

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



Single Family Residential Water Use Before and after Drought Code Restrictions

Mitchell Morgan
Kent Sovocool
Michael Drinkwine

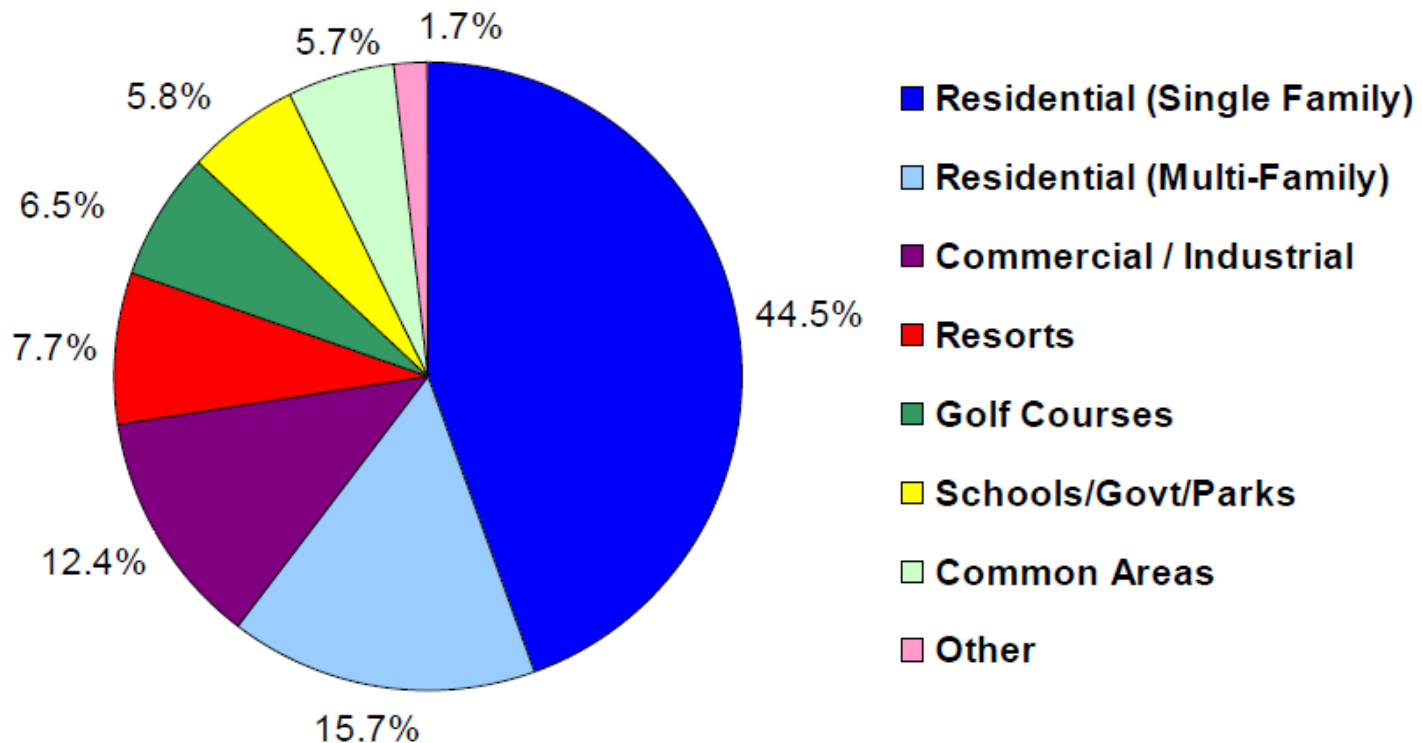
Water Smart Innovations 2014

Las Vegas Valley Responds to Drought

- By 2002 it became clear that the Colorado River system had settled into a multi-year drought and we needed to respond.
- In 2003 the various municipalities in the Las Vegas Valley passed drought mitigating ordinances, largely centering on turf restrictions for new construction.
- Turf is prohibited in front yards and is limited to a maximum of 50 percent the landscape area in backyards.
- These were made permanent in 2005.
- This study was done to quantify the savings in water use from the landscape development policy.

