

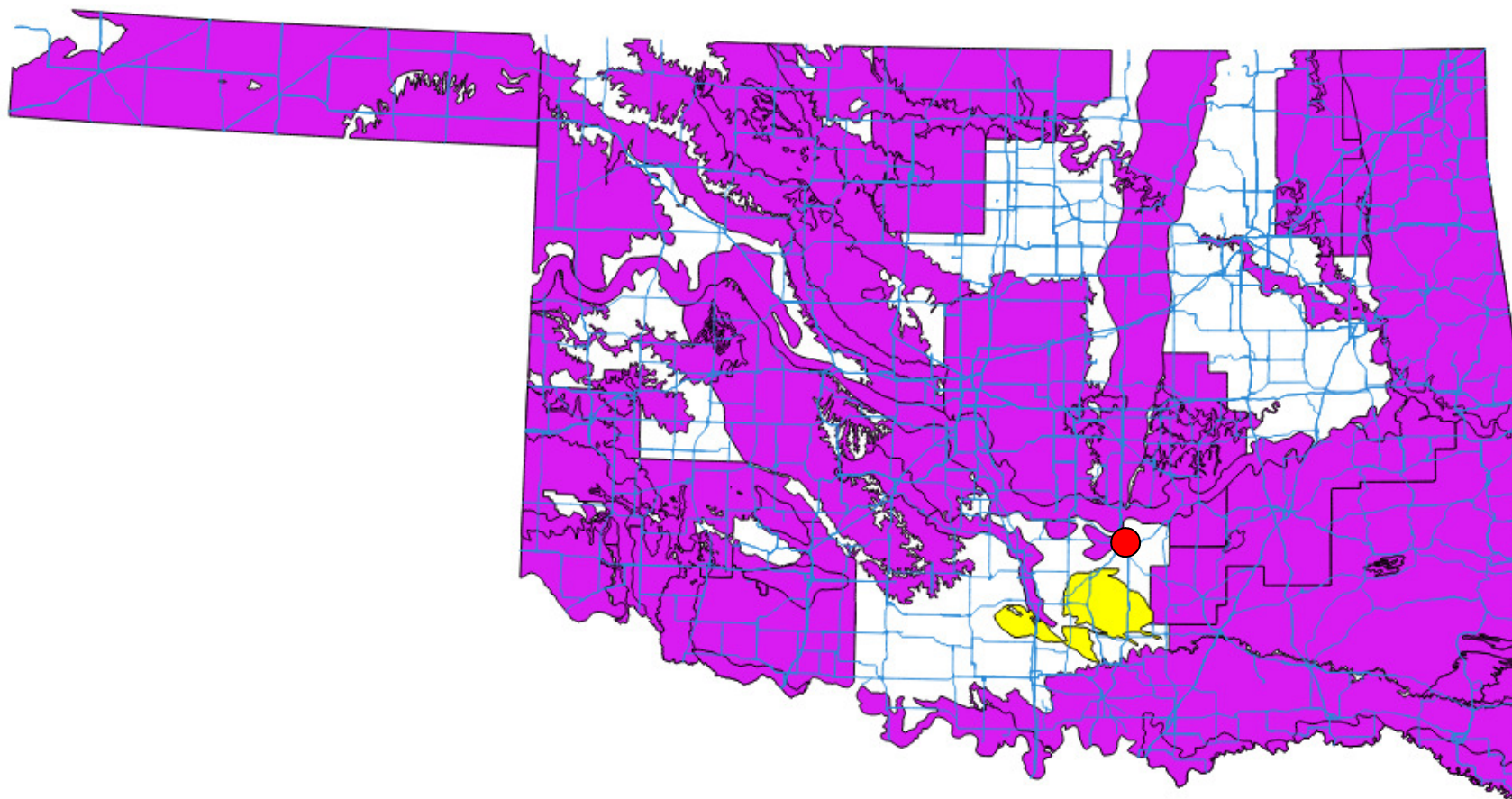


Water Use Patterns in a Small Southern Oklahoma City During Drought and Implications for Leaking Underground Storage Tanks

