



City of Phoenix

Factors Affecting Water Use in Sparse Landscapes

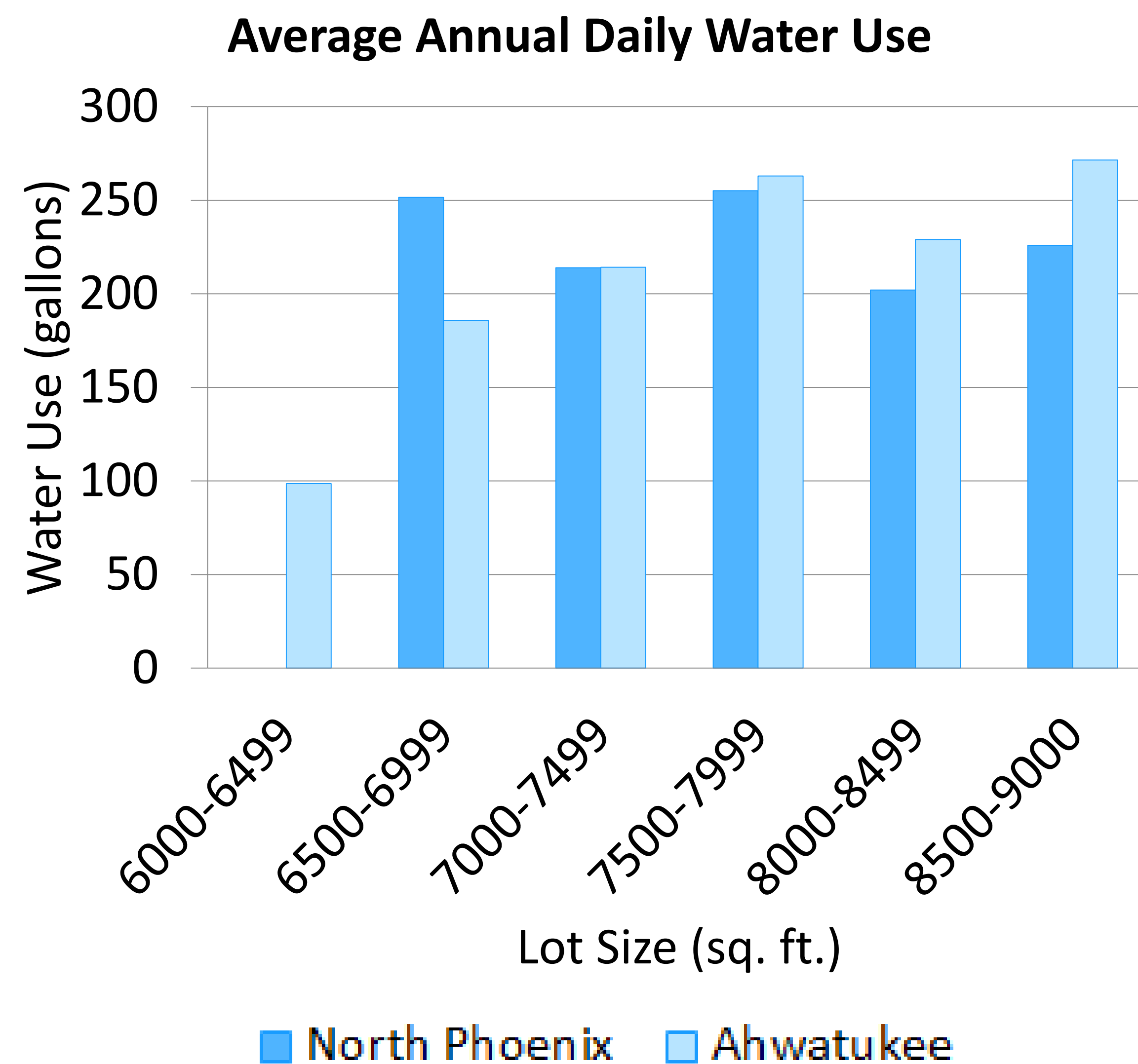


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Introduction

“Sparse” landscapes are defined as having a mixture of desert landscape and plants, no grass, few trees and shrubs, and a large area of gravel and rock. This investigation asked two questions:
Is there a significant difference in water use between “sparse” landscaped homes in different areas? What factors affect water use among “sparse” landscapes of residential homes?



