

What Difference Does It Make?

Quantifying the Potential Results of Tempe's Landscaping Water Conservation Program

Andrew Knochel, May 2, 2007

Tempe's Landscape Rebate Program was expanded in 2005 to offer \$500 rebates to homeowners who supplied photographic evidence of landscaping conversion from turf to drought-tolerant landscaping.

The question arose: How much impact can this program have on the water use of single-family homes in Tempe?

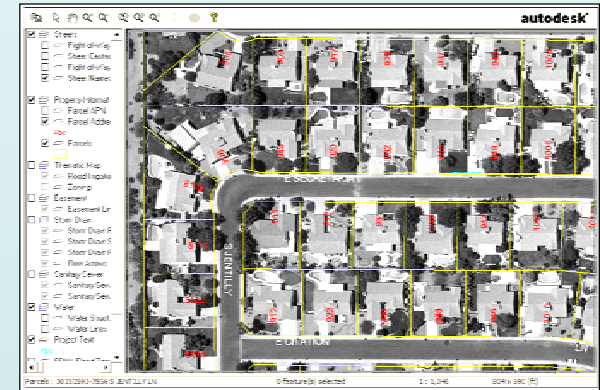
I used Tempe's proprietary TGIS, a basic GIS program, to scan aerial photos for examples of each landscaping type.

Landscape Rebate Application



An example of a converted front yard

For my internship with the City of Tempe, I analyzed aerial photographs to find homes with very different landscaping. My goal was to make an extreme comparison: homes with no turf and no pool vs. homes with turf in front and back as well as a pool. I found that turf landscaping uses more water and water use fluctuates more throughout the year than xeriscaping.

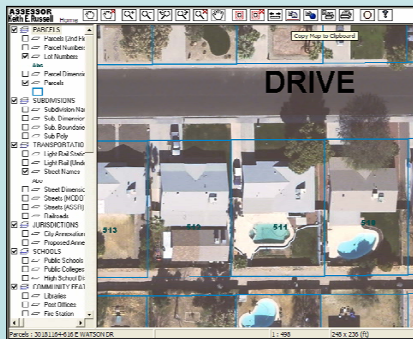


TGIS aerial photo view

To verify the landscape type, I examined Maricopa County's more recent Assessor photos of each address at a closer scale and in color.

I created a list of 50 examples for both property types in each of Tempe's four zip codes, resulting in a total of 200 samples of each landscaping type.

Monthly water use figures from this sample of homes were retrieved from Tempe's billing system for November 2004 to October of 2006. I averaged these figures by landscape type to create the graph below. This graph shows the stark difference in water use between the two landscape types. These results show that the ultimate impact of the rebate program will depend on the extent of landscape modifications.



MAG's Assessor GIS map showing aerial photographs



Tempe's zip codes