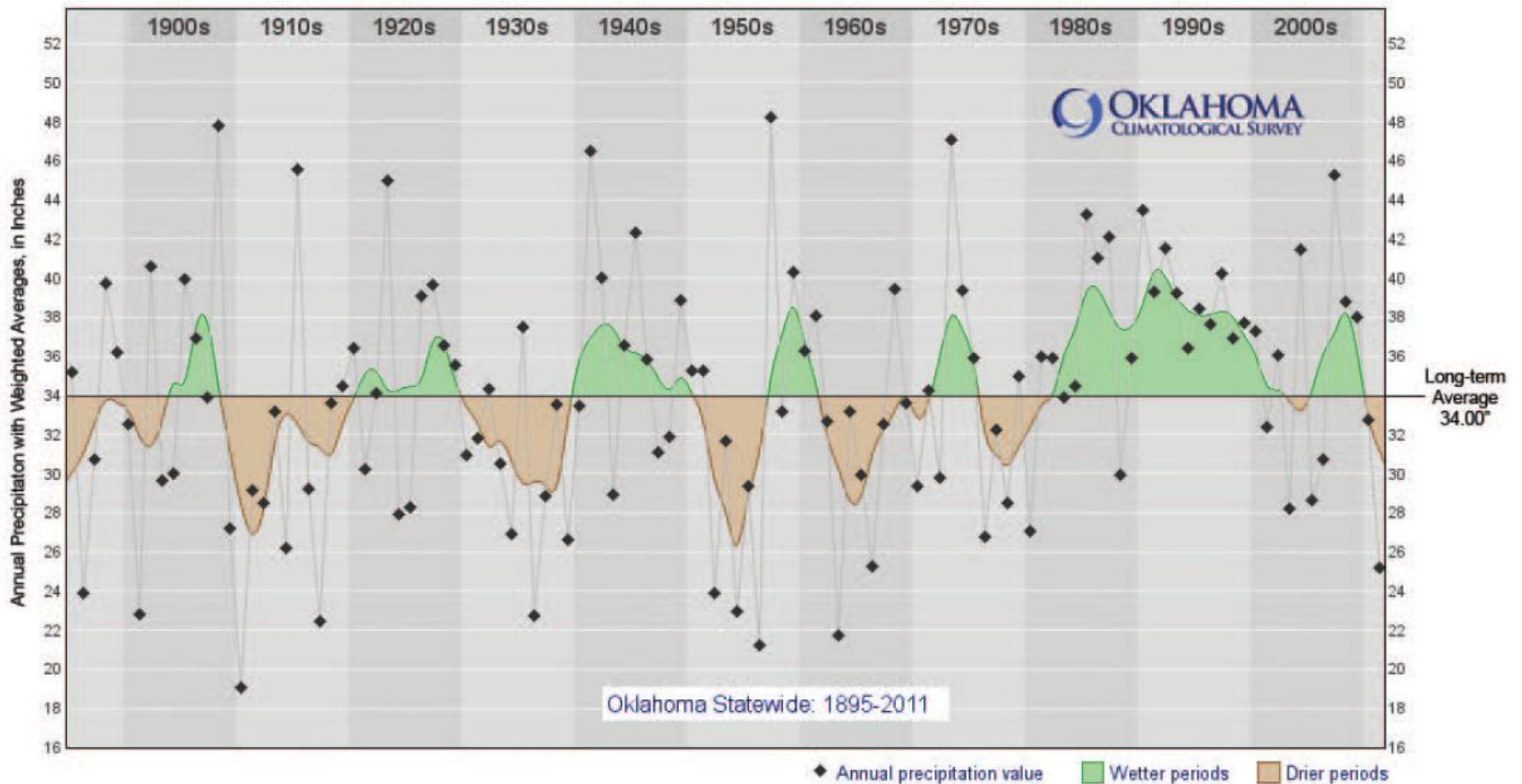
*Jim Weaver, US EPA, Office of Research and Development
Ada, OK*

Purpose and Process

- Purpose:
 - Determine characteristics of water use in Ada, OK, and relate to economic variable.
 - Determine how water use relates to leaking underground storage tank impacts.
- Process:
 - Ada Water Department customer records 2011 and 2012 (to October)
 - Customers were divided into commercial and residential groupings
 - Commercial were subdivided by business type
 - Residential were subdivided by location (city/county) and market value



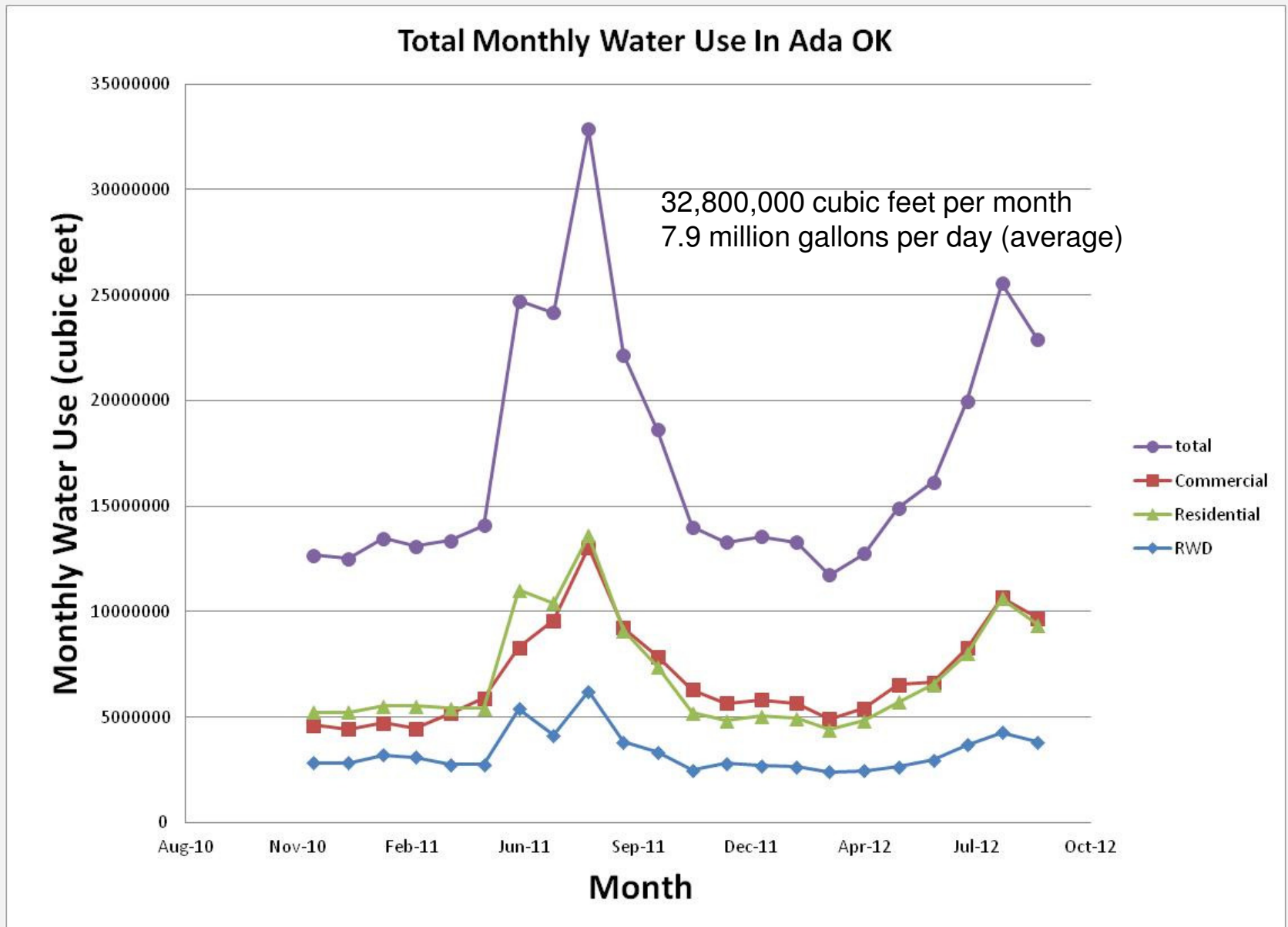
Oklahoma routinely experiences dry periods (brown);
1980s and 1990s were an unusually long wet period

