

This presentation premiered at WaterSmart Innovations

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SNWA's Targeted Site Visit Research Study

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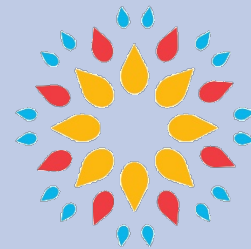
Mitchell Morgan



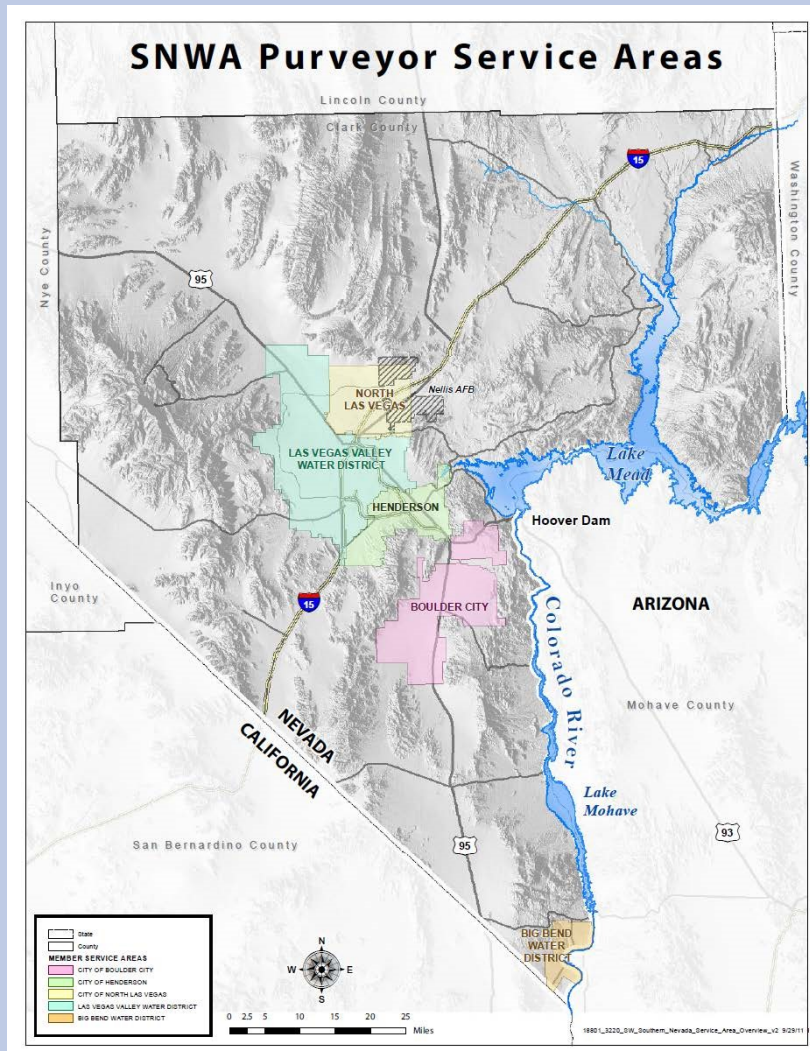
SOUTHERN NEVADA WATER AUTHORITY®

Discussion Topics

- Southern Nevada Water Authority (SNWA)
- Site Audit Program History
- Research Proposal
- Research Methodology
- Current Status
- What We Have Learned



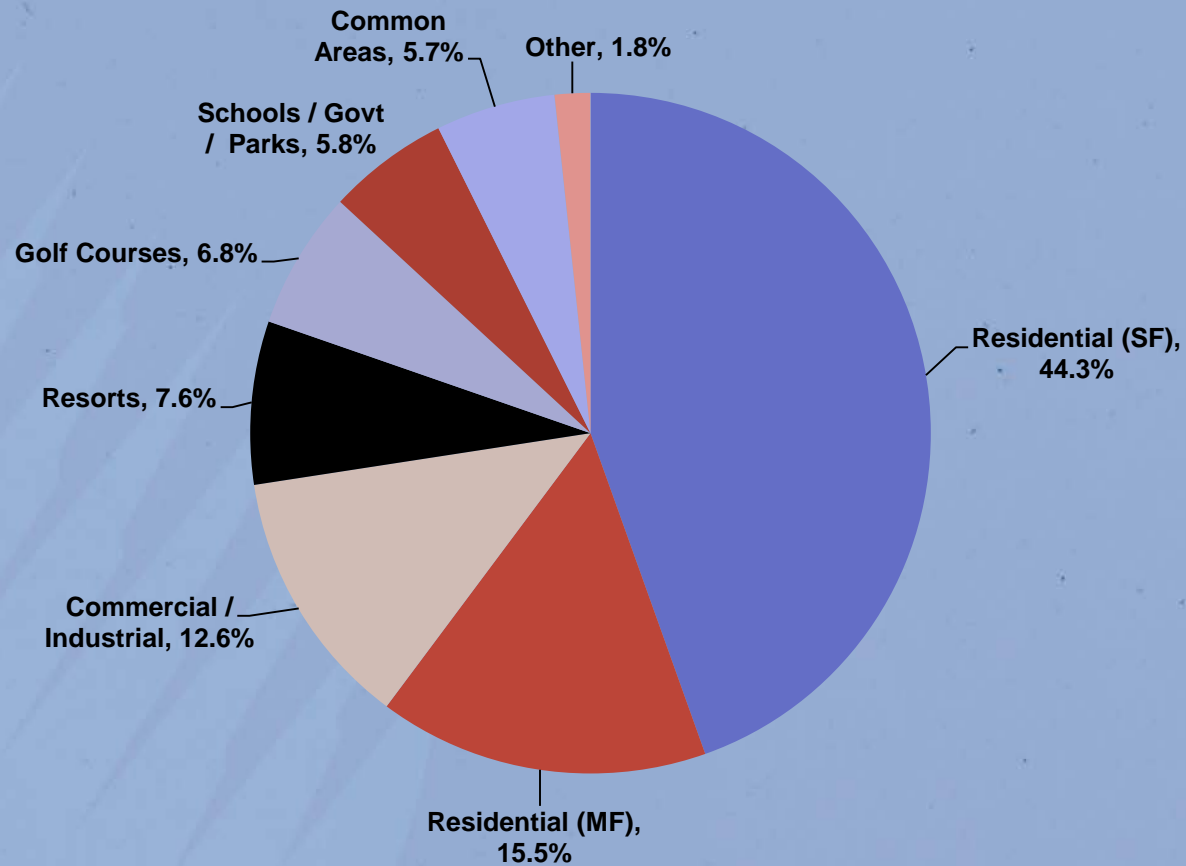
Southern Nevada Water Authority (SNWA)



Member Agencies

- Big Bend Water District
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Reclamation District
- Las Vegas Valley Water District

