

# The Landings Water Conservation Measures

09/10/2015

# The Landings, Skidaway Island

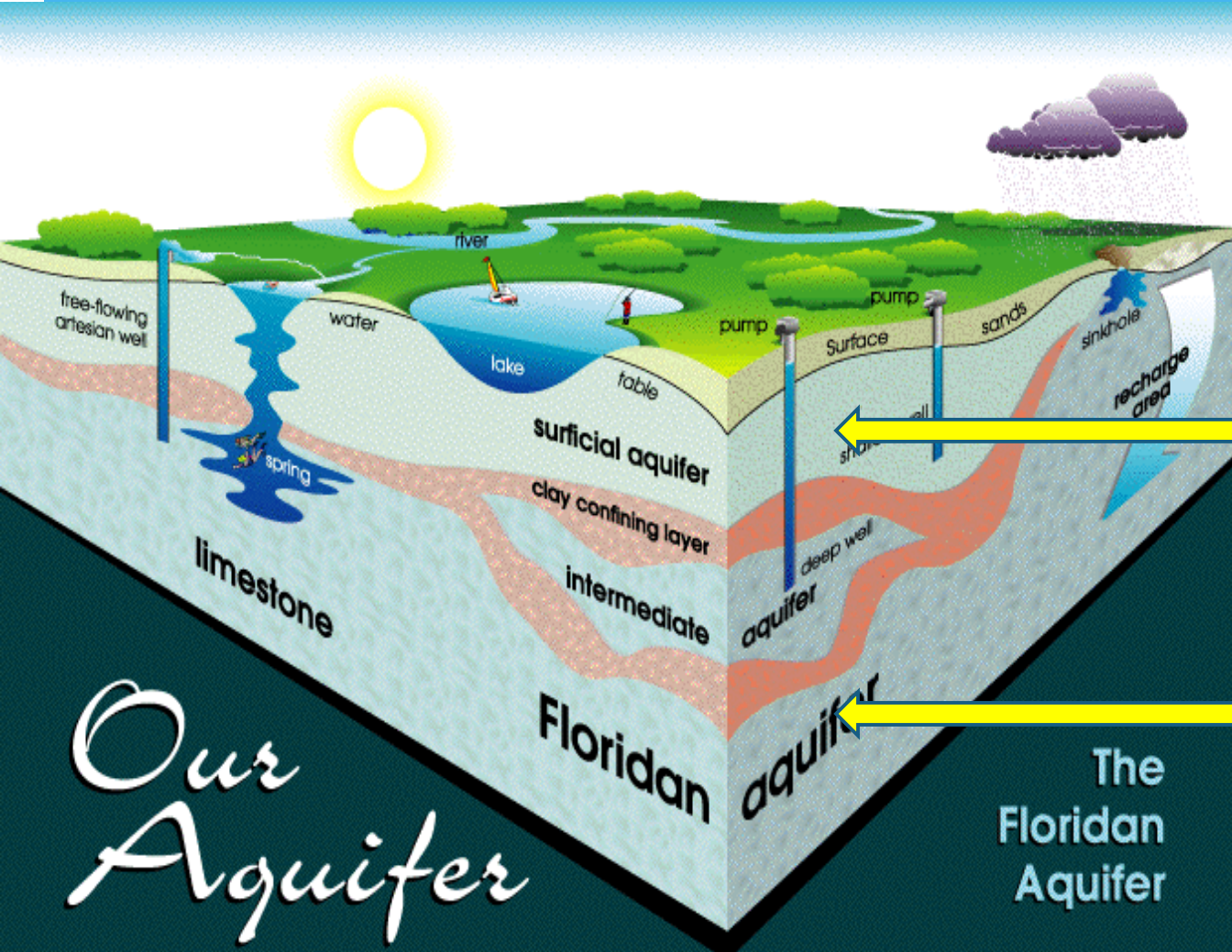


# Property Information

- \* 4,596 acres inside of gates
- \* 690 common property acres
- \* 4422 lots
  - (4,035 developed)
  - ~8,500 Residents
- \* 91 miles of roads
- \* 30 miles of paths
- \* 151 lagoons
- \* 2 Deep Water Marinas
- \* 6 golf courses
- \* 34 Tennis Courts



# Where Does Our Water Come From?



**Surficial Aquifer (35' to 80")**  
Uses: irrigation and wash bays

**Upper Floridan (400' to 700')**  
Uses: drinking water supply (potable)

*Our Aquifer*

**The Floridan Aquifer**

# Background

## The Landings Association (TLA)

The Landings Association is a Homeowner's Association for more than 8,500 residents and one of Georgia's premier gated communities. The Association was formed to promote the health, safety and welfare of the residents of The Landings on Skidaway Island.