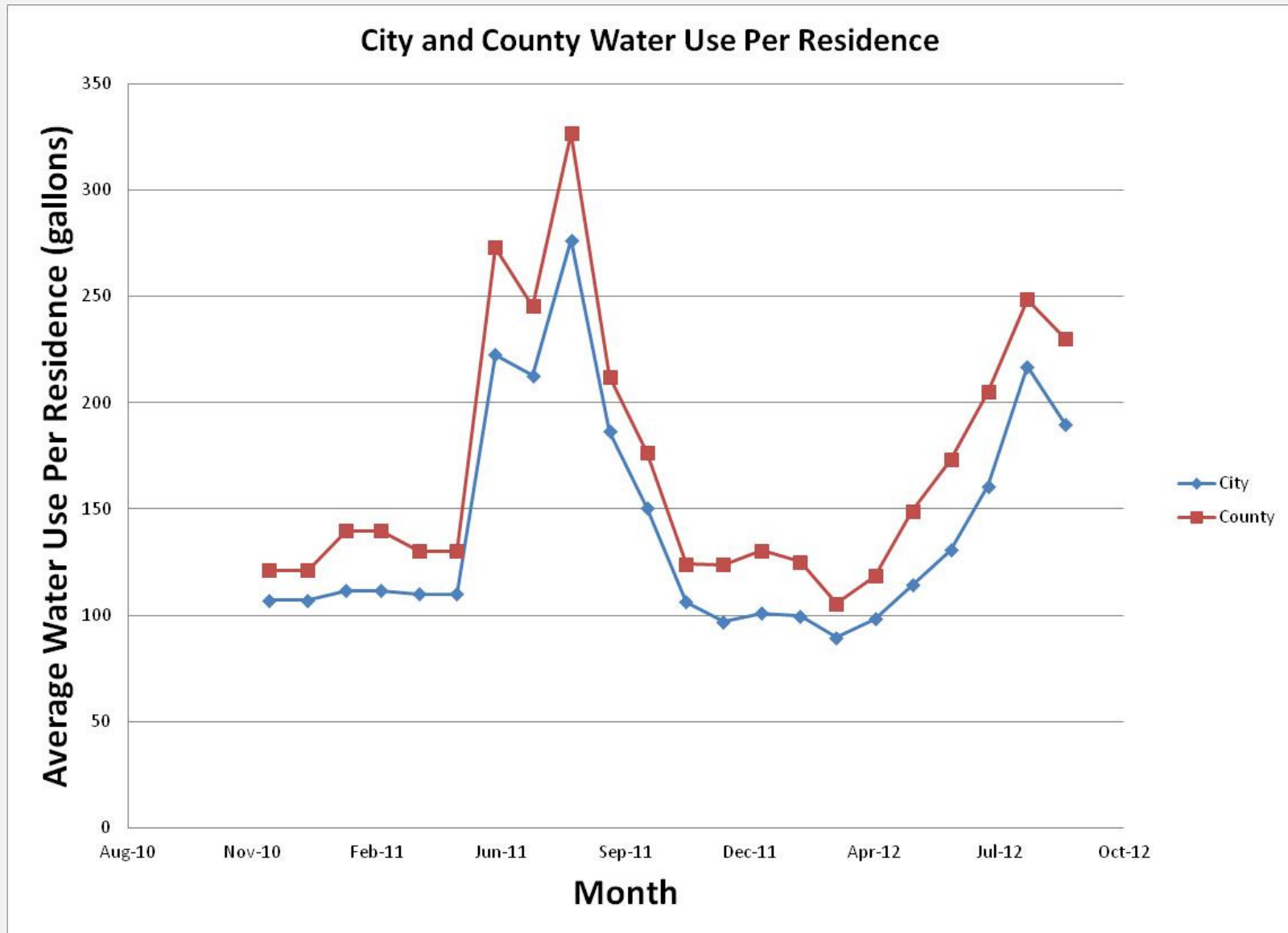


Oklahoma Water Resources Board Publication
“Hydrologic Drought of Water Year 2011: A Historical
Context”, <http://www.owrb.ok.gov/>

