

# Development of a Landscape Conversion Rebate Program in the Sierra Vista Area, Arizona

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## ABSTRACT

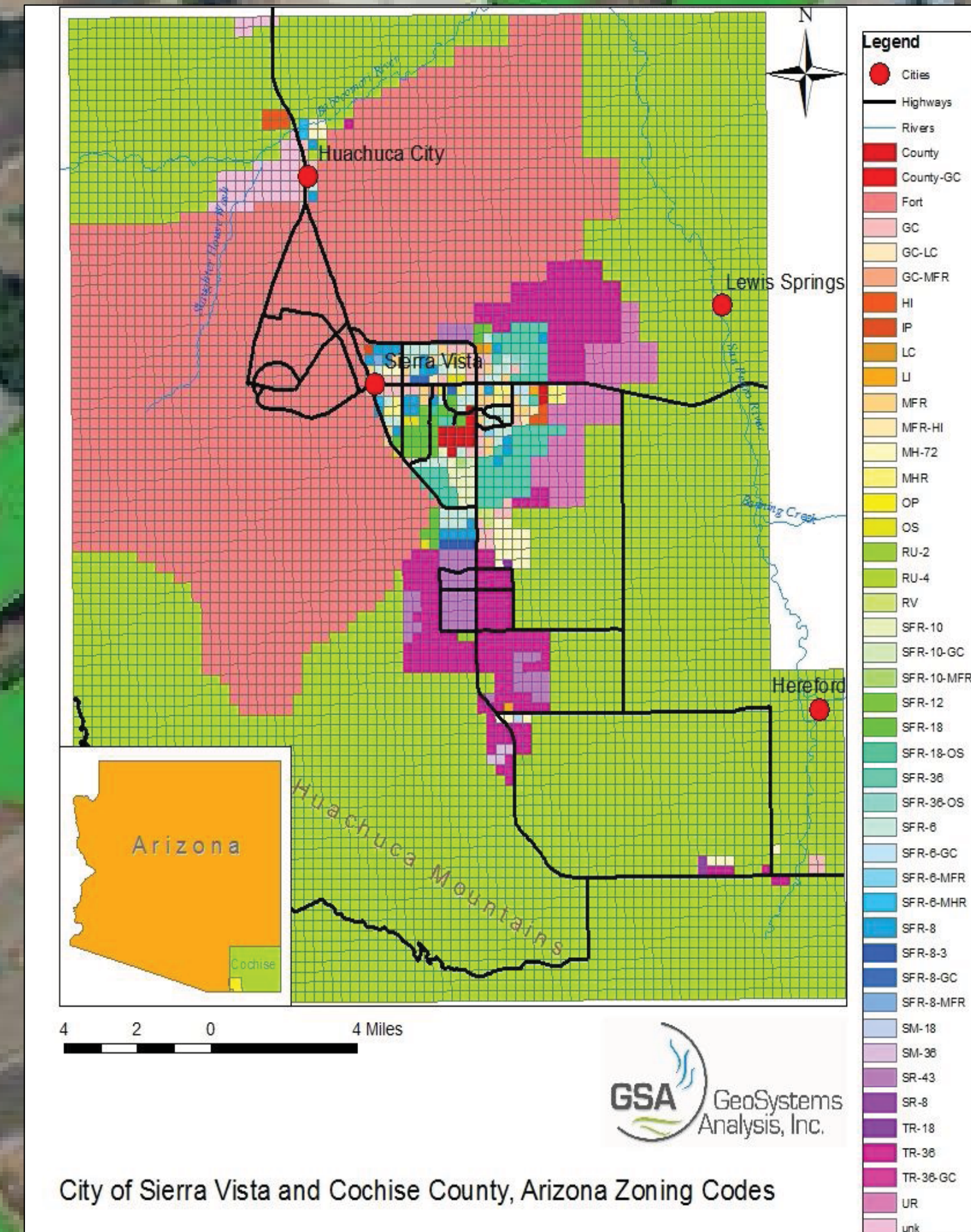
The feasibility of a landscape conversion rebate program within the greater Fort Huachuca/Sierra Vista, AZ area was assessed through: estimates of existing turf grass quantities within the community, analysis of local landscaping and water conservation codes, an economic analysis of alternative water costs and program implementation costs, and estimated water savings from various landscape conversion alternatives.

