The Effects of Third Party Landscapers on Residential Water Consumption in Tempe

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Background

Some Tempe residents who have been experiencing unusually high water bills have contacted our office for an explanation. After partaking in water audits it was evident that a common component of high water bill residents was the use of a third party landscaping company for irrigation services. In this context a third party landscaper is anyone who receives compensation for irrigating another's yard.

Figure 1: Water Auditing Process

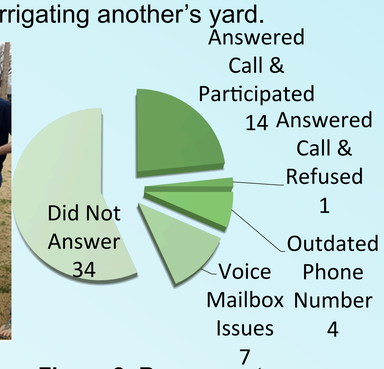

Figure 2: Responses to Survey Calls

Methods

Step 1: Identified 7 residents who use a landscaper for irrigation purposes & 8 residents who do not employ a landscaper.
Step 2: Looked up consumptive water use history in Oracle database to compare differences in water usage between residents with landscapers and those without landscapers
Step 3: Researched local landscaping companies' websites to determine their sustainable watering recommendations.
Step 4: Compared landscapers' recommendations with academic guidelines and respondents' practices

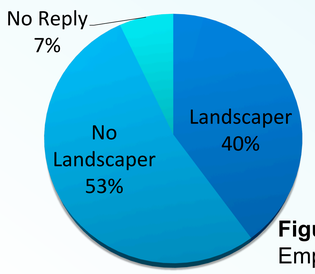

Figure 3: Respondents Employing Landscapers

Procedures

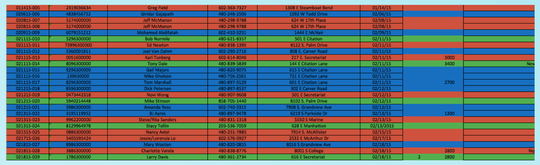

Figure 4: Water Audit Database

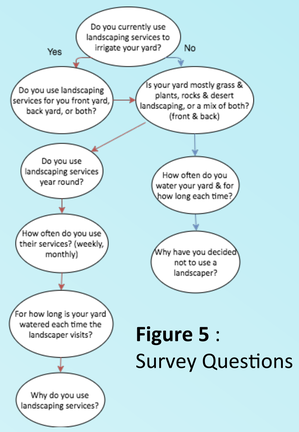

Figure 5 : Survey Questions

ORACLE

ALL PRO LAWN & SPRINKLER	Cover entire yard surface with 1 inch once/week
KONA	Summer: Water 30 minutes/ day Winter: Water 30 minutes twice/week
Freedom Landscaping AZ We show up and we shut the gate!	3 times a week for 8-15 minutes
amwua ONE FOR WATER	15-20 minutes every 4-30 days