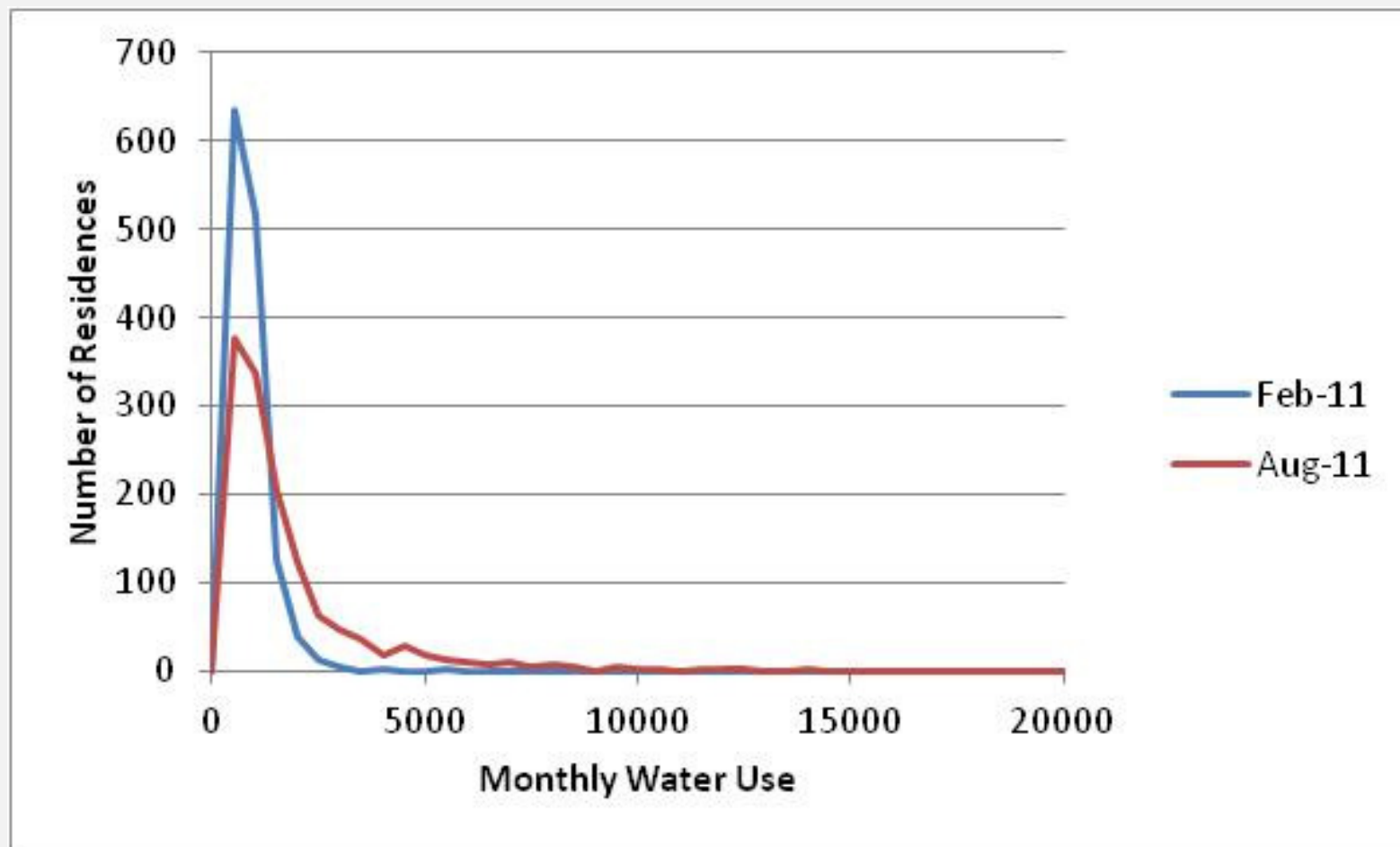
Ada Water Customers

- Residences within City Limits
- Businesses and other “commercial” customers
- Rural Water Districts
- Former customers of Rural Water Districts
 - Residential and commercial customers outside City Limits

