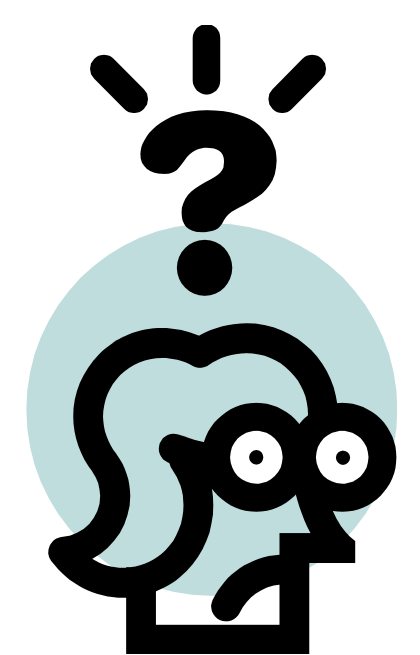




Identifying the Water Conservation Potential of Neighborhoods in the Desert Metropolis of Phoenix, Arizona

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How do residents' concerns and perceptions about water consumption correspond to actual residential water demand in neighborhoods, and where and why do these human judgments deviate from actual demand estimates?

Utilizing multiple methods, we statistically analyzed the metered water and survey data then mapped the spatial patterns of matches and mismatches in concern and perceived use versus actual water demand.

Metered Water Demand: Municipal Data for Phoenix Neighborhoods

Demand data by census tract (n=303) was obtained from the City of Phoenix and represents 2004 water consumption (in mil liters/yr) for single-family home dwellers by census tract. Water use is aggregated at the census tract level by the City of Phoenix to protect the privacy of residents. Demand was classified by standard deviation units (sd), where *low demand* < -0.5 sd; *average demand* = -0.5-0.5 sd, *high demand* = 0.51-1.5 sd; and *very high demand* > 1.5 sd. Demand totals do not include SRP flood irrigation water.

Regional Social Survey: Household Data on Perceptions of Water Scarcity

Respondents of the Phoenix Area Social Survey (n=808) reflect varied socioeconomic conditions from 40 representative neighborhoods around the Valley. Individual and aggregated neighborhood responses to the following survey questions were analyzed.

ECOLOGICAL CONCERN

Thinking only about your neighborhood, are you very, somewhat, not too or not at all concerned about... The amount of water being used by your neighbors?

(1) Very, (2) Somewhat, (3) Not too, (4) Not at all concerned, (5) Don't know, (6) Refuse to answer