There are approximately 750 acres of turf grass within residential and commercial properties, golf courses, parks, and schools within the study area. Landscape water conservation codes for new development greatly restrict turf grass; therefore a landscape conversion rebate program would assist in bringing older landscapes up to current water conservation standards. Estimated water savings range from 1.7 to 4.1 acre feet per year per acre of turf grass removed, depending on the landscape converted (cool or warm season turf grass) and the final landscape alternative (xeriscape with or without supplemental irrigation). Potential landscape conversion rebates were equated to an estimated cost of \$2,000 per acre foot to bring alternative water supplies to the area, and range from \$0.58 to \$1.57 per square foot of turf grass converted, depending on the type of landscape converted and the final landscape alternative. Estimated water savings could range from 500 to greater than 1,000 acre feet per year over a 10 to 20 year program life, subject to the level of program participation.

## TURF GRASS ANALYSIS

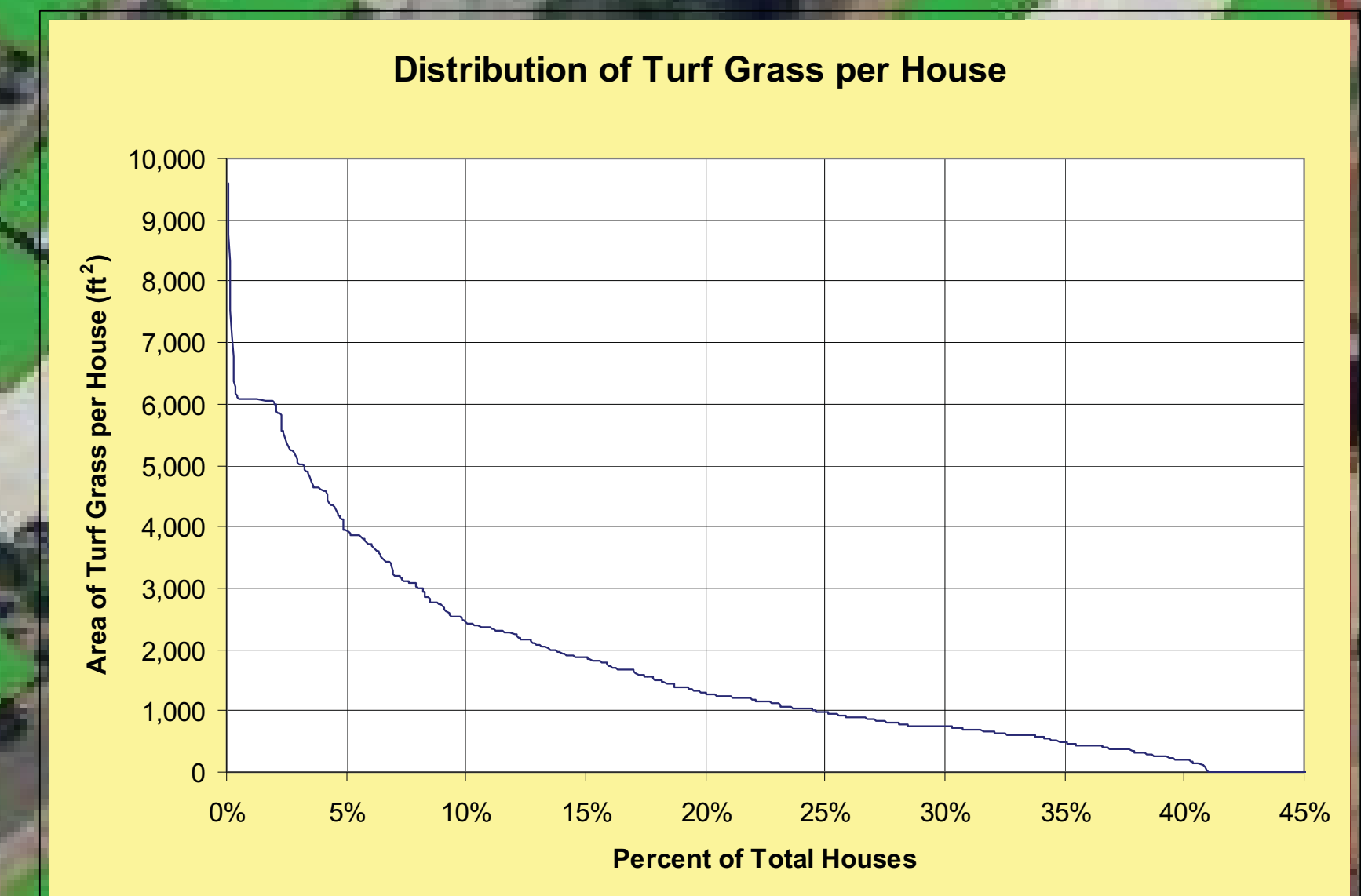
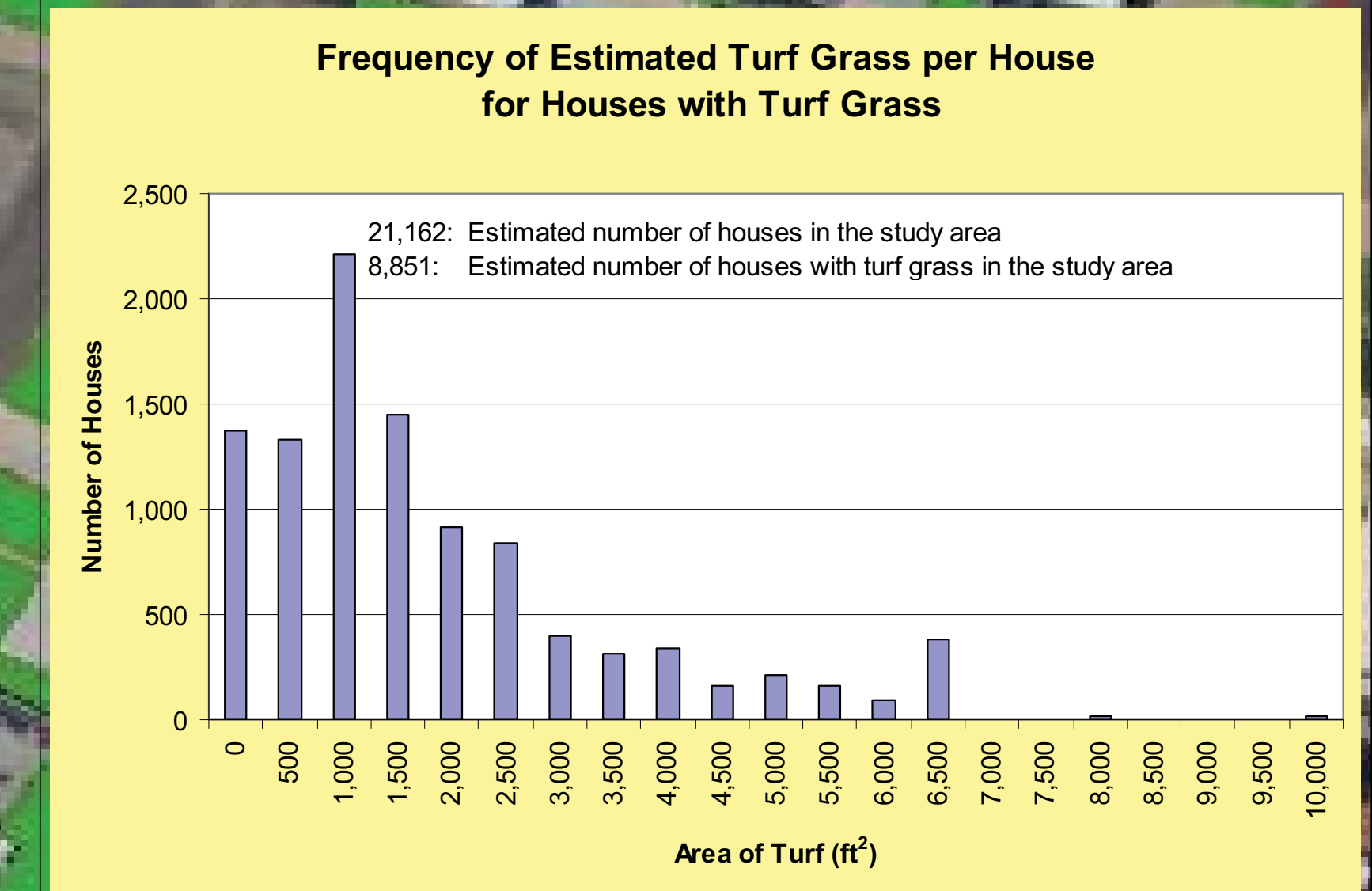
### METHODS