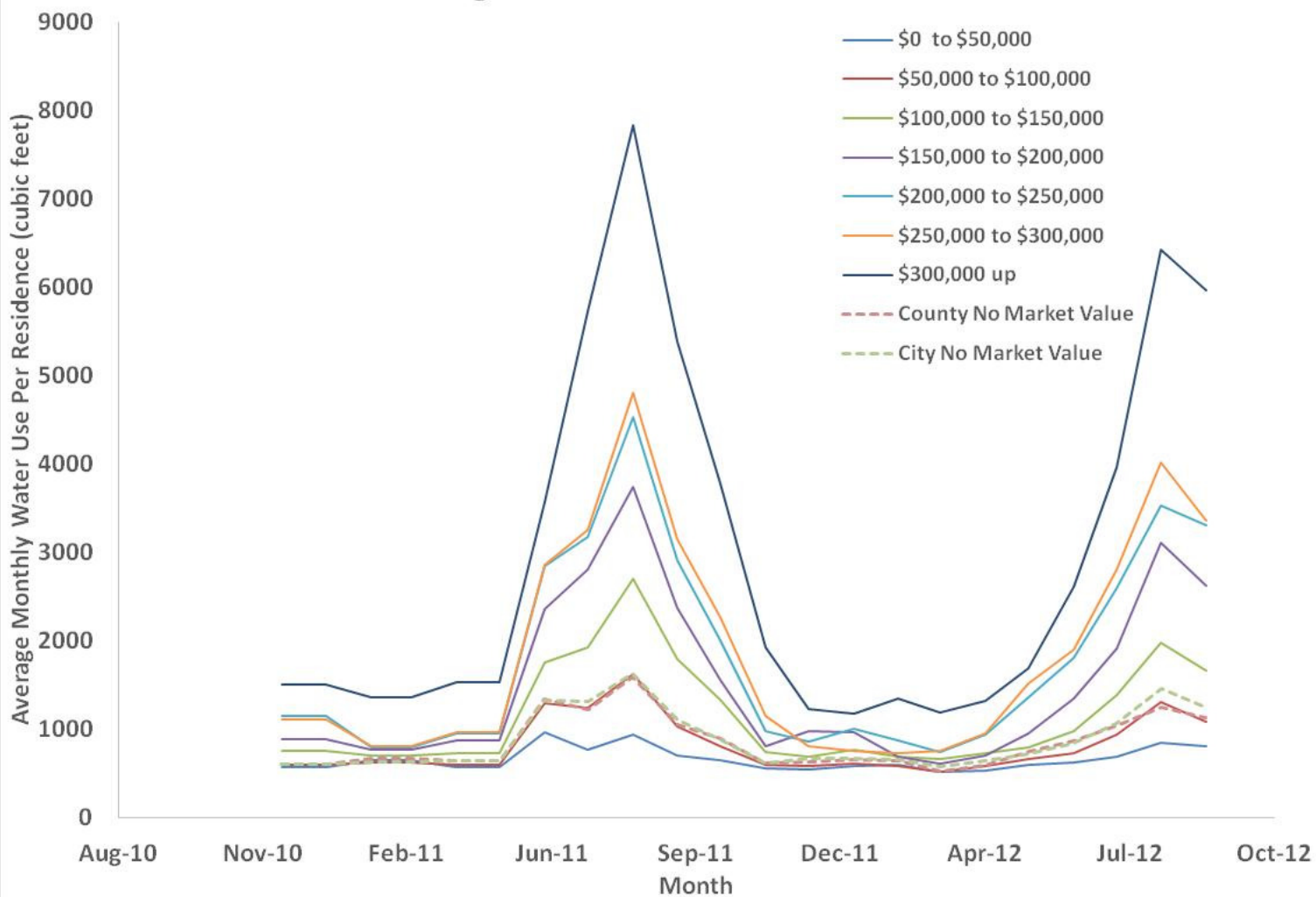


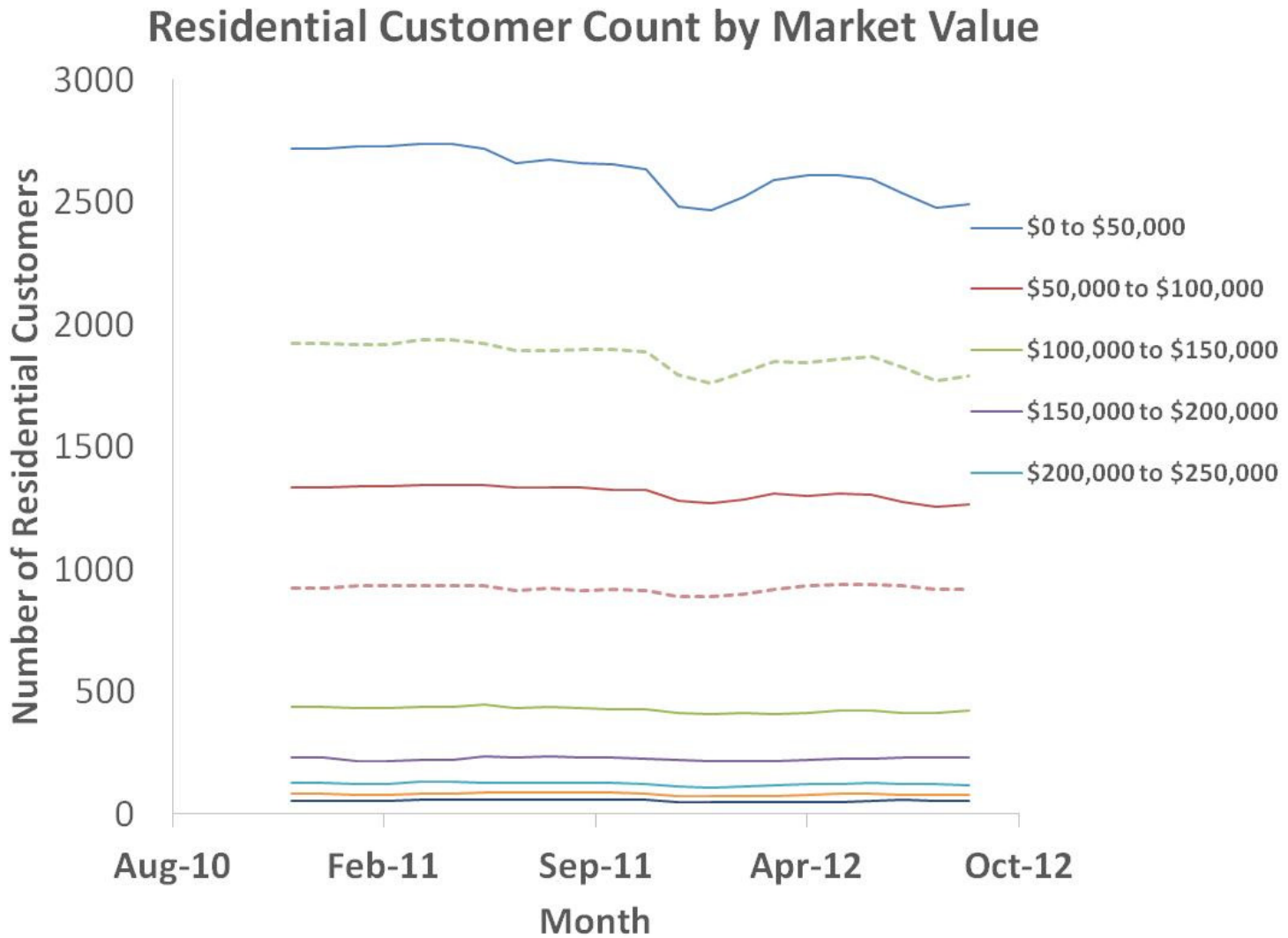


Typical Skewed Frequency Distribution (market value < \$50,000)