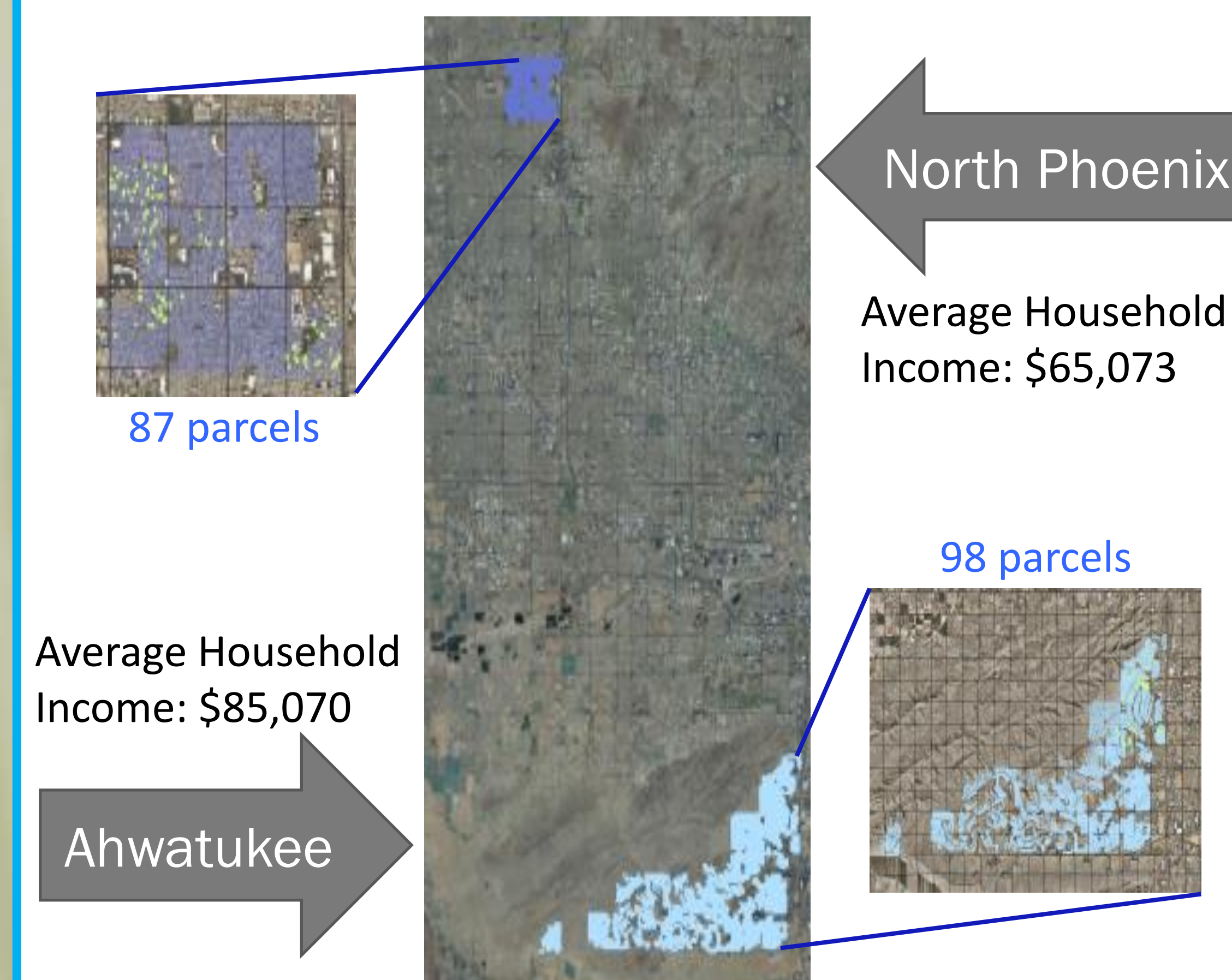
Results

Lot size and year of construction were not statistically significant in explaining variation in water use for the sparse landscapes in the study regions.

The analysis showed that there is higher water consumption in the Ahwatukee neighborhood.

While Ahwatukee has a higher concentration of pools, Northern Phoenix has a higher average pool size.