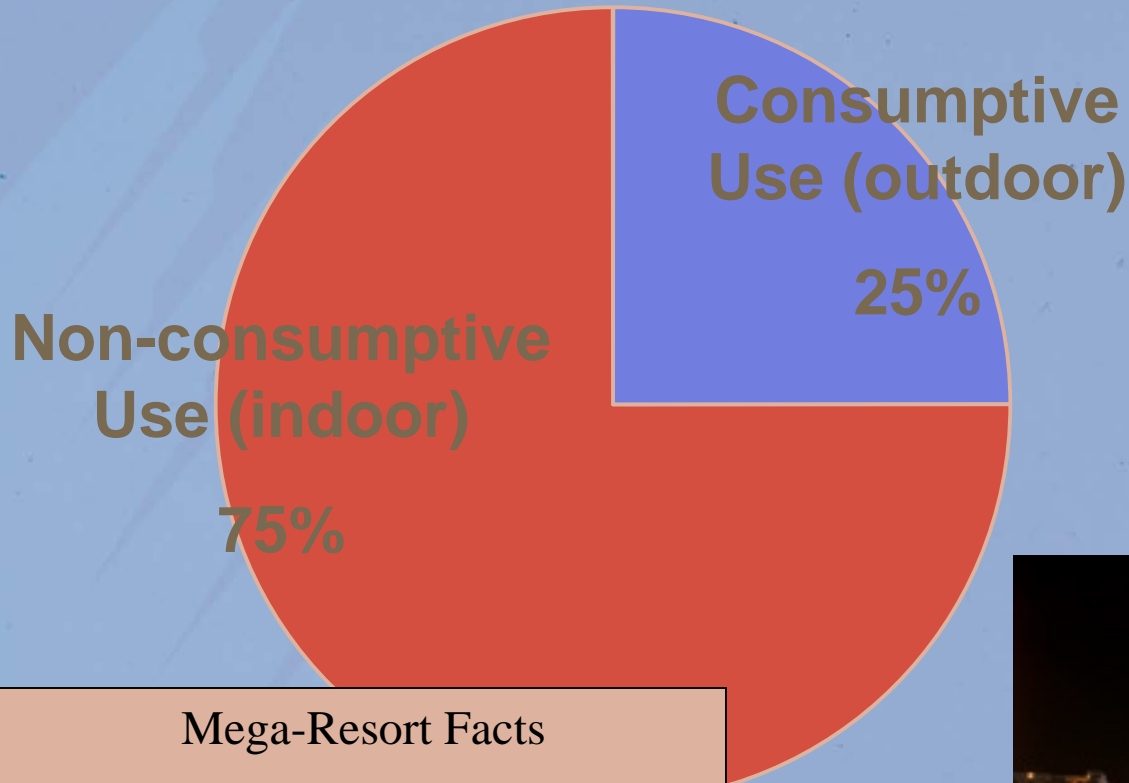
SNWA 2014 Municipal Metered Water Use by Sector



Notes:

- (a) Municipal metered water consumption billed to customers from all sources (potable and non-potable)
- (b) Potable includes ground water and Colorado River water
- (c) Non-Potable includes raw Colorado River water, reclaimed and reused water
- (d) Reflects the service areas of all SNWA agencies providing potable and/or reclaimed water

Typical Mega-Resort Water Use

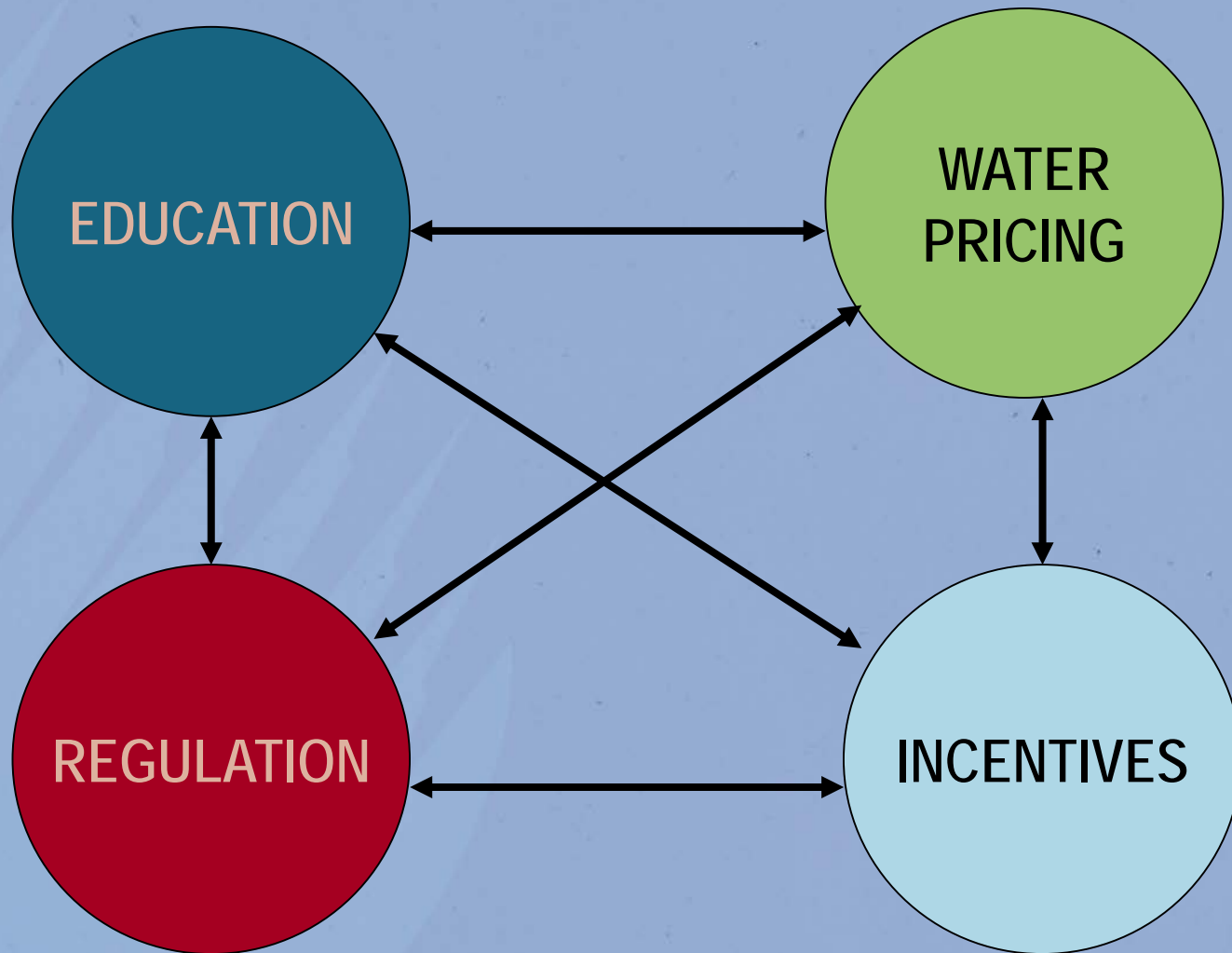


Air Conditioning water use exceeds all other consumptive uses combined

- Mega-Resort Facts
- About 3,000 rooms
 - Average 110 acre parcel
 - < 2% pools & fountains
 - < 4% landscaping
 - ~94% buildings & surfaces