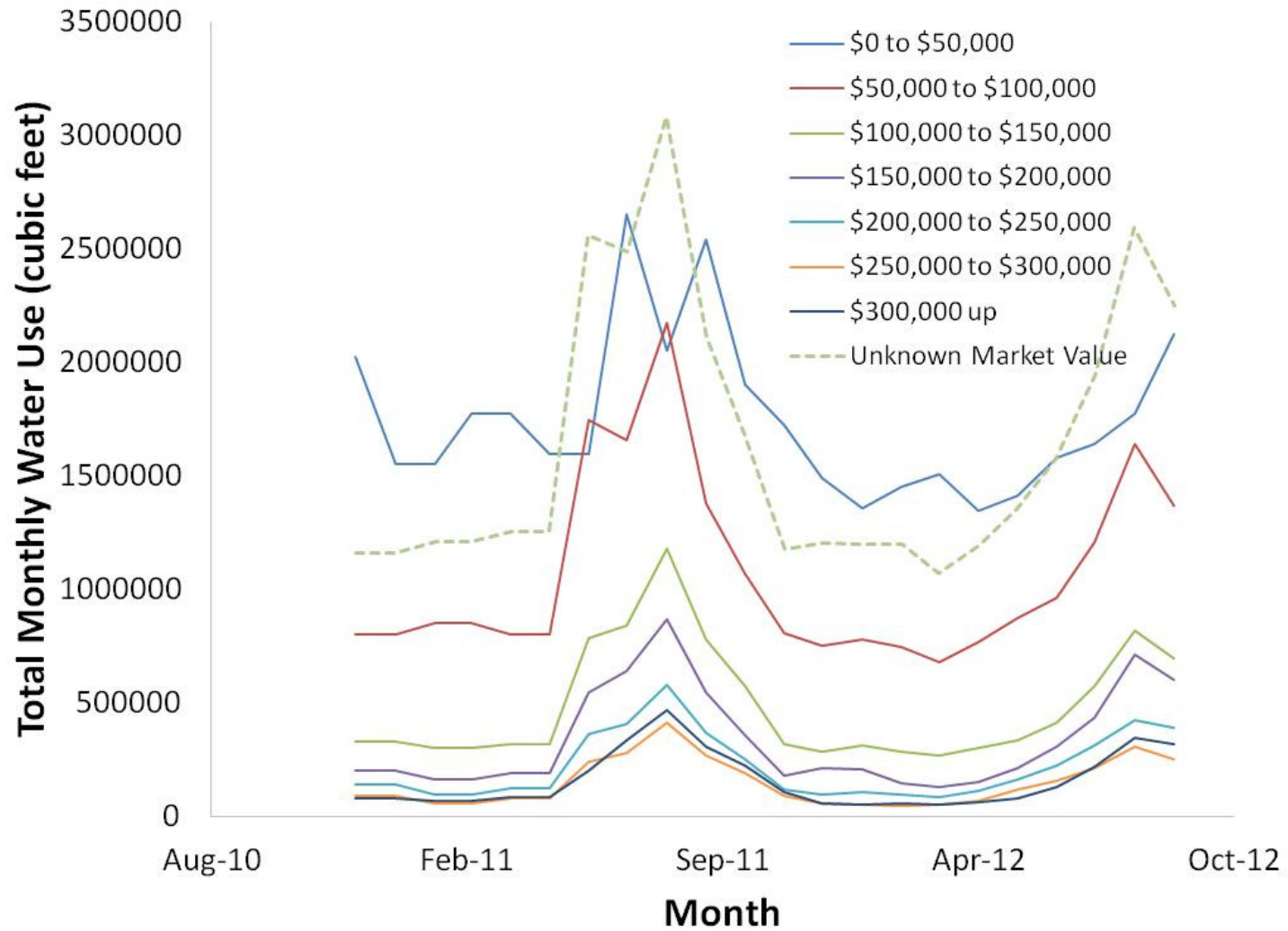


Average Ada Residential Water Use

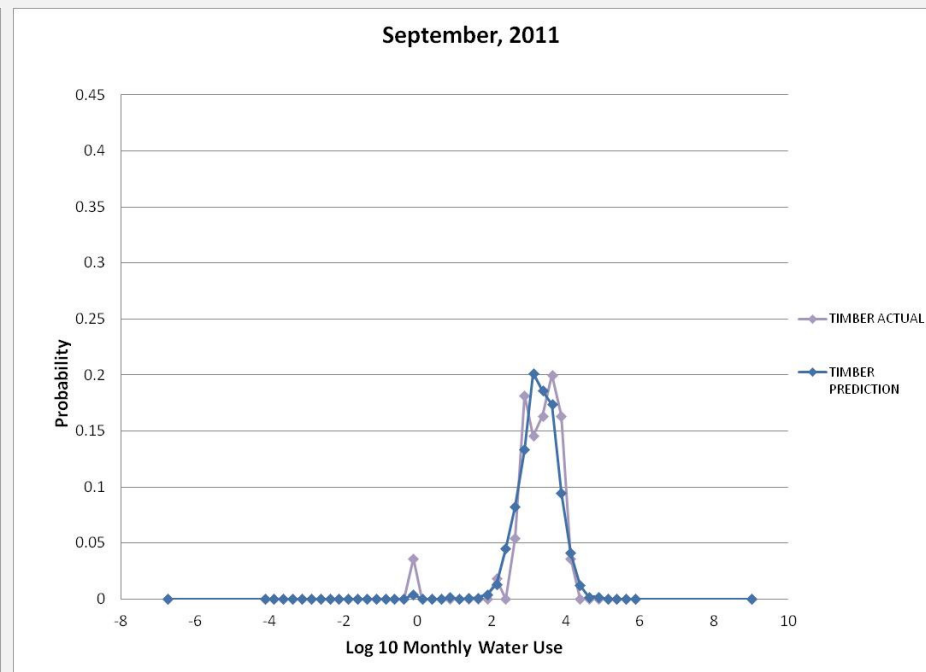