Study Area



- Single Family Residential Parcels
- Year Built (1975-1984)
- Overall Sparse Landscapes
- Range of Lot Sizes (6,000 to 9,000 sq. ft.)
- Homes with or without pools



Study Area	Avg. Annual Daily Water Use	Water Use (gal)		Lot Size (sq. ft.)		Year Built	
		Lowest	Highest	Lowest Water Use	Highest Water Use	Lowest Water Use	Highest Water Use
Ahwatukee	239 gal	25	1,314	8908	8250	1984	1984
North Phoenix	222 gal	70	456	8055	8616	1979	1977

Methods

Residential Household Income (85044 & 85053)



ArcGIS & Maricopa County Assessor's Parcel Map to code



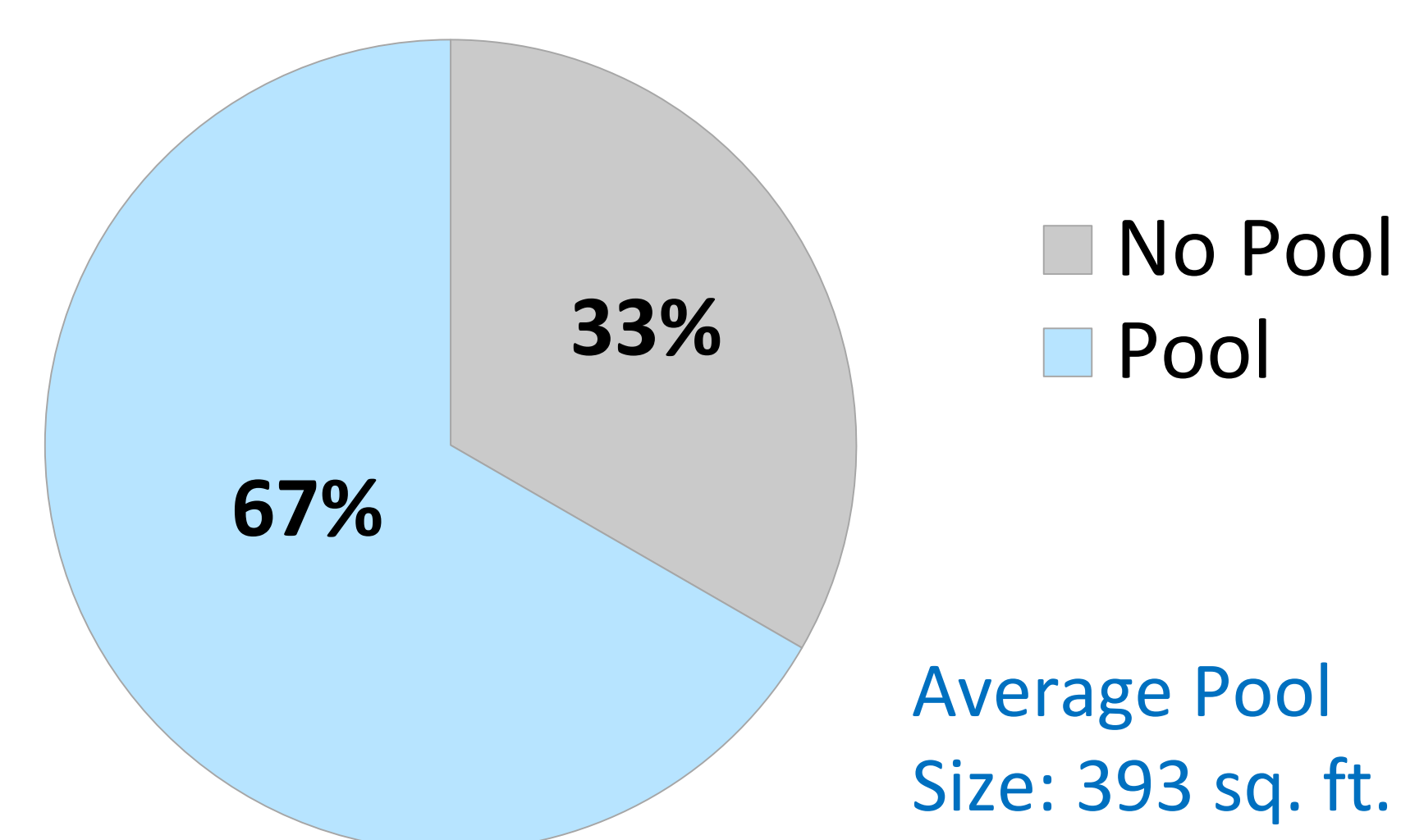
City of Phoenix Water Billing System (2013 data)