Table 1: Turf Irrigation Recommendations

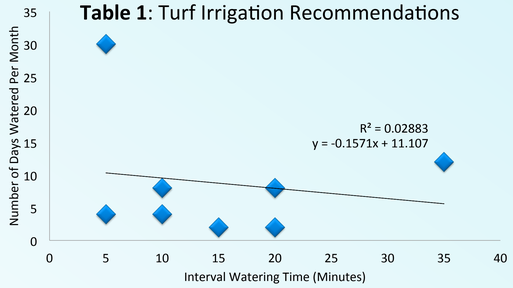

Figure 6: Frequency of Residents' Watering Schedules

Results

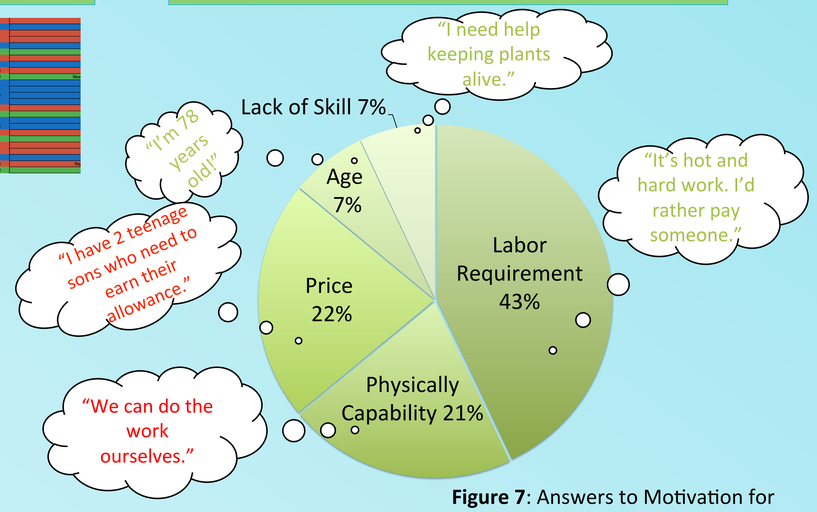

Figure 7: Answers to Motivation for Using/Lack of Landscaper

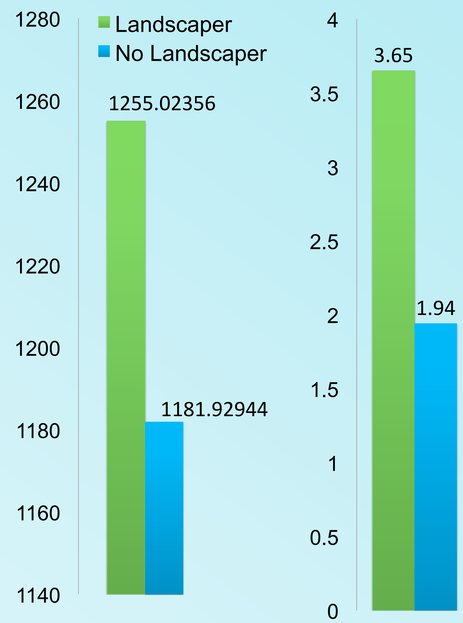

Figure 8: Total Gallons Consumed per House per Ft^2 in 2016 (Hundreds)

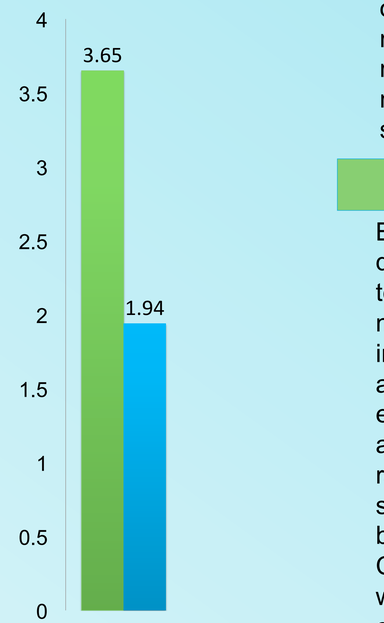

Figure 9: Total Annual Gallons Consumed in 2016 (Millions)

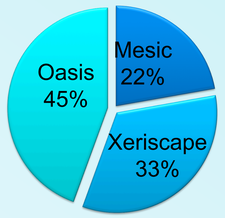

Figure 10: Types of Yards

Analysis

Based on my responsive sample size (25%) it was determined Tempe households using landscaping services for irrigation needs are consuming more water than houses without landscaping services. Controlling for lot size, houses employing landscapers consumed approximately 53% more water than households relying on themselves to irrigate in 2016 (Figure 6a). The data relied on for this research consisted of both quantitative primary data and qualitative secondary data. Figure 4 illustrates the process of primary data collection demonstrated. Figure 7 depicts the variation in watering schedules implemented by landscapers. These differences in watering schedules are likely a result of both the disparate guidelines available and the promise of job security for landscapers provided by overwatering. Varying watering recommendations makes it confusing for residents to know which guidelines are the most sustainable for their specific yard type, soil, plants, etc.

Conclusion

Because there are so many factors involved in determining the most efficient amount of water to use for irrigation it is difficult to suggest there needs to be a one size fits all approach to irrigation schedules. Perhaps these water audits could become more personalized to each household where auditors take these aspects into consideration to produce a recommended water usage per month. A next step could include increased communication between local landscapers and the Conservation Office through collaborative workshops. However as my research illustrates, outreach isn't always effective in gaining participants. The end goal would be less confusion and water waste among Tempe residents as a result of increased communication between stakeholders.

References

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This material is based upon work supported by the National Science Foundation under Grant No. SES-1462086, DMUU: DCDC III: Transformational Solutions for Urban Water Sustainability Transitions in the Colorado River Basin. Any opinions, findings and conclusions or recommendation expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation (NSF).