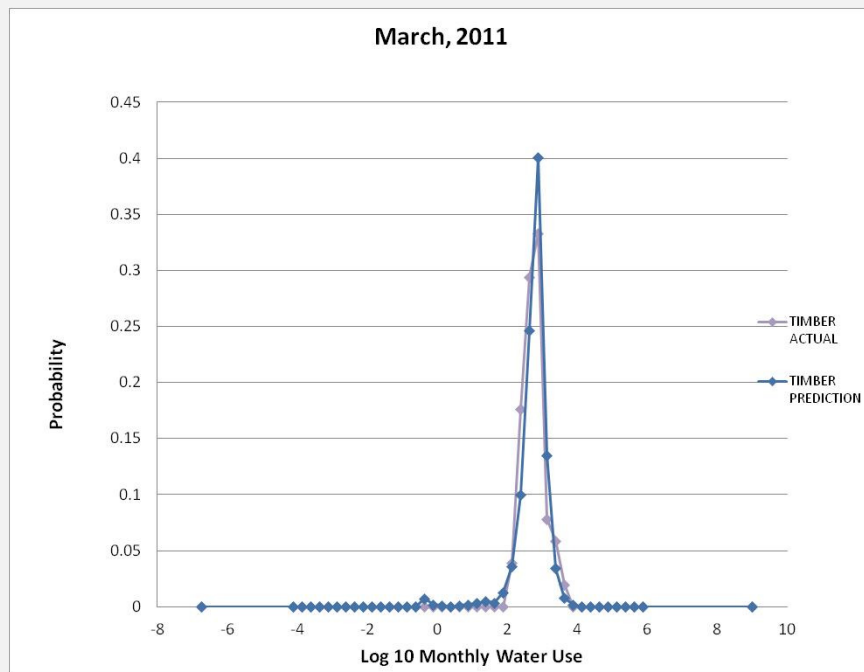




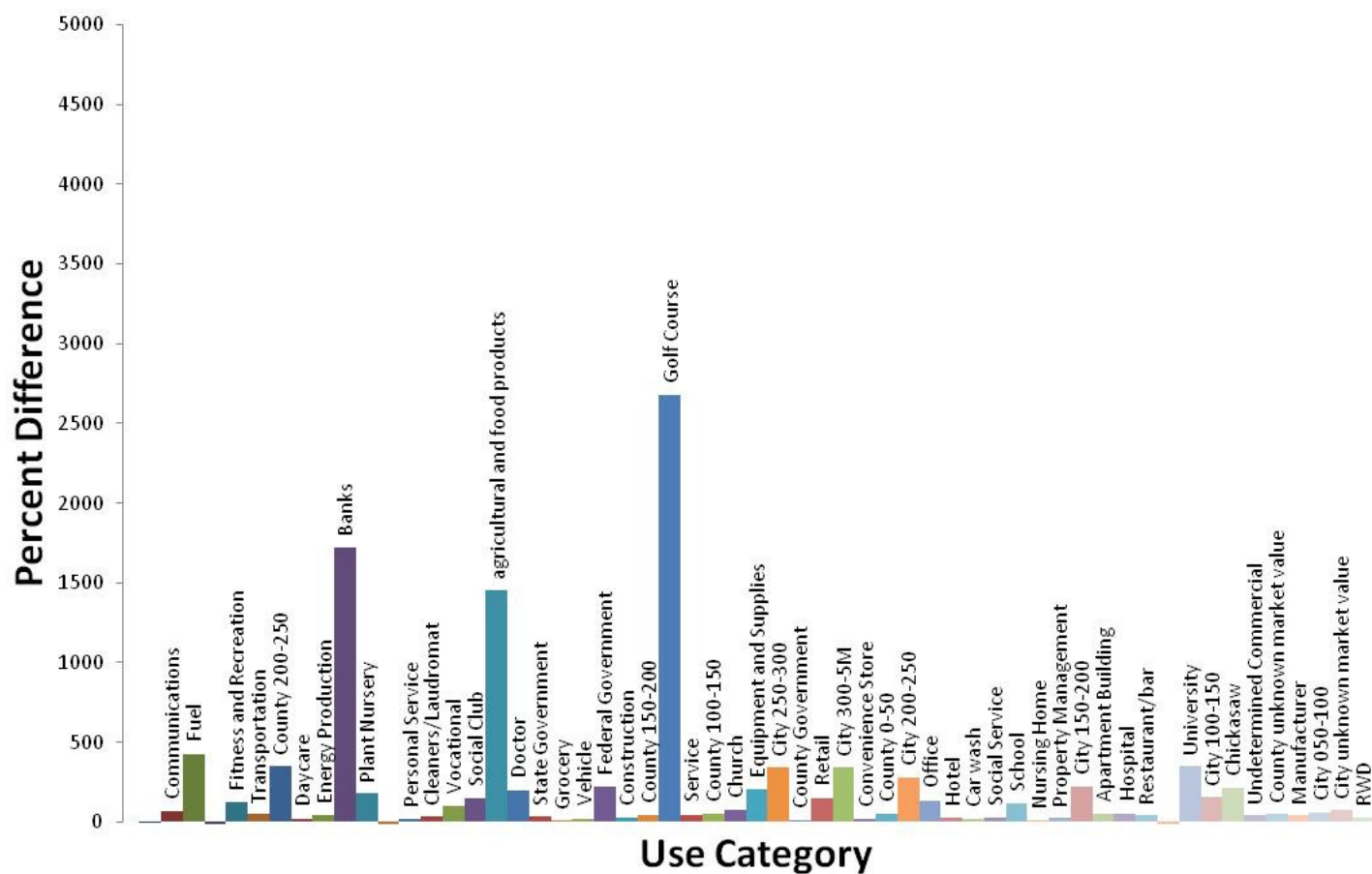
Total Residential Ada Water Use by Market Value