Conservation Toolbox



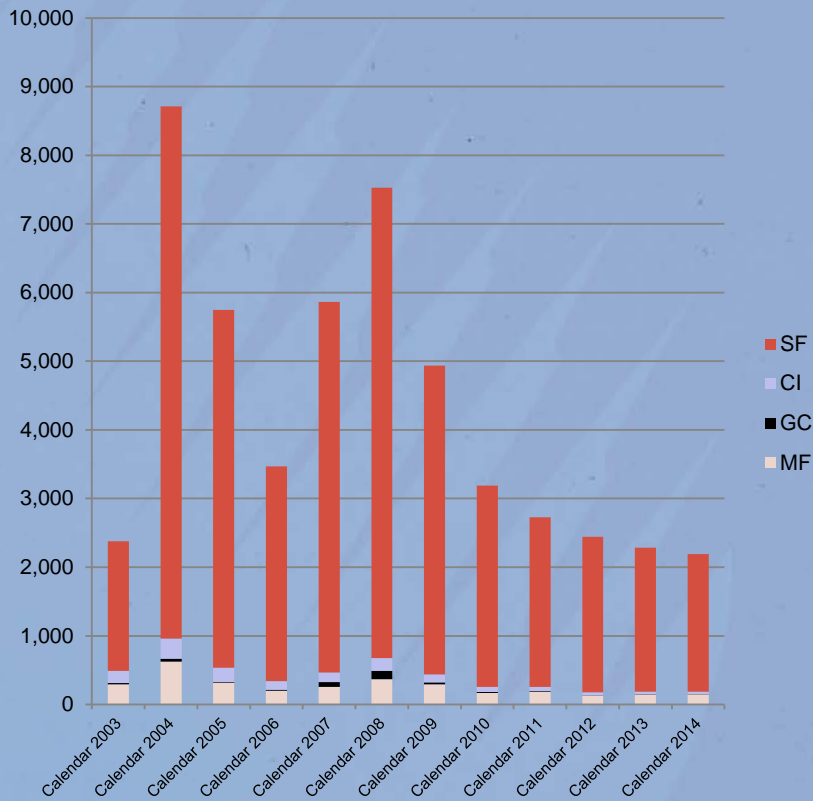
Conservation Efforts

- Reduced consumption by 33% while population has grown over 25% during the past decade
- Water Smart Landscapes (WSL)
 - Over 175 million ft² of turf removed since 1999
 - Nearly \$200 million rebated
- Water Efficient Technologies
 - 1.4 billion gallons saved each year
 - \$3.2 million rebated for commercial and multi-family projects
- Coupons and Smart Controllers
 - Over 38,000 pool covers rebated = \$2.1 million
 - Over \$350,000 rebated for smart controllers

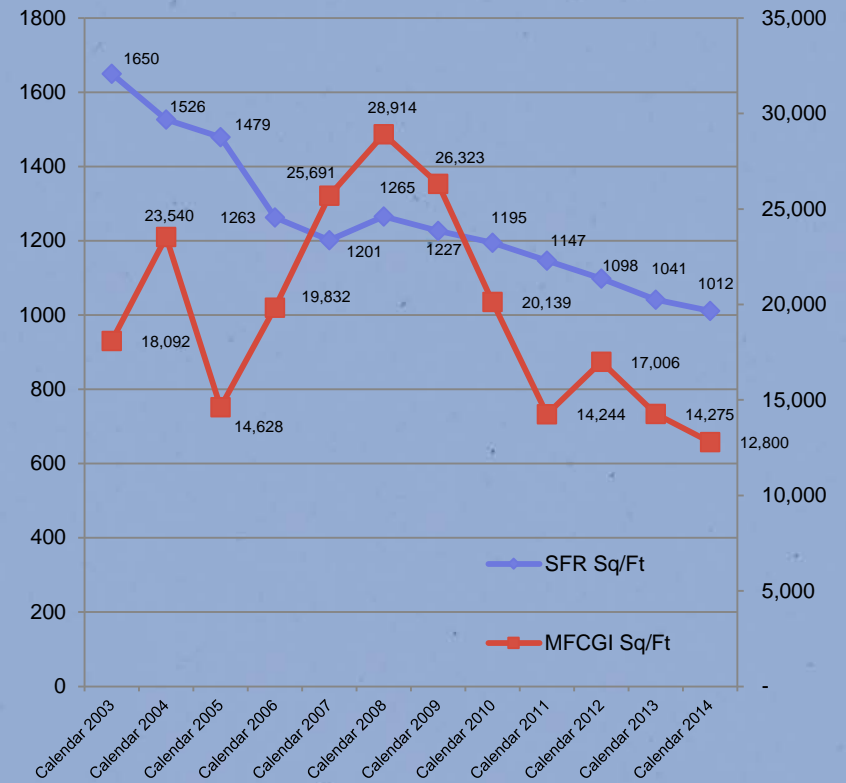


WSL Trends Over Time

WSL Enrollments per Year



WSL Project Size per Year



Site Audit Program History

- Original program in place from 1996 through 2006
- Open to all SFR customers
 - Majority of visits focused on changing irrigation clock for homeowners
- Analysis of program in 2001 found no conclusive evidence of long-term water savings
 - Short term water savings realized immediately after visit
- Program suspended



**Southern Nevada Water Authority
RESIDENTIAL SITE REVIEW/CLOCK ADJUSTMENT**

Name: _____ Address: _____ A/T # _____ Battery Check

Date: _____ Current Meter Reading: _____ Meter Movement: _____ gpm

PROGRAM _____

Station Number	Flow Rate (A)	Landscape Type	Site Review (see below)	Run Times (B)	Start Times (C)	Current Irrigation Schedule		Adjusted Irrigation Schedule				
						Days of the Week (D)	Tot Mthly Use A x B x C x D x 4=	Run Times	Start Time	Days of the Week (D)	Tot Mthly Use A x B x C x D x 4=	
Station _____						S M T W T F S					S M T W T F S	
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Site Review: 1=Spray misdirected/overspray 2=Broken sprinkler heads 3=Clogged nozzle/emitters 4=Spray pattern blocked 5=Heads/nozzles not similar 6=Spacing uneven 7=Obvious over-watering 8=Not zoned for plant requirements. Additional comments may be found on reverse side.