Water Use By Sector

2012 SNWA Service Area Municipal Metered Water Consumption

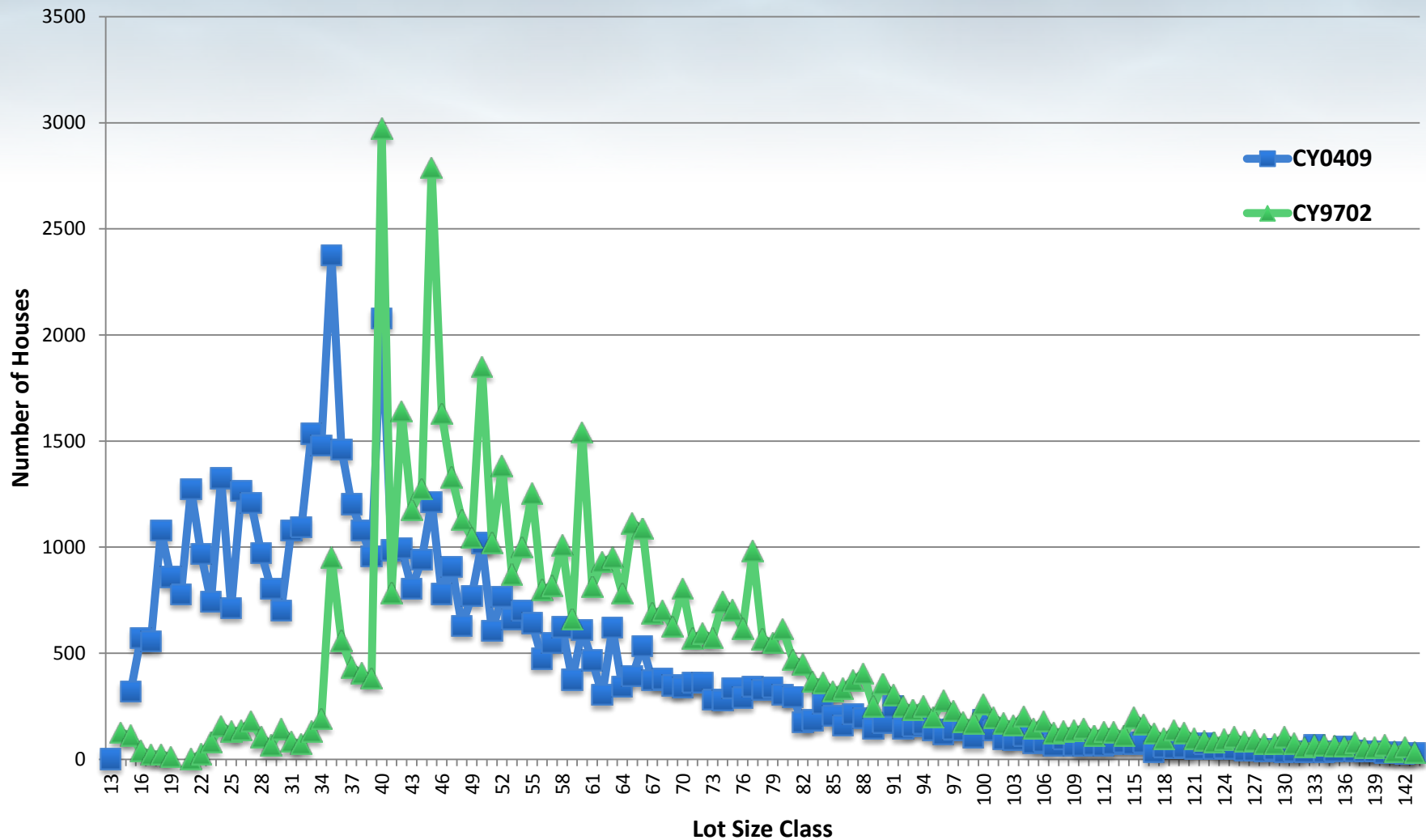


Methods

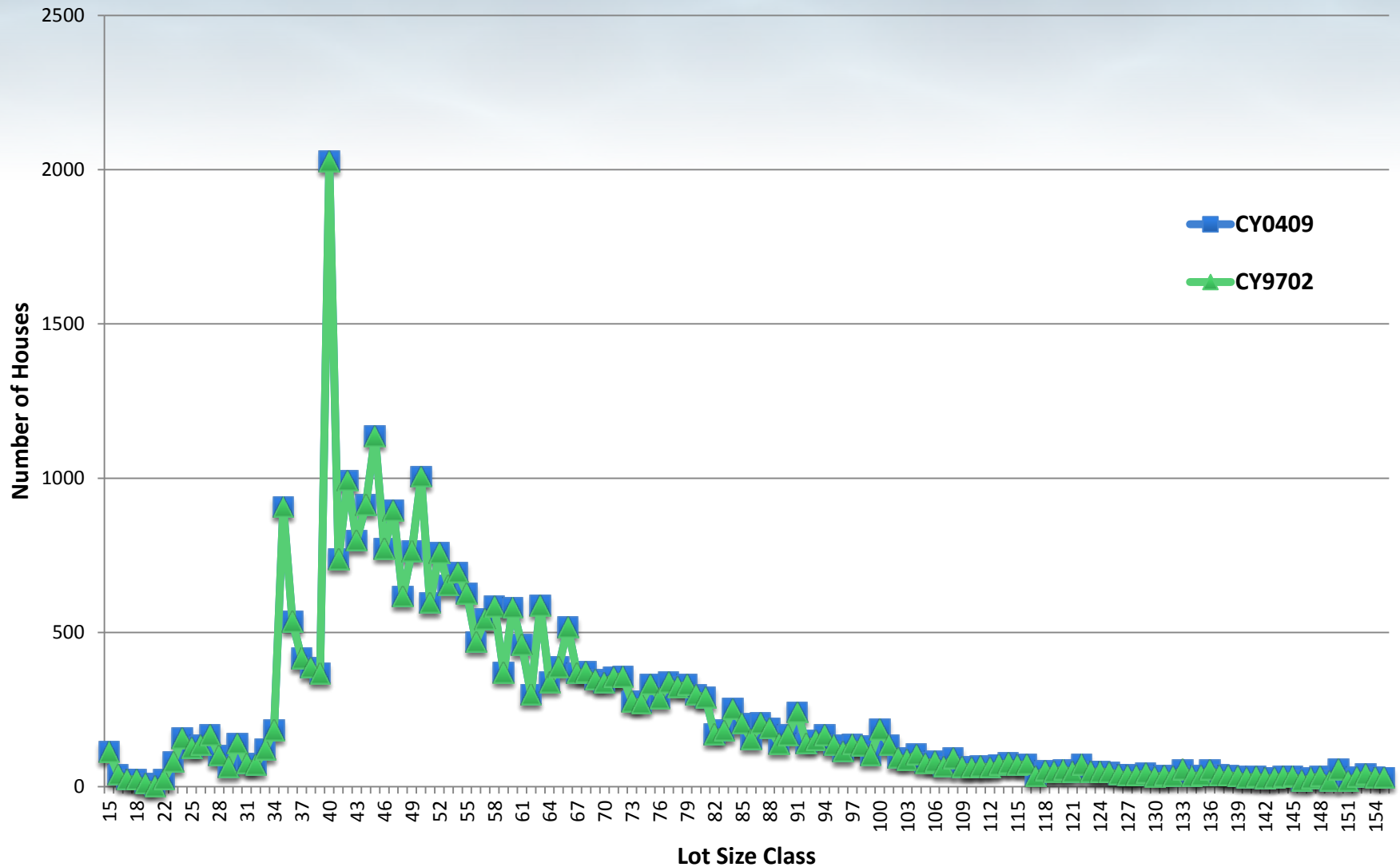
Selection Process

- Started from a pool of over 100,000 active single family residential (SFR) accounts that had use for every month in 2012.
 - This eliminates “Snow Bird” & “Fire Bat” seasonal residents.
- Divided into two groups: those constructed six years prior to 2003 and those built in the six years after (designated CY9702 & CY0409).
- Removed any that participated in our rebate programs.