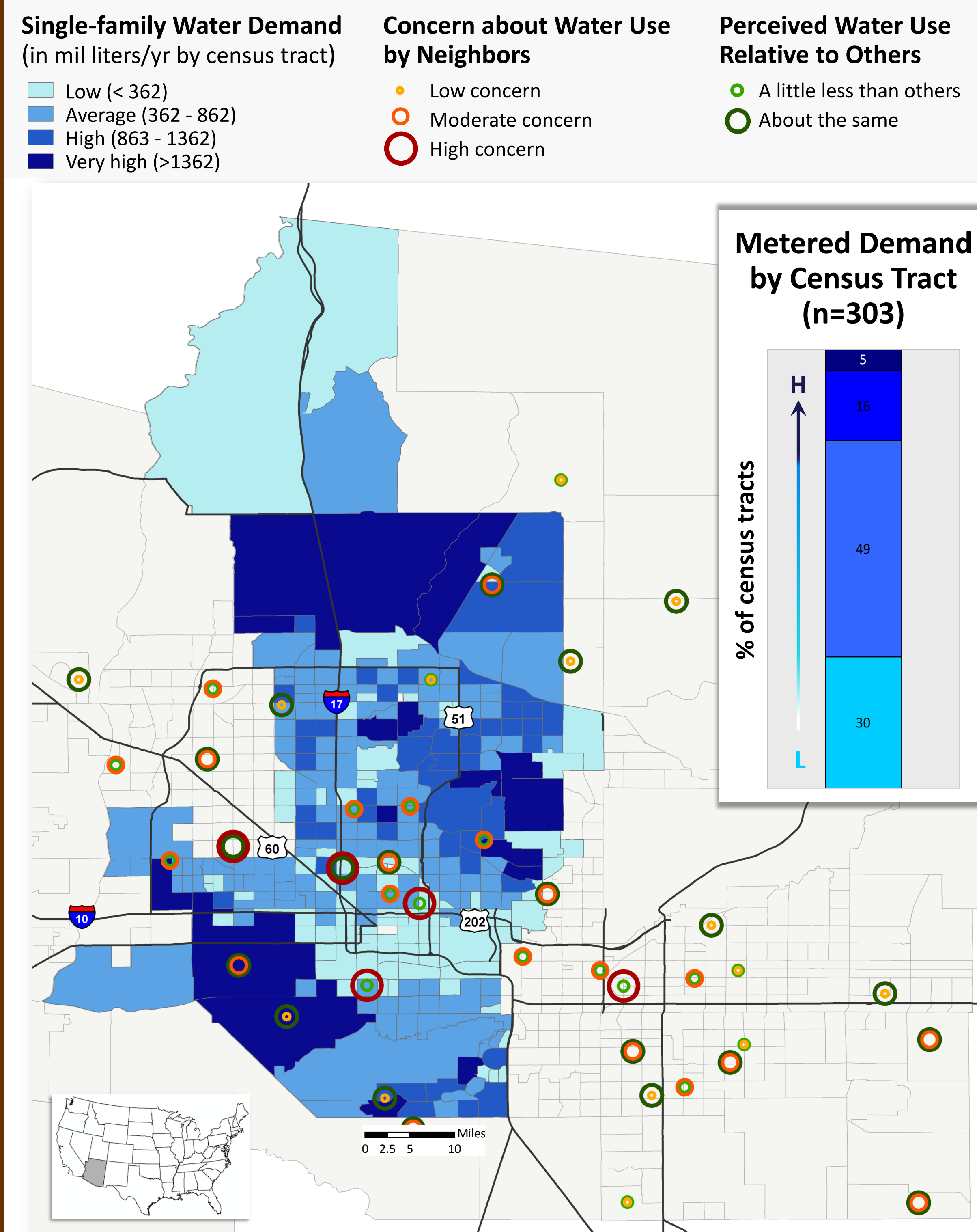
PERCEIVED CONDITIONS

How much water do you think your household uses compared to other similar households in the Valley?

(1) Much less, (2) A little, (3) About the same (4) A little more, (5) Much more, (6) Don't know, (7) Refuse to answer

This research has exposed disconnects between concerns and perceptions about water consumption and actual residential water demand in Phoenix Metropolitan Area neighborhoods.

Residential Water Demand: Perceptions & Behaviors in Metropolitan Phoenix Neighborhoods