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• I have authorized the SNWA to conduct a residential site review. Changes made to my irrigation equipment, fixtures and/or property were explained to me and performed with my consent. I understand that participation in this program does not diminish my responsibility for complying with all applicable laws regarding water use and hold SNWA harmless for any liability that may result from the services I consented to.

SNWA Representative _____ Customer Signature _____

I have declined a Residential Site Review at this time.

What has changed since then?

- Other agencies have had success with site audits to reduce demand
- Marketing and messaging
- Increased awareness of water resource issues
 - Continued drought on the Colorado River Basin
 - Media coverage of issues in California



Sept 1998
1215'



Lake Mead
Wash and Marina

March 2014
1085'



Research Proposal

- **Will site visits and/or customized messaging targeted towards high water using single-family residential (SFR) households be an effective tool to educate residents and reduce water consumption in the Las Vegas Valley?**
- Use site audits to identify issues and educate SFR households how to save water indoors and outdoors
 - Site visits geared towards high usage properties have had success in other municipalities
 - Educating the population about the specific benefits of a product or behavior and localized information on community issues can be an effective way to modify behavior
- Use messaging to encourage and educate households
 - Targeted marketing towards higher water using properties has proven successful in reducing demand in other areas
 - Higher income households less sensitive to price, more responsive to education, more easily able to adopt efficiency products

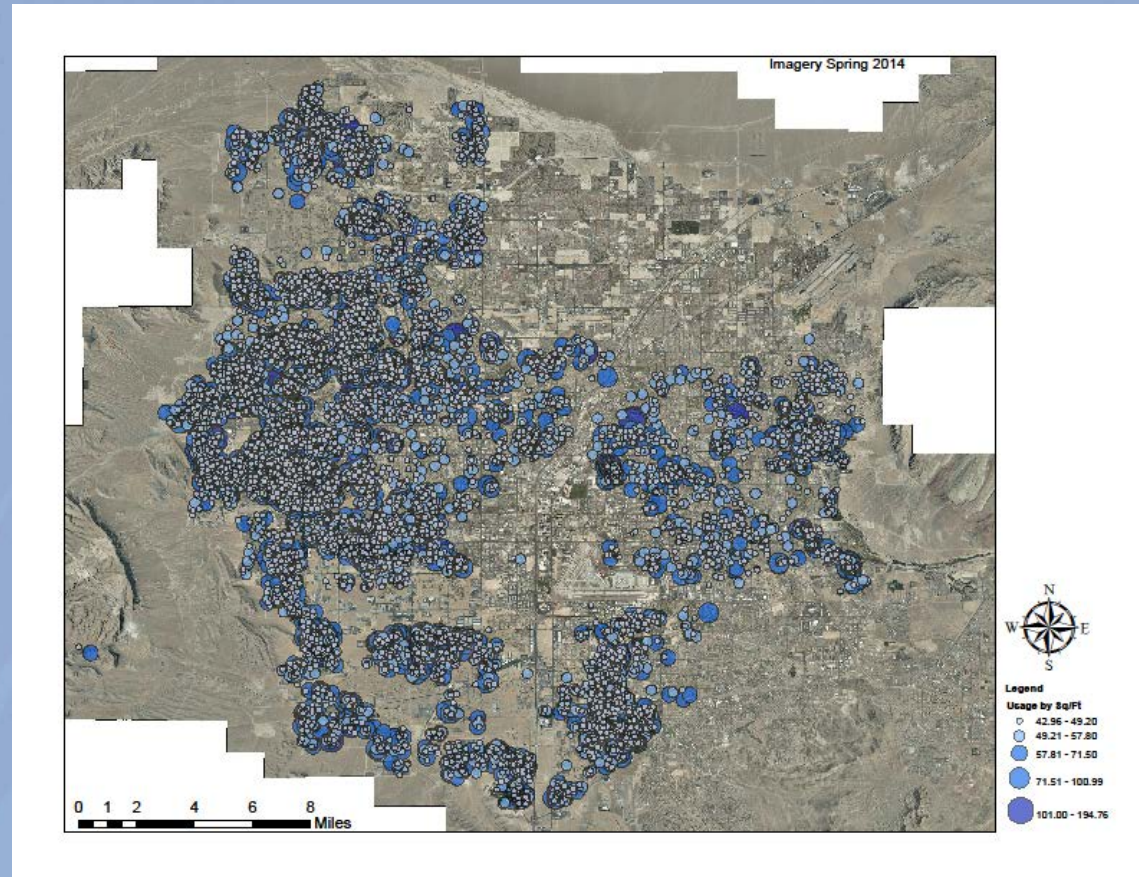
Study Population

- Top water users
 - Potential future program in mind
 - Top 5% of SFR water users account for almost 20% of sector usage
 - Top 5% of SFR water users based on lot size (usage per ft²) account for 11% of sector usage
 - Over 4.65 billion gallons of usage a year for this group
 - If the top 5% reduced usage by just 10%, over 465 million gallons, or 1,400 acre feet, could be saved yearly



Top 5% based on lot size

- 14,900 properties
 - Based on usage per ft² of lot size
- ≈ 312,000 gallons used annually on average
 - 51.96 gallons/ft² average
 - 43.14 minimum
 - 286.08 maximum
- ≈ 143,000 gallons used annually for the general population



Research Methodology

- Split study population into 4 groups for different treatments
 - Survey
 - Site Audit
 - Comparative Messaging
 - Site Audit & Messaging