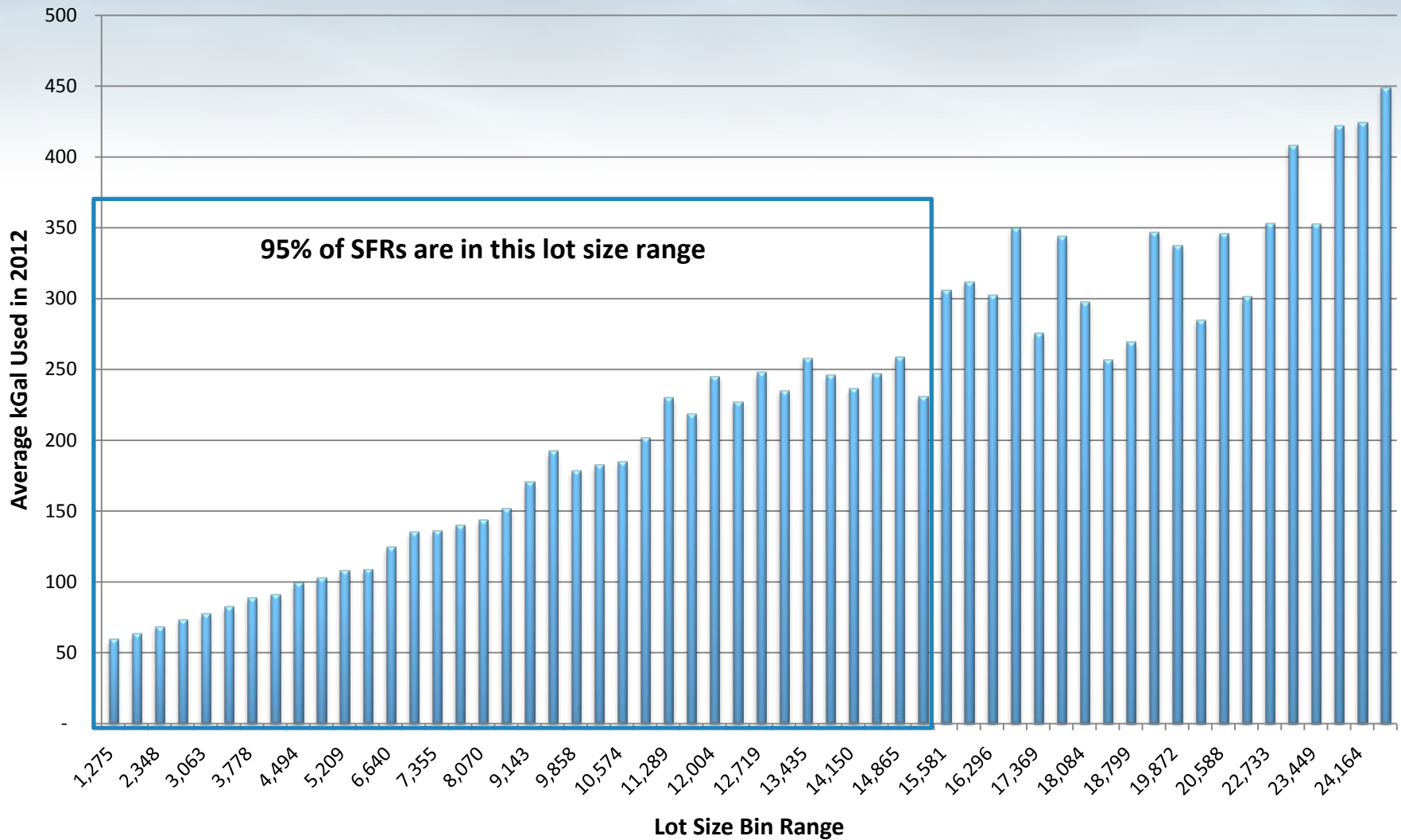
Lot Size Distributions



Sample Lot Size Distribution

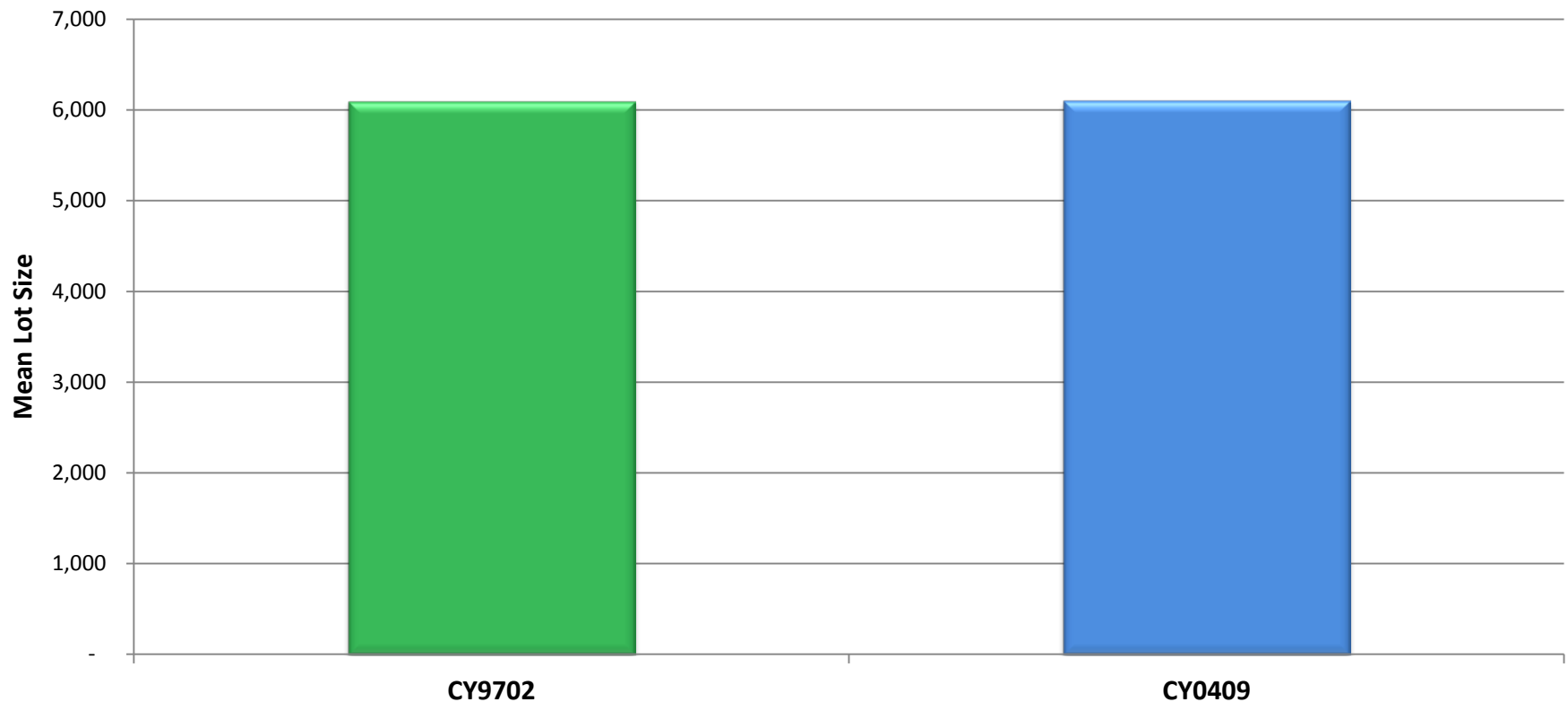


Average of Total by Lot Size Range