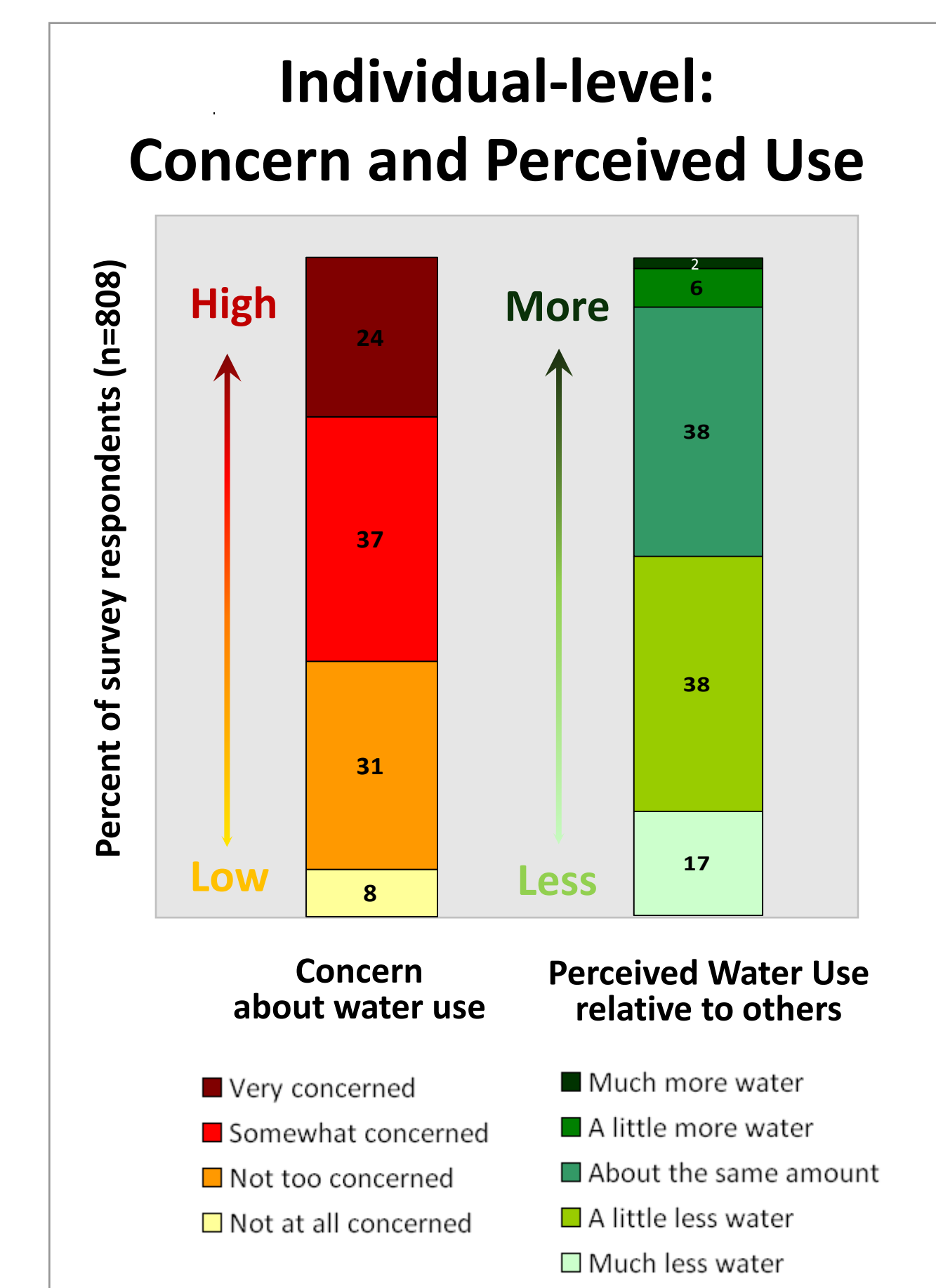
All Phoenix neighborhoods (n=15) perceived their water use to be average or less than others, though metered demand reveals that only half use average to below average amounts.

- Neighborhoods with **high to very high demand** (n=7) were low to moderately concerned about water use by their neighbors and perceived their use to be average or low compared to others.
- All neighborhoods with **average demand** (n=5) perceived their water use to be less than others in the Valley, and exhibited low to high concern.
- Neighborhoods with **low demand** (n=3) perceived their use to be low or average, and exhibited low to moderate concern.

Concern was high and perceived 'personal' water use was low at both scales. This may indicate a reduced sense of responsibility for, or influence on, water conservation.