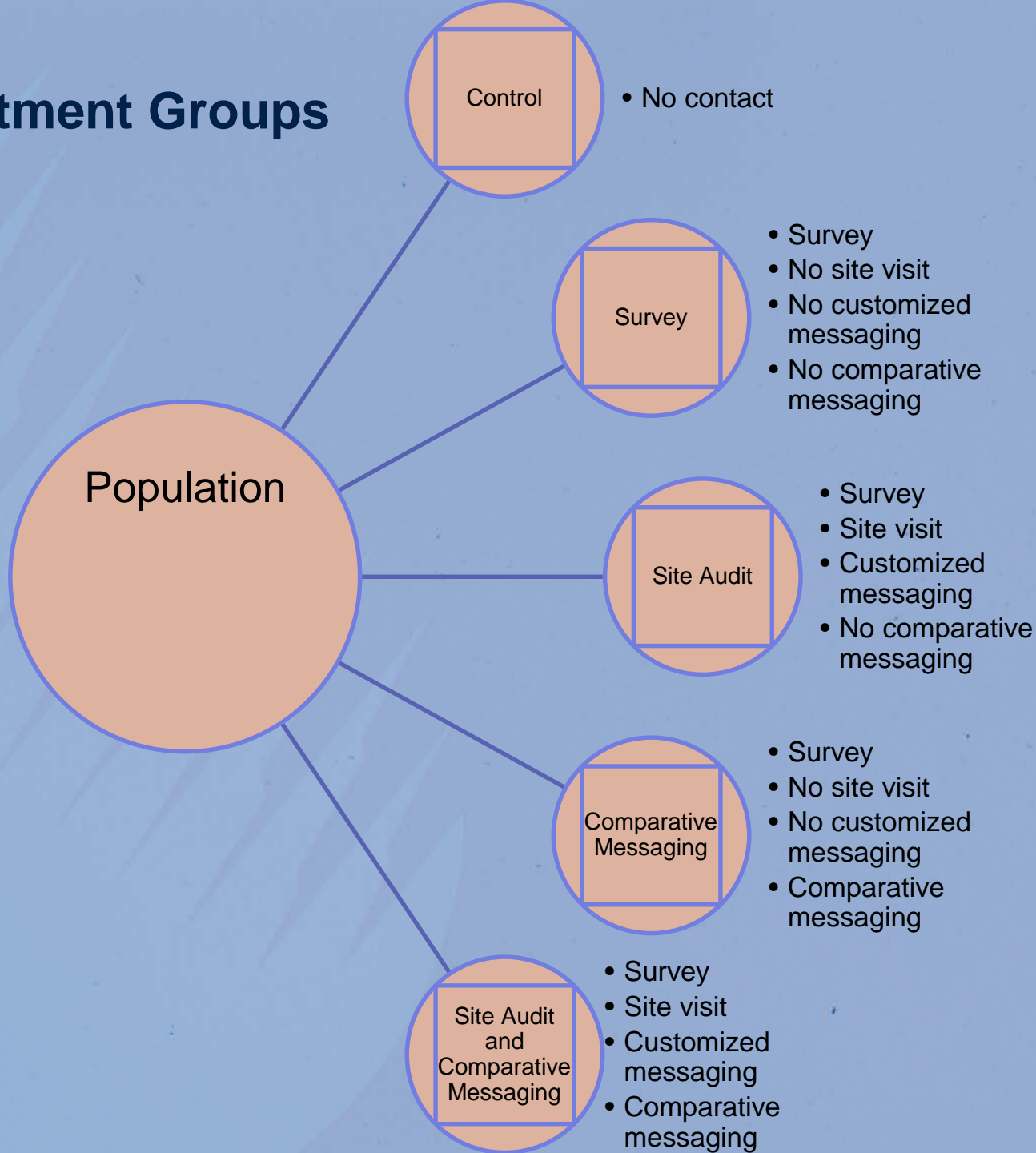
- Monitor water usage for 1-2 years

- Analyze results

- If successful, implement program

- Modify process and procedures for MFCGI sector as well

Treatment Groups



Survey

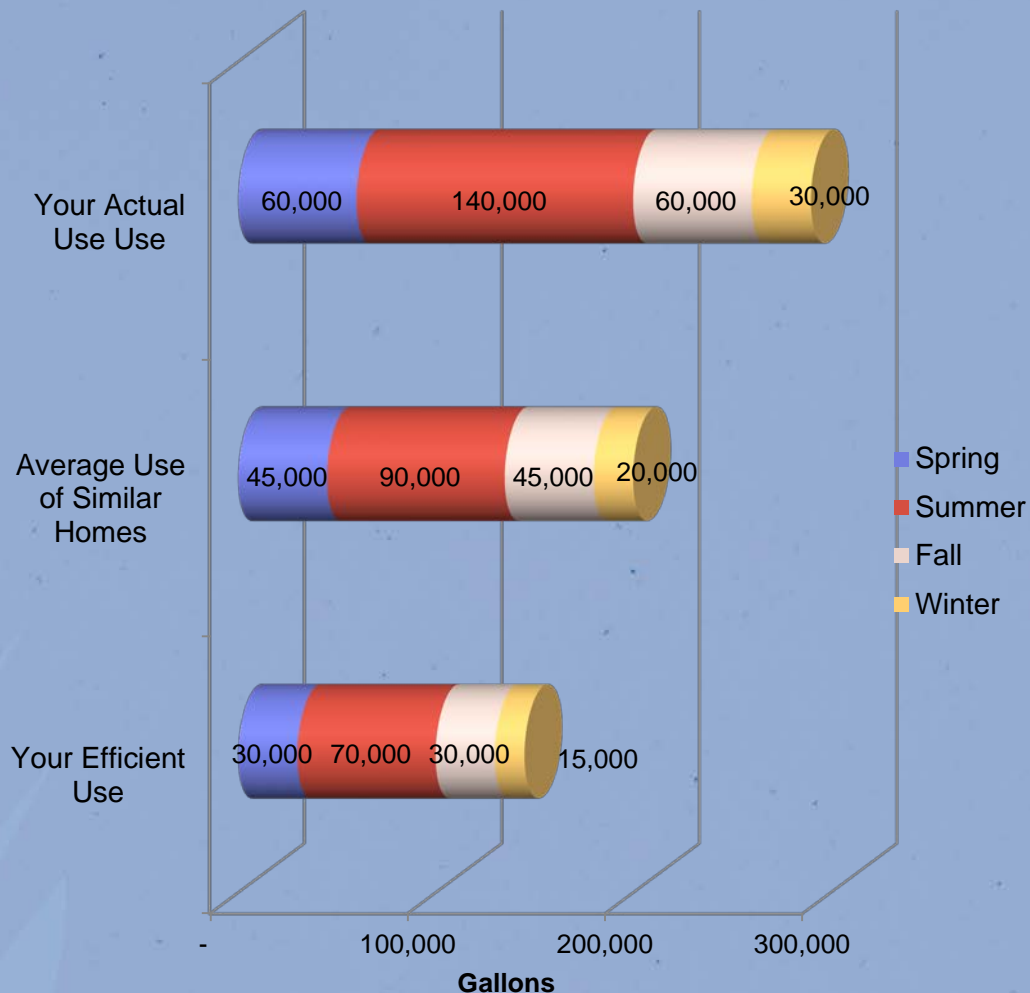
All groups receive initial survey

All groups receive same survey again after 1 year to gauge any changes in attitudes & behaviors