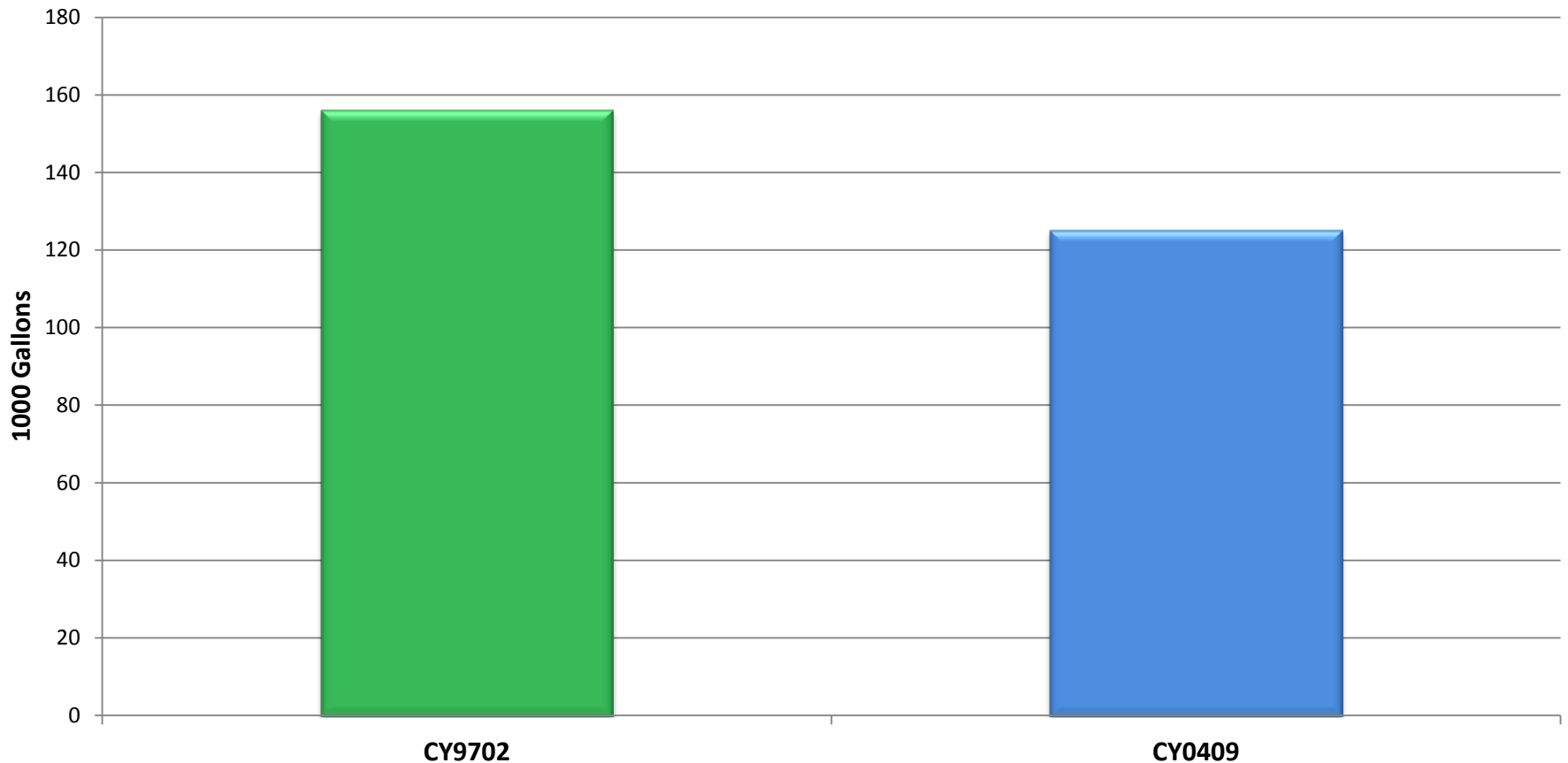
Final Sample

- Just over 34,000 residences in each group
- Lot size averages nearly equal with $p > .91$