Y	Z	AQ	AR	AS
YR_BUILT	LOT_FT2	JAN_CCF	JAN_DAYS	JAN_MONTH
1978	6884	2	31	1496
1977	6931	9	31	6732
1978	7098	4	31	2992

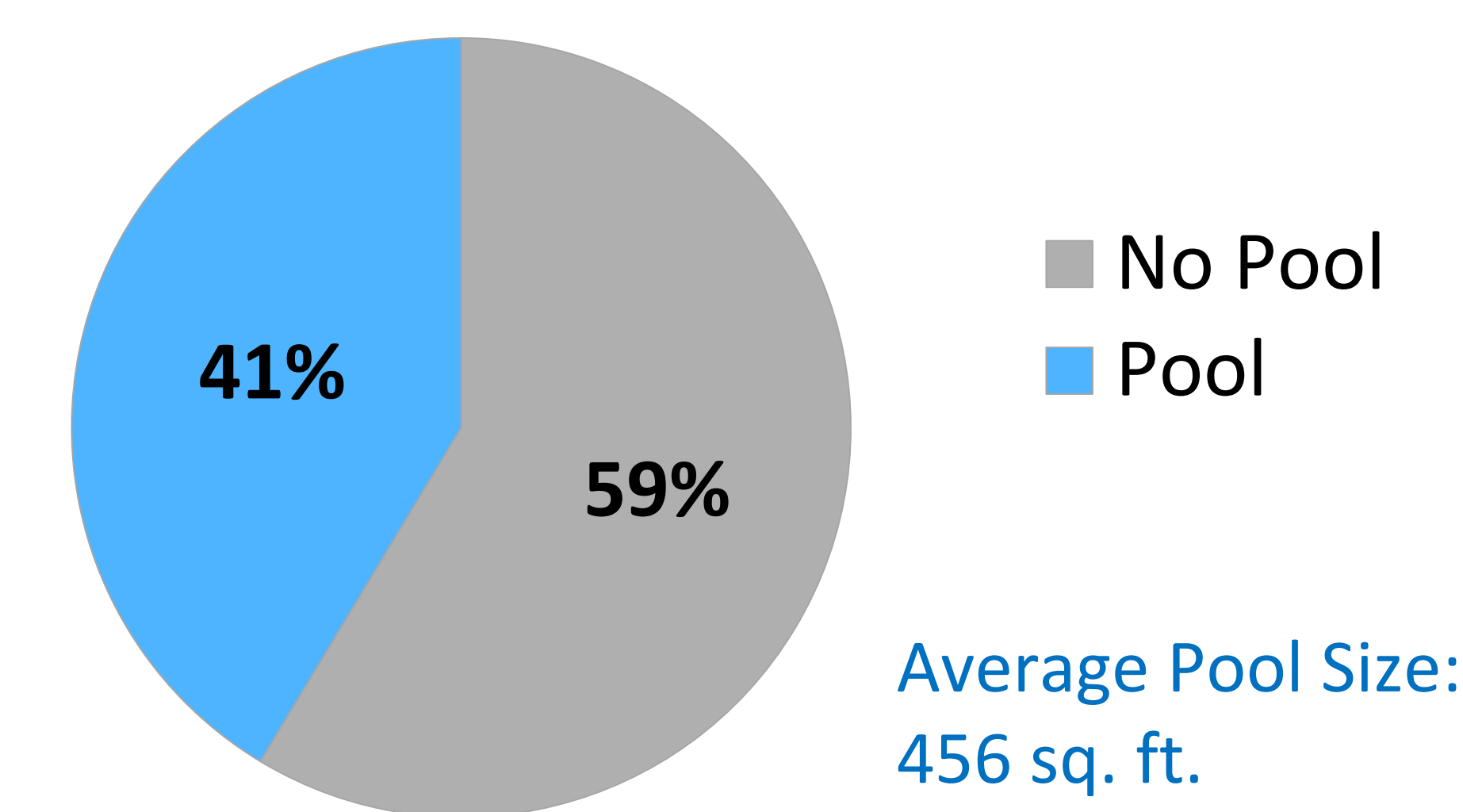
IBM SPSS used for statistical analysis (T-tests at 0.05 confidence level)



Homes with Sparse Landscapes (Ahwatukee)



Homes with Sparse Landscapes (North Phoenix)



Conclusion

This research examined variables that could potentially explain variation in water use among homes with sparse landscapes from different geographic areas.

It is likely that the income disparity between the two areas is a reason for more pools in Ahwatukee as well as more well-maintained yards (and hence, higher water consumption).

With future research, it might advance understanding of variation in water use among homes with different kinds of landscapes.

Acknowledgement

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