	Completely Agree		Neutral		Completely Disagree
I believe improving the management of our water resources is important	1	2	3	4	5
I believe educating the public about how to conserve water is important	1	2	3	4	5
I believe restricting the usage of water outdoors on landscapes (lawns), washing cars, and ornamental fountains is important	1	2	3	4	5
I am willing to invest in new technology to use water more efficiently	1	2	3	4	5
I am willing to reduce the amount of turf/grass I have in my yard	1	2	3	4	5
I am concerned by the future availability of water supplies in the Las Vegas valley	1	2	3	4	5
I am concerned by the amount of water used by residents of the Las Vegas valley	1	2	3	4	5
The entire Colorado River is experiencing a significant drought	1	2	3	4	5
Nature has a way to solve water supply problems before they get serious	1	2	3	4	5
I am willing to conserve water to prevent future shortages for the community	1	2	3	4	5
I am willing to conserve water if it saves money on my water bill	1	2	3	4	5

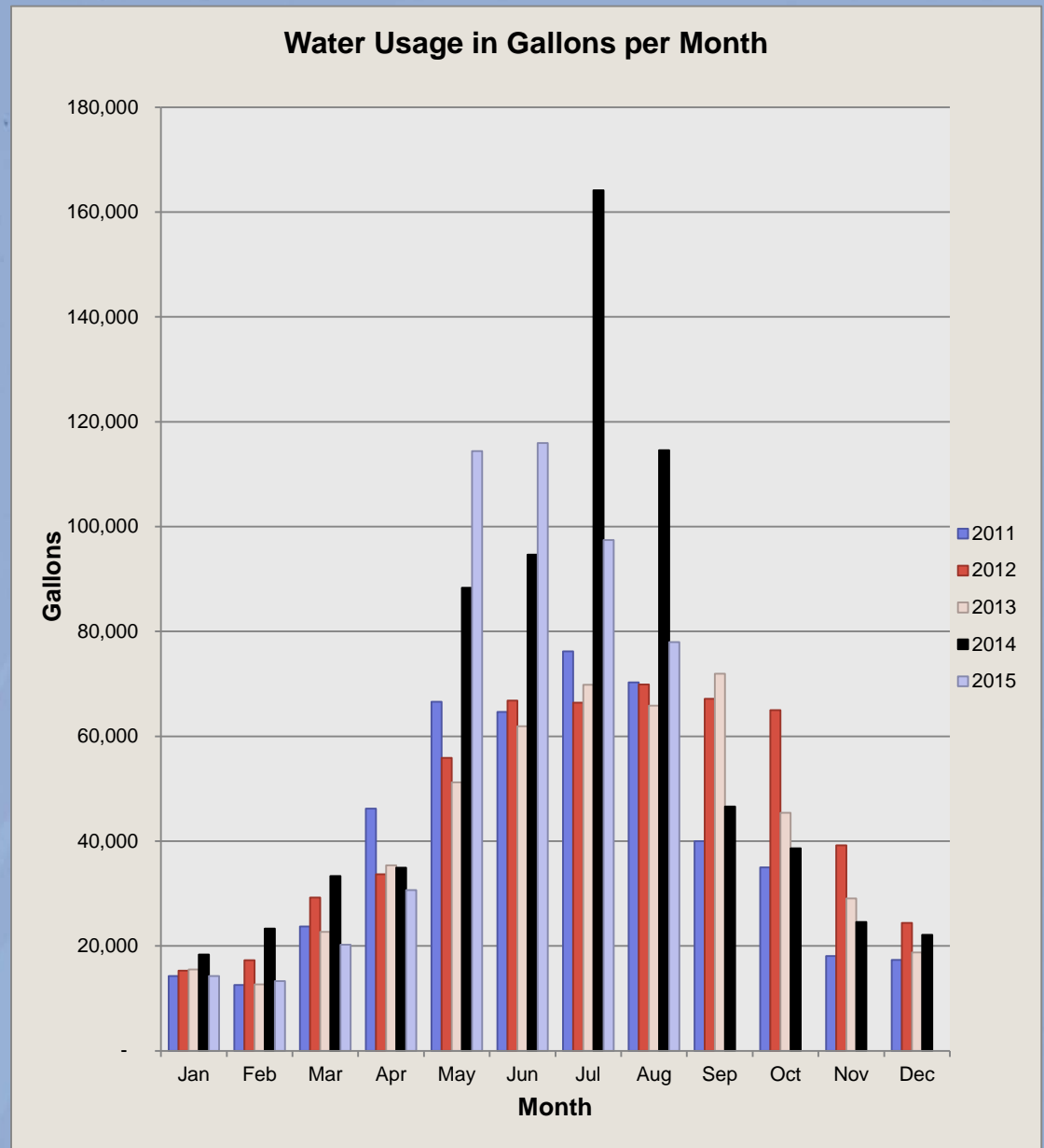
Comparative Messaging

- Social norms marketing
 - Peer & societal influence
- Give their usage vs. comparable properties
 - Similarly sized
 - Within their neighborhood
 - Idealized “efficient” usage i.e. benchmarking
- Provide information on rebate and incentive programs to encourage behavior change or modifications
- Sent out quarterly, around the same time as the mandatory watering schedule change



Site Visits (Audit)

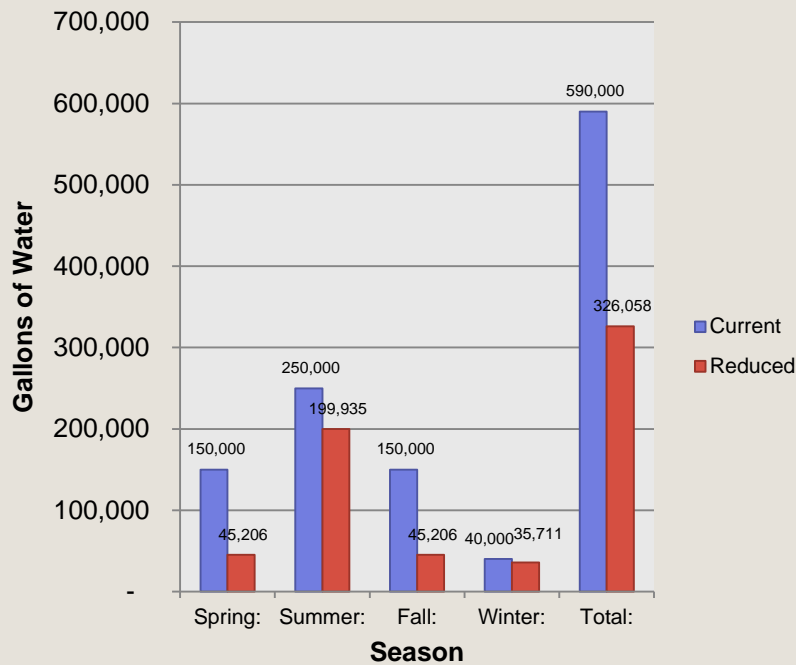
- Initially, 2 employees for every visit
- Perform inventory of indoor fixtures and appliances
 - Flow rate testing of faucets and showers
- Test, as far as possible, for leaks
 - Dye tablet testing of toilets
 - AMR reading in the future
- Inspect irrigation system
 - Timers, irrigation components
 - Record flow rates by station & schedule
- Give recommendations to reduce usage
 - Manage irrigation schedule
 - Follow watering restrictions
 - Smart controller
 - Convert non-functional turf
 - Replace inefficient fixtures
 - Fix leaks