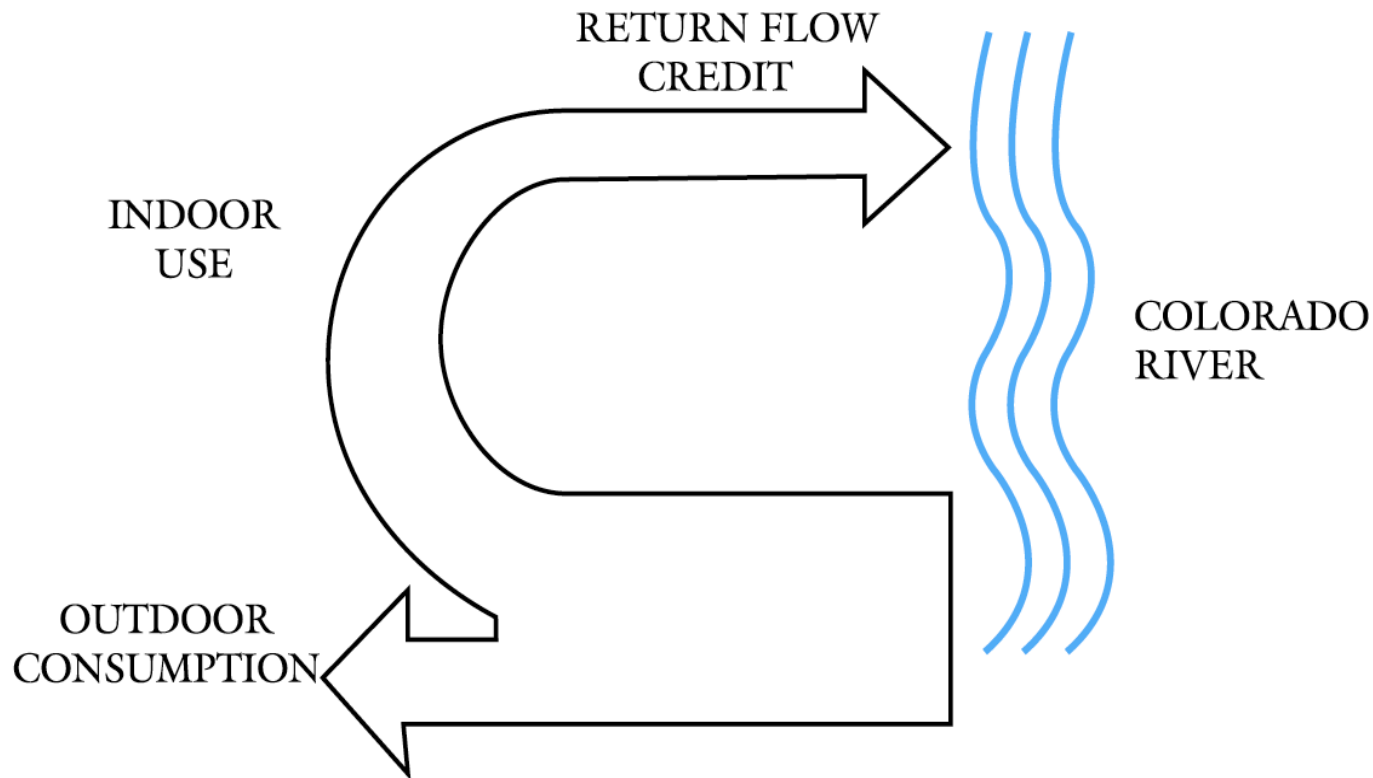
Average Total 2012 Use

19.8% Reduction, $p < 0.00$



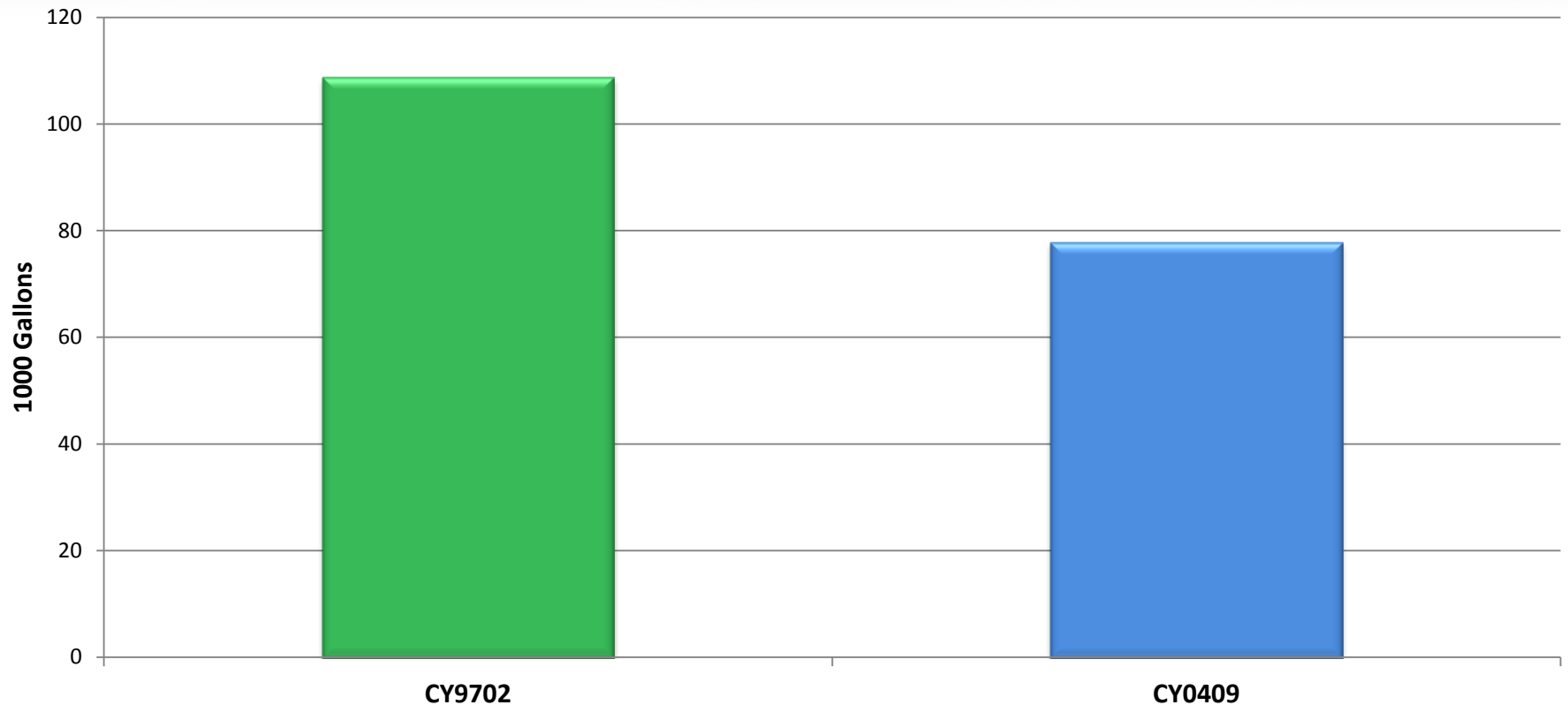
Targeting Consumptive Use

- For SNWA consumptive use is all outdoor use as we get return flow credits for all indoor use.