- Use ArcGIS 9.2 tools and aerial photographs to estimate:
  - turf grass for each golf course, school, and park
  - turf grass for residential and commercial using 14 different “test parcels” :
    - 40 acres per parcel by zoning class
    - number of houses
    - quantify amount of turf grass per house
    - compare old vs. new development
  - percent development per 40 acre parcel throughout study area
- Extrapolate test parcels to similar zoned parcels with percent development



City of Sierra Vista and Cochise County, Arizona Zoning Codes

## TURF GRASS ANALYSIS RESULTS



## PROGRAM RECOMMENDATIONS AND ESTIMATED WATER SAVINGS

- Tiered incentive system, rebates vary by:
  - Type of turf grass removed
  - Type of new landscape installed
  - Encourage rainwater harvesting
- Rebate can decrease for large conversion areas
- No rebate maximum
- New landscapes must save water and be aesthetically pleasing
  - Minimum %mature plant canopy cover
  - Specified plant list
  - Water feature/impermeable landscape restrictions
  - Irrigation system specifications
- Require maintenance of new landscape as the property is owned by the participant

Landscape Conversion Type	Estimated Water Savings		Recommended Rebates (\$/ft <sup>2</sup> of turf grass removed) per Water Augmentation Costs <sup>a</sup>			
	(gals/ft <sup>2</sup> /yr)	AFA/acre	\$1,500	\$2,000	\$2,500	\$3,000
Cool season grass to non-irrigated landscape	30.75	4.1	\$1.18	\$1.57	\$1.97	\$2.36
Cool season grass to irrigated xeriscape	23.75	3.2	\$0.91	\$1.21	\$1.52	\$1.82
Warm season grass to non-irrigated landscape	19.5	2.6	\$0.75	\$1.00	\$1.25	\$1.50
Warm season grass to irrigated xeriscape	12.5	1.7	\$0.48	\$0.64	\$0.80	\$0.96
Cool season grass to warm season grass	11.25	1.5	\$0.43	\$0.58	\$0.72	\$0.86

<sup>a</sup> Range of potential costs to bring renewable water supplies to the Sierra Vista (\$/AF over 10 years)

## CONCLUSIONS

- Base rebate amount on the cost to bring new water supplies to the area (Likely cost of alternative water is \$2000/AF and will increase over time)
- Prioritize locations with large areas of turf grass (e.g. golf courses) for turf grass replacement program
- Develop a turf grass replacement program for remaining properties.
- Use existing city and county programs capable of bringing program on-line
- Turf grass conversions could save 1.5 to 4.1 acre-feet per acre of turf per year (350-700 acre-feet per year over program life)