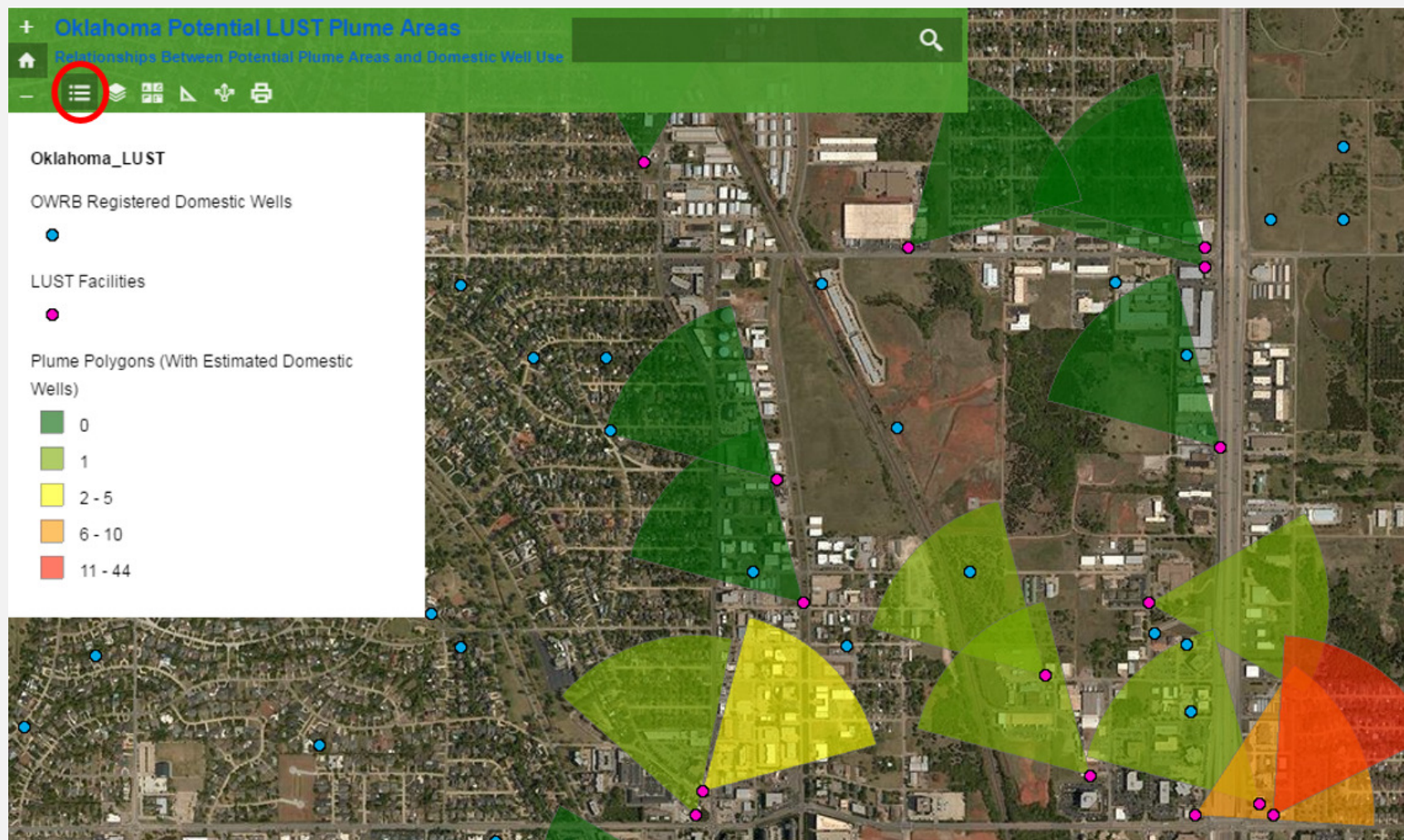


Predicted Neighborhood (Timber Terrace/Foliage Drive) Water Use on from Market Values



Percent Difference Between February 2011 and August 2011 Water Use





Conclusions

- Water supplied by Ada is divided almost equally between residential and commercial customers
- Dividing residences by County Assessor total market value shows that all customer groups have members who use more water in the summer
 - Generally the increases are due to a relatively small number of customers
 - The increase is greater with higher value homes
 - More water is used by the lower value homes because there are more of them
 - Water use can be related to the census tracts through the home values
- Like the residences, some commercial customers use more water in the summer than winter
- Leaking tank sites may impact as many as 45 private wells.

Acknowledgements

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