Audit Report

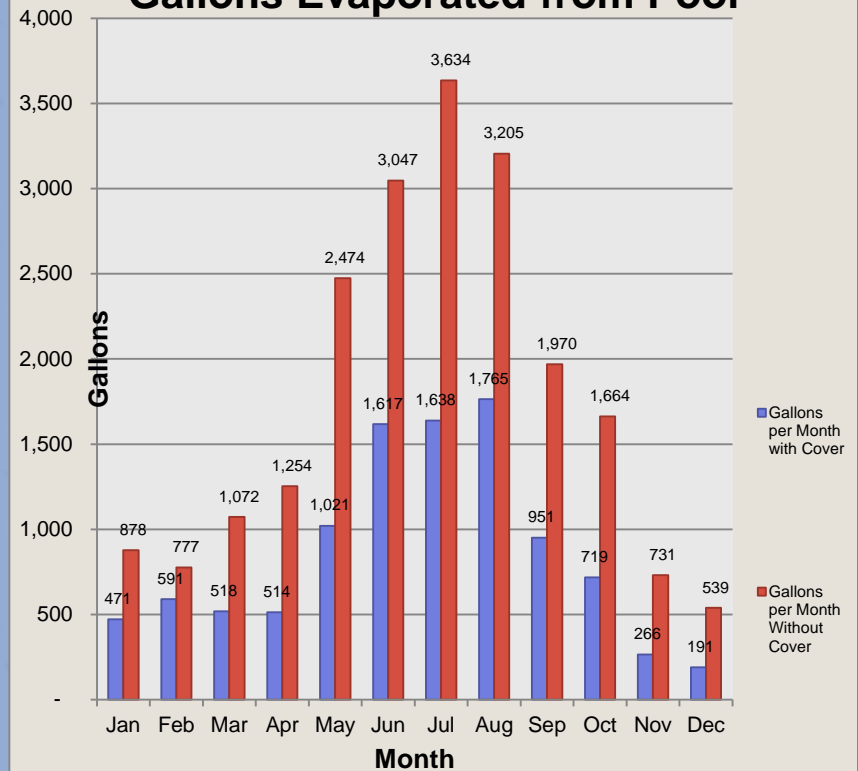
Irrigation Usage

Seasonal Irrigation System Water Usage



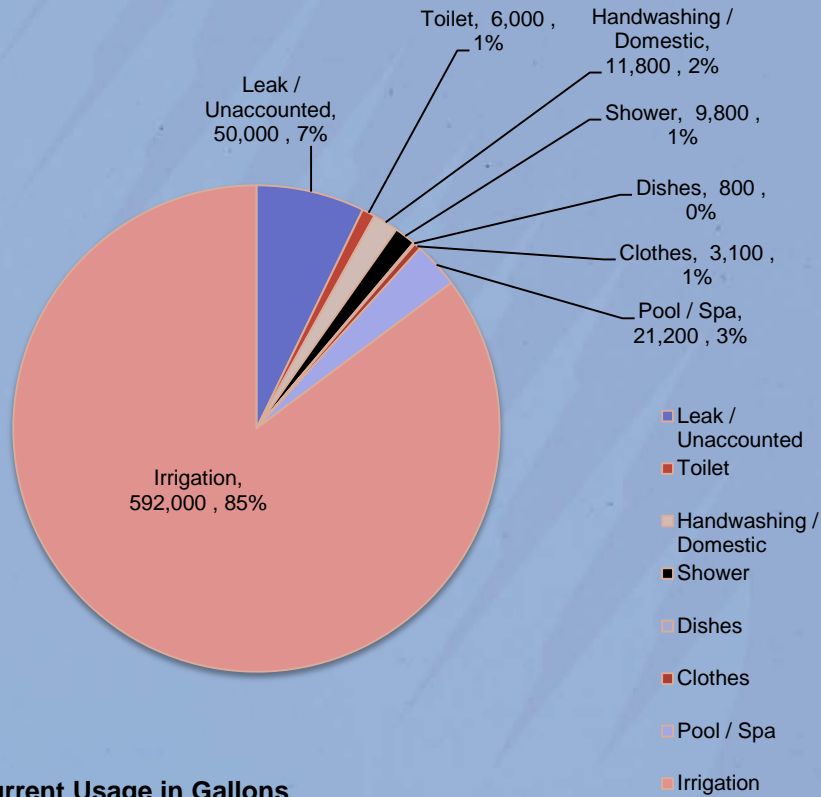
Pool Usage

Gallons Evaporated from Pool



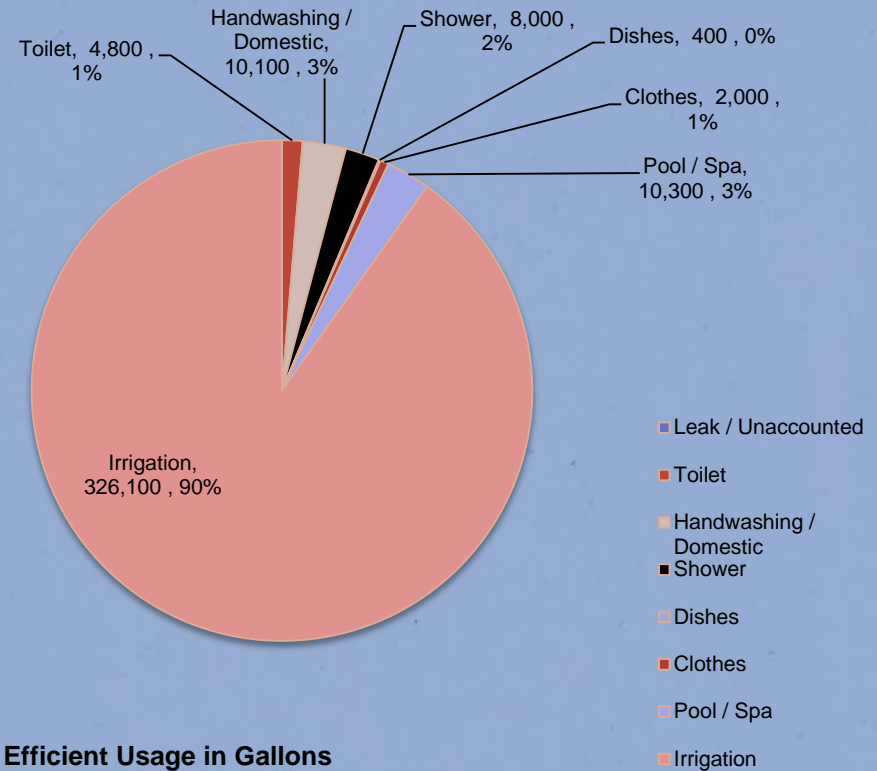
Audit Report

Current Usage



Current Usage in Gallons

Efficient Usage



Efficient Usage in Gallons

Audit Report

Summary

	Current Annual Usage	Potential Annual Usage	Potential Annual Savings	Potential Reduction
Irrigation	1,925,500	860,200	1,065,300	-55%
Pool	41,900	20,300	21,600	-52%
Shower	32,200	24,700	7,500	-23%
Domestic	23,100	12,200	10,900	-47%
Clothes Washer	8,100	8,100	-	0%
Toilet	8,500	7,200	1,300	-15%
Dishwasher	600	600	-	0%
Total	2,039,900	933,300	1,106,600	-54%