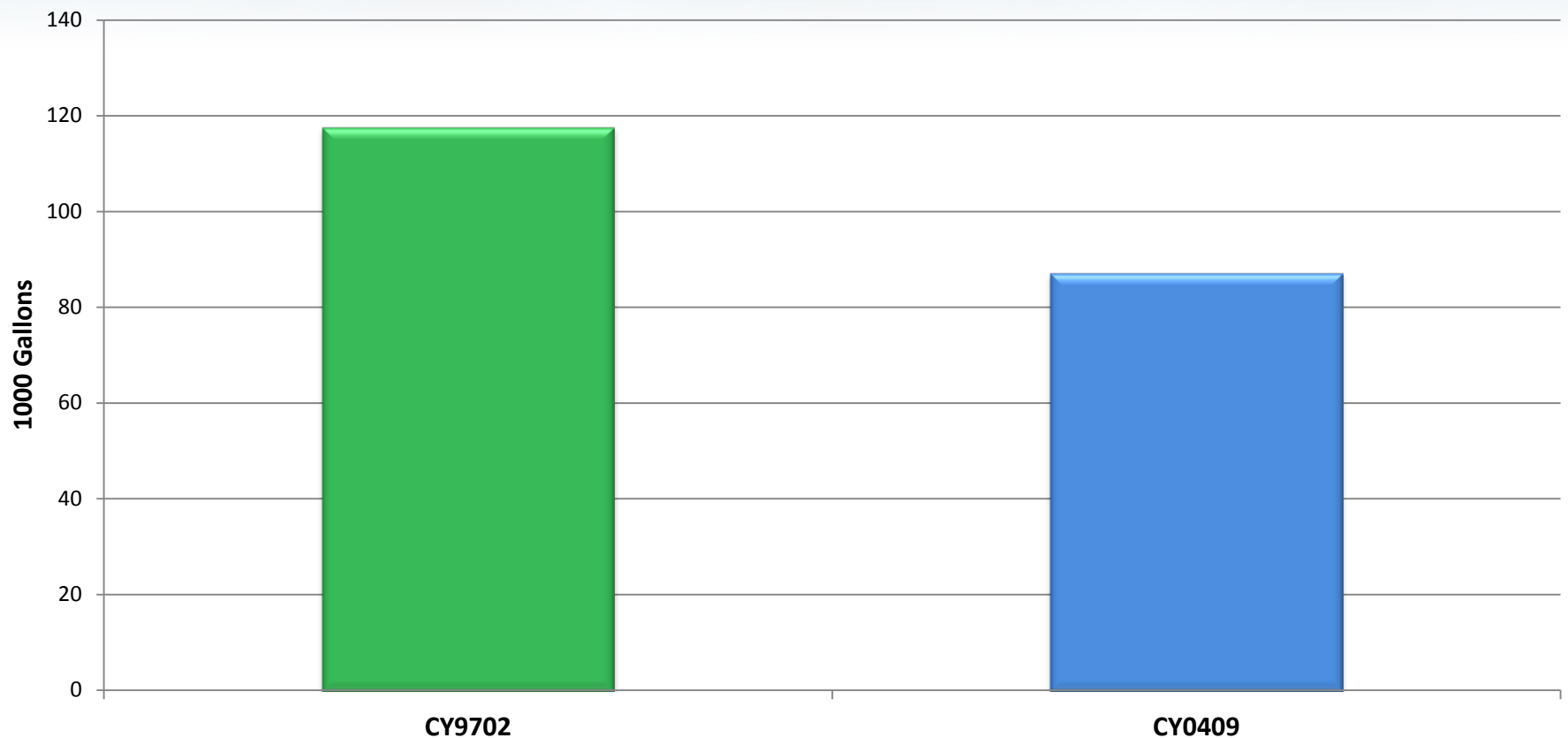
Average Outdoor 2012 Use

28.5% Reduction, $p < 0.00$



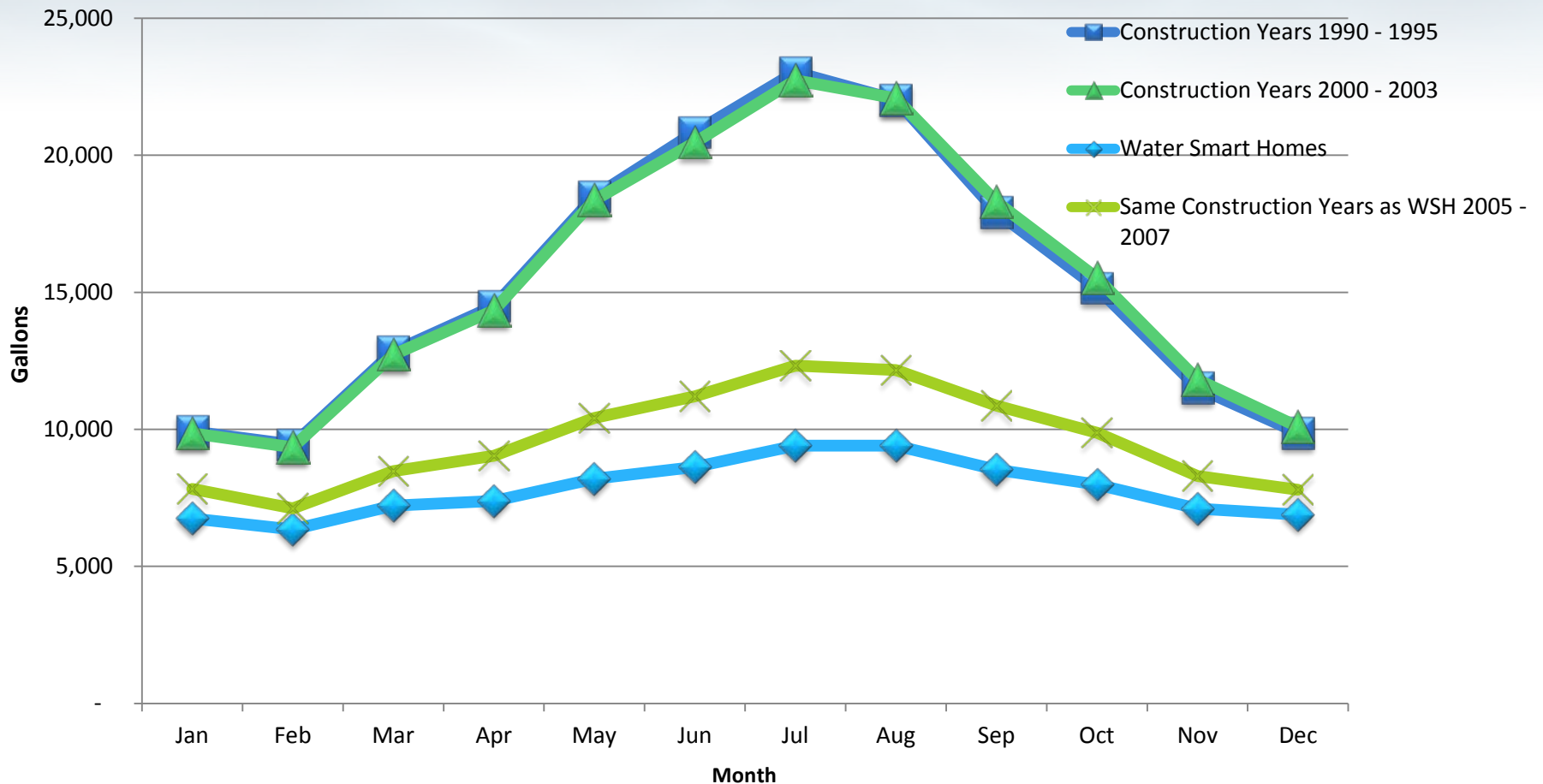
Average Outdoor 2012 Use

25.9% Reduction, $p < 0.00$

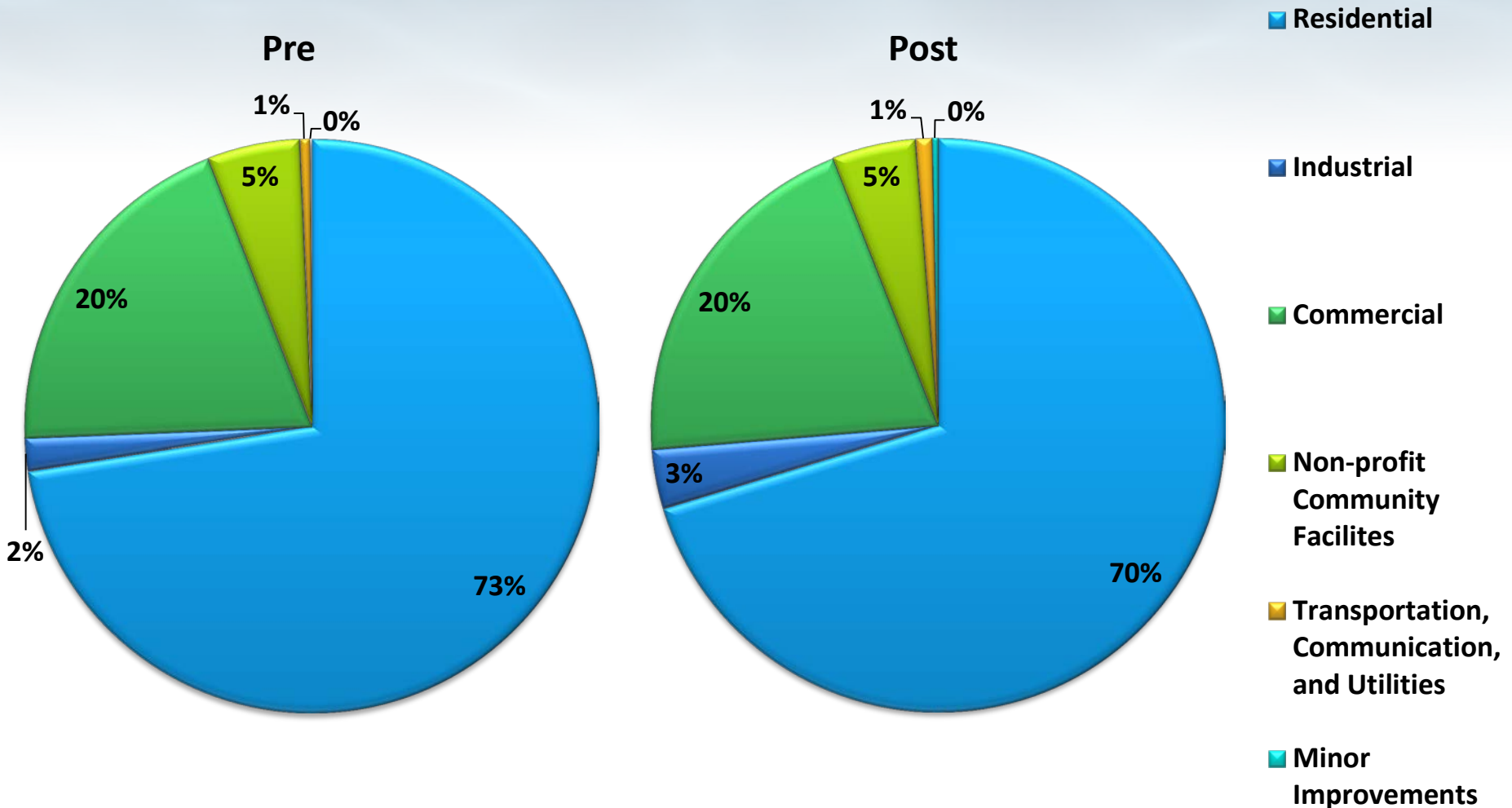


Limited Indoor Savings

Average Monthly Consumption for 2007 & 2008



Average 2011 & 12 Pre / Post Consumption By Land Use Source



Conclusions

- We're here to kick ass and chew bubblegum.
 - And we're all out of bubblegum.
- Targeting outdoor use is crucial for SNWA in terms of reducing consumptive use, but also because indoor efforts yield small returns.
- While we've made great strides with single family residences we really need to start looking at getting other sectors more involved.

Conclusions

- Post-drought code constructed homes used about 31,000 gallons less than those built before.
 - Nearly a 20% total decrease.
 - Consumptive use between 25% - 28% decrease.
- Water Smart Homes had a 49% decrease over pre-code construction.
 - This is an average difference of 91,731 gallons annually.

Questions?

[http://office.microsoft.com/en-us/templates/
water-waves-design-slides-with-video-TC101881344.aspx](http://office.microsoft.com/en-us/templates/water-waves-design-slides-with-video-TC101881344.aspx)