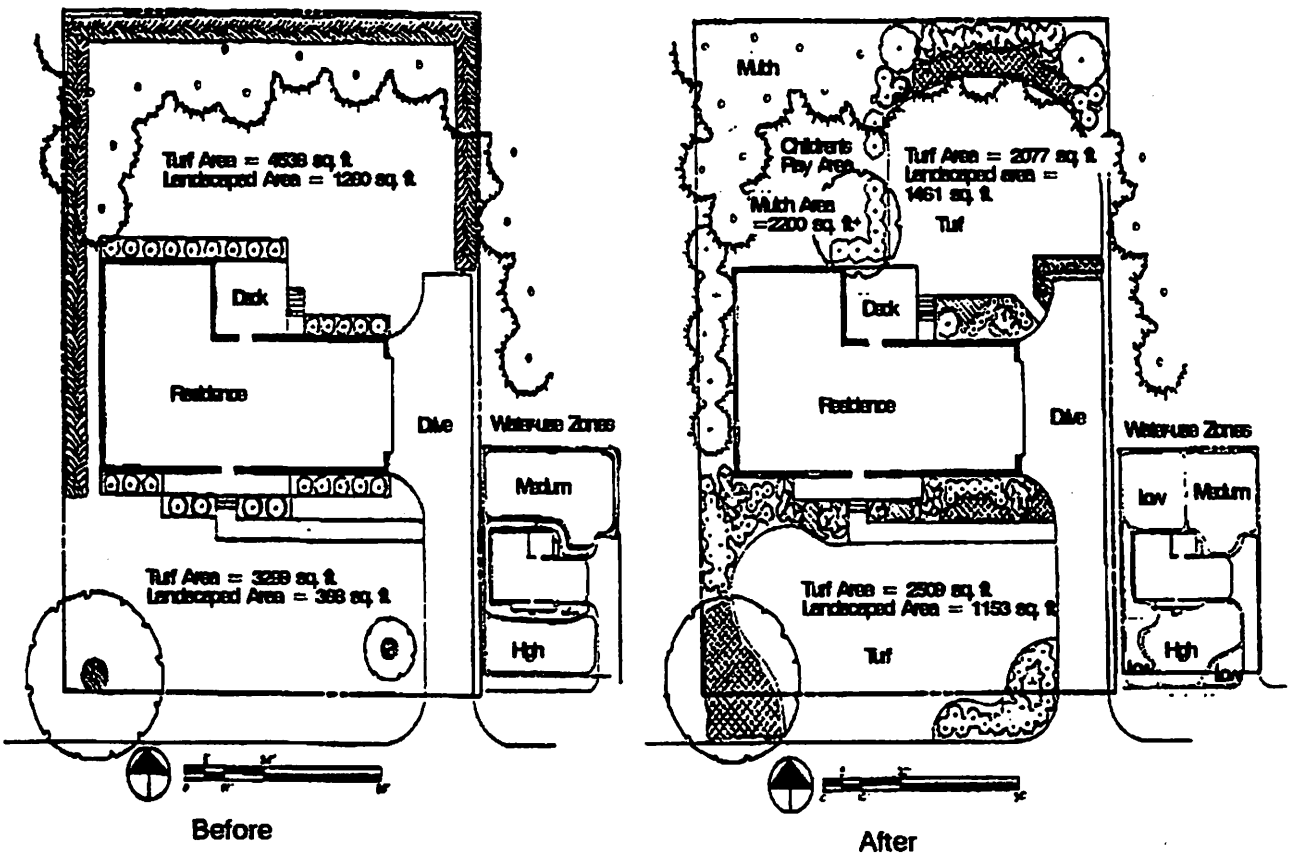

Figure 1. Before and after Xeriscape renovation.

TABLE 1. Surface Area, Estimated Annual Water Use, Projected Annual Water Cost, and Annual Sewage Costs by Water-use Zone Before and After Xeriscape Renovation.

Zone	Square feet		Annual water use (gallons)			Projected Annual Water Cost			Projected Annual Sewage Cost		
	Before	After	Before	After	Change	Before	After	Change	Before	After	Change
Low	0	3403	0	0							
Mod.	5788	3538	24310	14860	-9450	$60.29	$37.52	-$22.77	$42.74	$26.77	-$15.97
High	3662	2509	57127	39140	-17987	$139.39	$96.04	-$43.35	$98.20	$67.81	-$30.39
Total			81437	51723	-27437	$199.68	$133.56	-$66.12	$140.94	$94.54	-$46.36

TABLE 2. Areas Serviced and Estimated Annual Maintenance Costs of Xeriscape Renovation.

	Square feet		
Areas Serviced	Before	After	Change
Turf	7837	4586	-3351
Ornamentals	1613	2614	+1001
Totals	9450	7200	-2250
Direct Costs	**Estimated Costs**		
Equipment	$52	$23	-$29
Labor	$530	$323	-$207
Materials	$78	$77	-$1
Totals	$660	$423	-$237

TABLE 3. Estimated Plant and Material Costs for Model Xeriscape Renovation.

Item	Quantity	Unit Cost	Total Cost
1 gal. plt.	47	$4.50	$212
3 gal. plt.	37	$8.00	$297
5 gal. plt.	9	$14.00	$126
Grnd Cover	430	$0.80	$344
Annuals	300	$0.30	$90
Mulch	44	$4.00	$176
		Total:	$1245

TABLE 4. Projected Time for Return on Investment on Xeriscape Renovation

	Savings/yr.[1]	Cost
Installation		$1245.00
Year 1	$384.43	$860.57
Year 2	$422.87	$437.70
Year 3	$465.16	$0.00

[1] Assumption: 10% increase in water rates and maintenance costs per year.