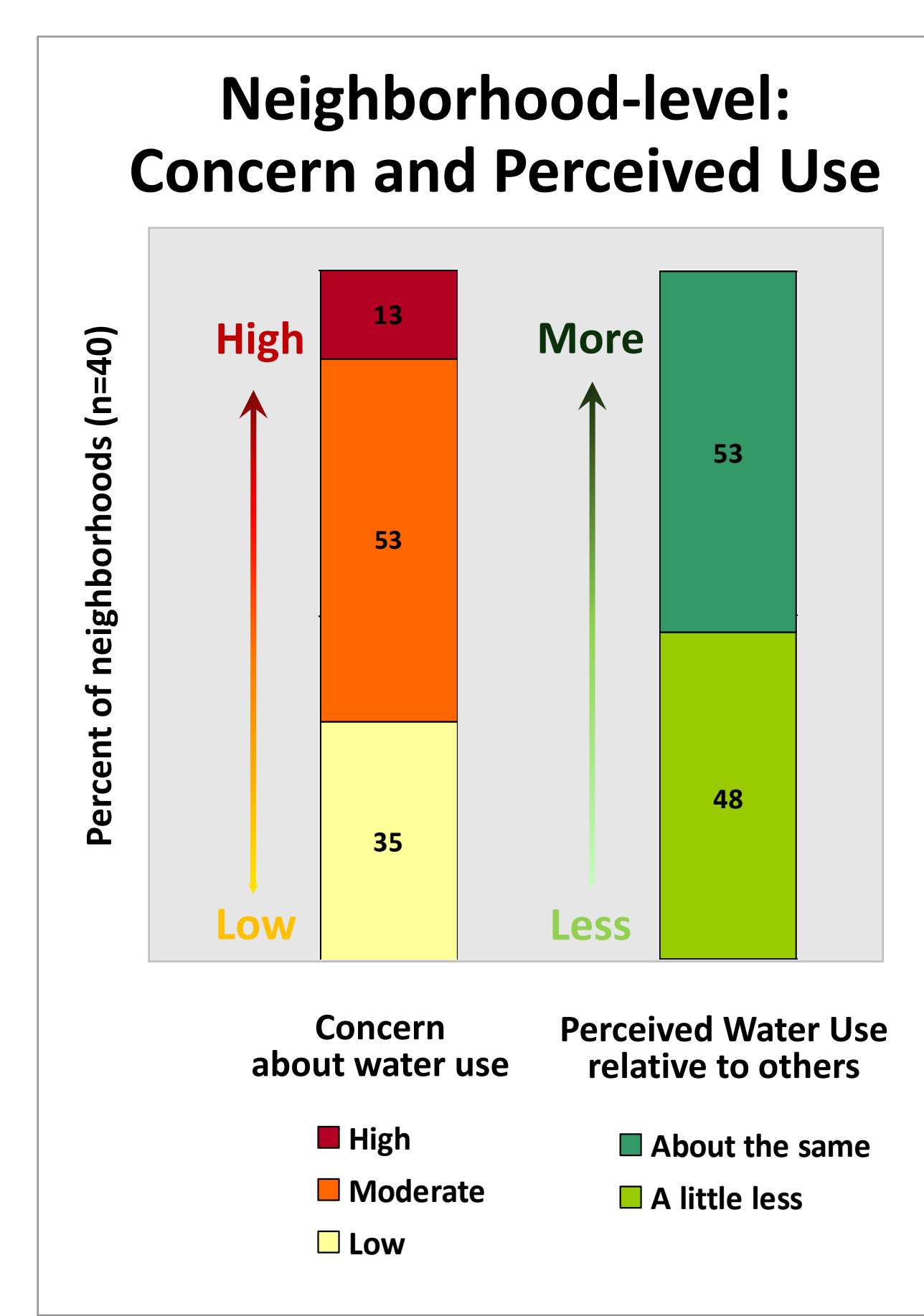
- 60% of respondents were concerned about the amount of water used by their neighbors

- 55% perceived their water use to be less than others in the Valley.



- When aggregated by neighborhood, 66% were concerned with water use by others

- None of the aggregated groups perceived their water use to be greater than others.



Disconnects between water use perceptions and behavior may lead to a diminished sense of efficacy and responsibility for water scarcity and may complicate conservation efforts in high demand, low concern/perceived use neighborhoods.

Survey analysis of 40 metropolitan neighborhoods revealed high levels of concern about local water scarcity, though respondents tended not to see themselves as using more water compared to other residents of the region. If people are concerned about water scarcity risks, but do not perceive themselves as part of the problem, this may lead to a diminished sense of responsibility or efficacy which may reduce the effectiveness of water conservation efforts.

Further analysis of the 15 study sites within Phoenix, suggests low water use may be linked to higher concern & average/low perceived use, and higher demand with lower concern & perceived use rates. High demand areas were located in low density, high income neighborhoods with newer homes around the edges of the city. Low demand sites were located in high density, low-income, inner city areas composed of mainly older homes. High demand neighborhoods might be targeted for future conservation efforts, though disconnects between perceptions and use might make conservation in these areas difficult. Next steps may include analysis of neighborhoods outside of Phoenix, and/or further analysis of significant neighborhoods within the city limits.