Handouts



Marketing Materials

WATER SMART REBATES

Save instantly on these irrigation water-savers

No waiting...no mailing: Print your coupons at snwa.com, then redeem them for instant savings on these products:

Rain sensors

Coupon: 50 percent off the purchase price of a rain sensor, up to \$25.



Water Savings: 500 gallons or more in one day. Rain sensors shut down your irrigation system during and after rain, reducing water waste, oversaturated soil and runoff.

Smart irrigation controllers

Coupon: 50 percent off the purchase price of a smart controller, up to \$200.

Water Savings: 10 to 30 percent. These systems automatically adjust your irrigation based on weather conditions.

! It's wise to work with a licensed landscape professional to install and program your smart controller, helping maximize plant health—and your water savings. Mandatory watering restrictions still apply.



WATER SMART POOLS

Manage your pool and spa water use

Cover your pool

With a pool cover, you can save up to 15,000 gallons of water a year for the average pool—rather than watching it evaporate.

Save instantly on a pool-cover purchase. Print your coupon at snwa.com, then redeem it for:

50 percent off the purchase price of a pool cover, up to \$50, or 50 percent off the purchase of a permanent, mechanical pool cover, up to \$200.

Residential customers of SNWA member agencies may redeem one pool-cover coupon per property address for qualifying products at participating retailers. Pool-cover coupons are available once every 36 months.

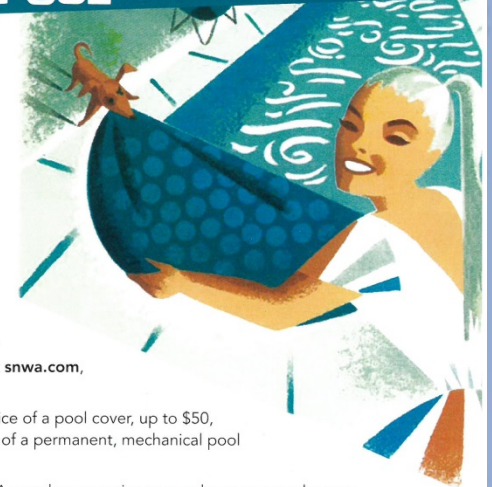
Drain properly

Visit snwa.com for pool-draining how-tos and tips on water-smart pool and spa management. Before draining any pool water, talk to a knowledgeable professional about your pool's water chemistry. You may only need to drain a fraction of your water or make a minor change in your maintenance program to improve water quality.



! Pool covers reduce evaporation by 90 percent, limit windblown debris and conserve energy. They also extend your swim season.

Local ordinances prohibit draining any pool or spa water to the street or storm drain. Pool water must be drained directly into your home's sanitary sewer system, which allows it to be recycled and reused.

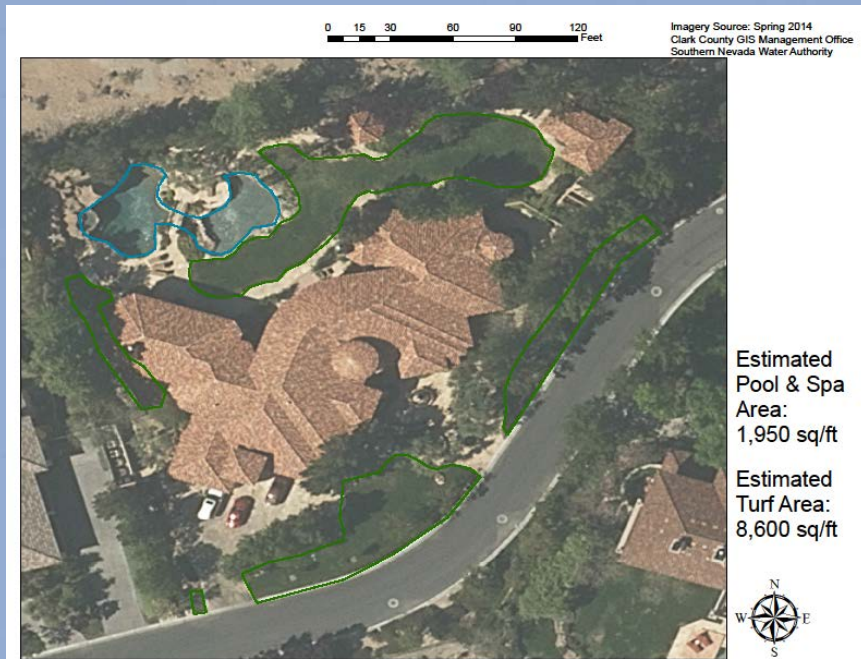


Current Status

- Mailings
 - 600 site audit letters mailed out
 - 2% response rate
 - 600 site audit w/ messaging letters mailed out
 - 3% response rate
 - 1000 messaging letters mailed out
 - Mailing out quarterly
 - 200 surveys mailed out
 - 13% response rate
 - In process of mailing 2,500 additional surveys
- 24 site audits complete so far
 - Goal is 200 total audits

Challenges

- Response Rate
 - Lower than hoped for but in line with other municipalities
 - Scheduling appointments in a timely manner
 - Staff availability
 - Administrative work
- Site Audits
 - Larger properties take more time
 - Need 2 employees, may take more than 2 hours
 - Smaller properties
 - Only 1 employee needed, may take 1 hour or less



Common Themes

- Most homes have been overwatering turf
 - Potential for smart controllers
 - Most homeowners reluctant to remove grass
- Leaks
 - 39% of the properties have some type of leak
 - Working on developing a “Water Smart Plumber” list
- Pools
 - 70% of the properties have a pool and/or spa
 - Most homeowners unaware of our pool cover coupon program

Questions?



SNWA would like to thank the following agencies:

Valencia Water Company

Smart Use, LLC (Contractor for Albuquerque Bernalillo County Water Utility Authority)

San Diego County Water Authority

San Antonio Water System

Denver Water

References

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