## Utilities, Inc. of Georgia (UI)

Privately owned water and wastewater service company for Skidaway Island, provides 4,474 drinking water connections to approximately 11,632 residents. Customers comprise most of Skidaway Island, including the South Harbor community, the Marshes continuing care retirement community and residents of The Landings Association, Inc. which is the major end user of the services provided by Utilities, Inc. of Georgia.

## The Landings Club (TLC)

The Landings Club on Skidaway Island is a private luxury golf club dedicated to serving members with an active lifestyle and resort-class amenities in a vacation setting. The Landings Club offers members access to 6 championship golf courses, 33 tennis courts, seven restaurants, five swimming pools and a fitness and wellness center.

# The Situation - TLC

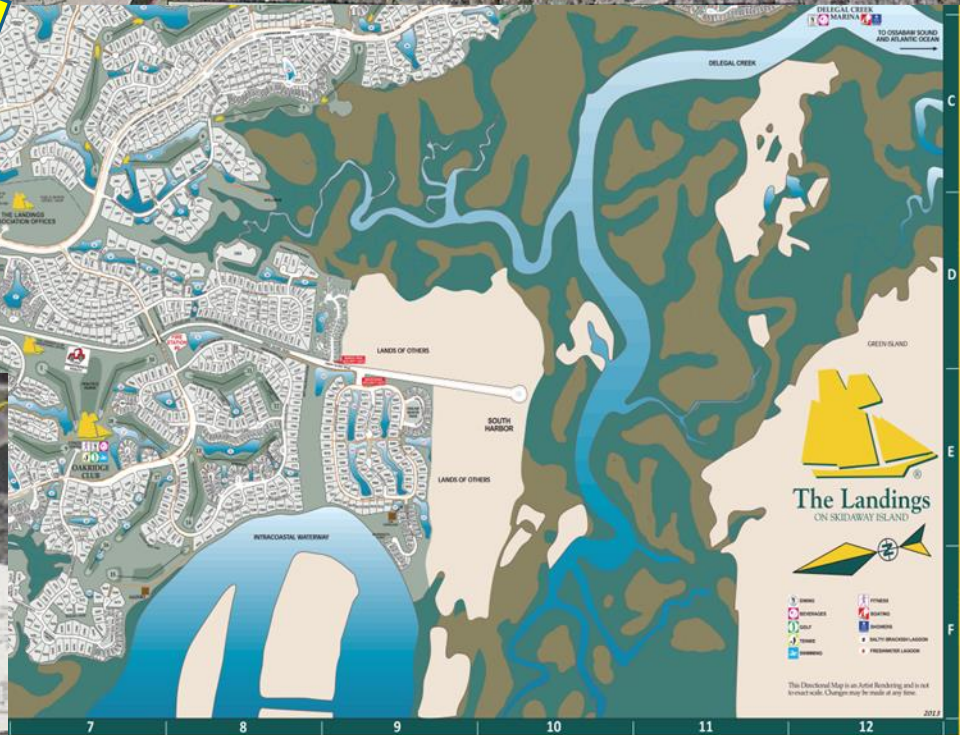
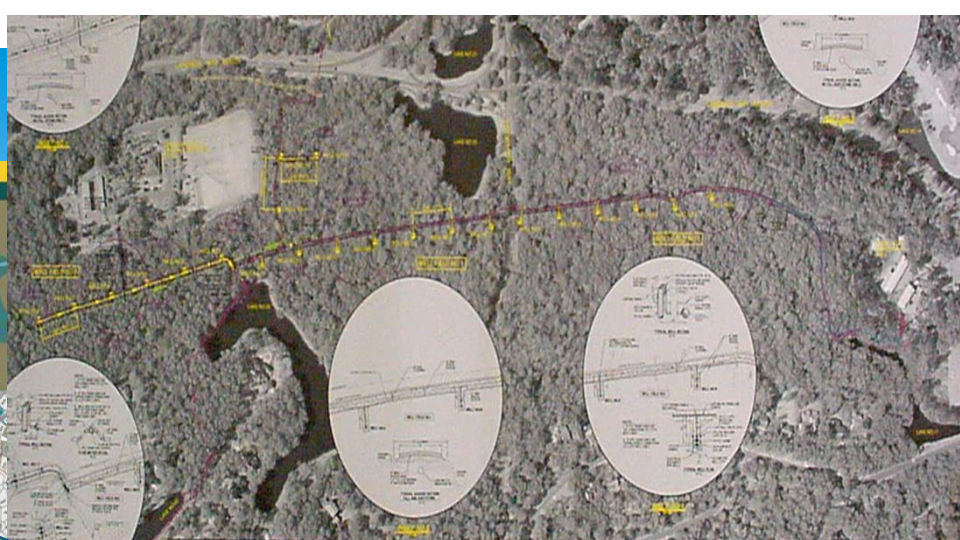
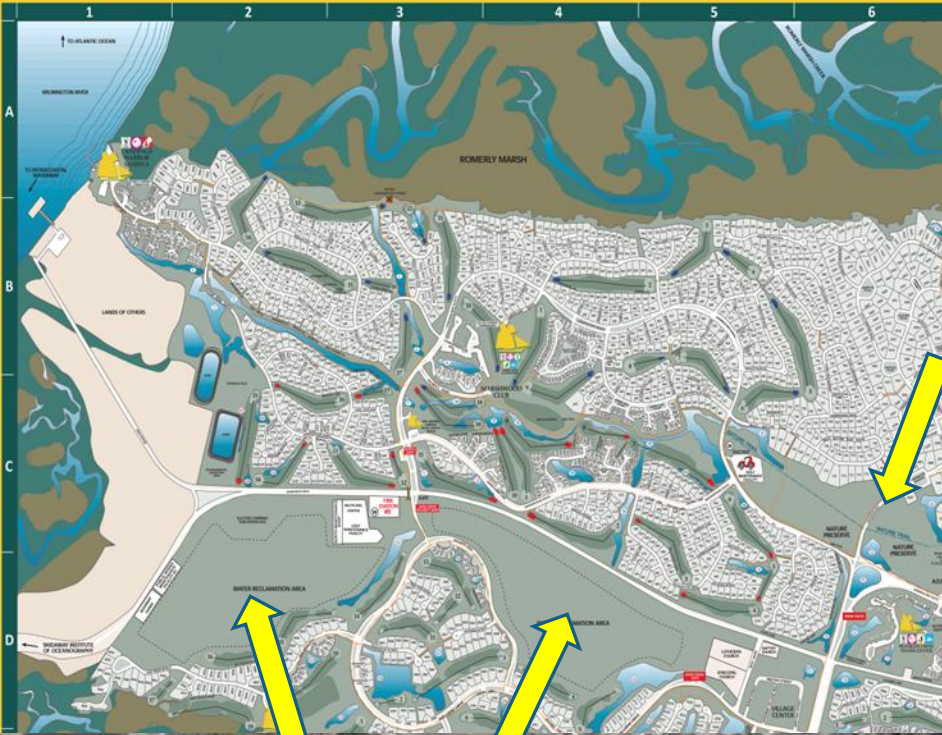
## The Landings Club

- \* 2009 withdrawal permits called for an 81% reduction in gallons from Marshwood well and 50% reduction from Plantation well.
  - Club operates these wells primarily in the summer month.
  - Permit allows for ~100,000 gallons per day on an annual average.
  - Water is pumped directly into irrigation lagoon
  - TLC permits will be reduced by an additional 10% with the permit renewal

# TLC Golf Course Initiatives

- \* All 6 golf course irrigation systems and pump stations have been renovated with newer, more efficient technology starting in 2001
- \* All golf courses were converted to Celebration grass fairways and have seen 10-15% water savings for this variety of grass.
  - Plantation is the final course to be completed in 2015
- \* Installation of the shallow well system in early 2000's allows transfer of water across island and reduced reliance on the aquifer

# TLC Shallow Well System



North Spray Field – 24 wells  
South Spray Field – 24 wells  
Nature Trail – 16 wells

# TLC Irrigation Water Breakdown (6 Courses)

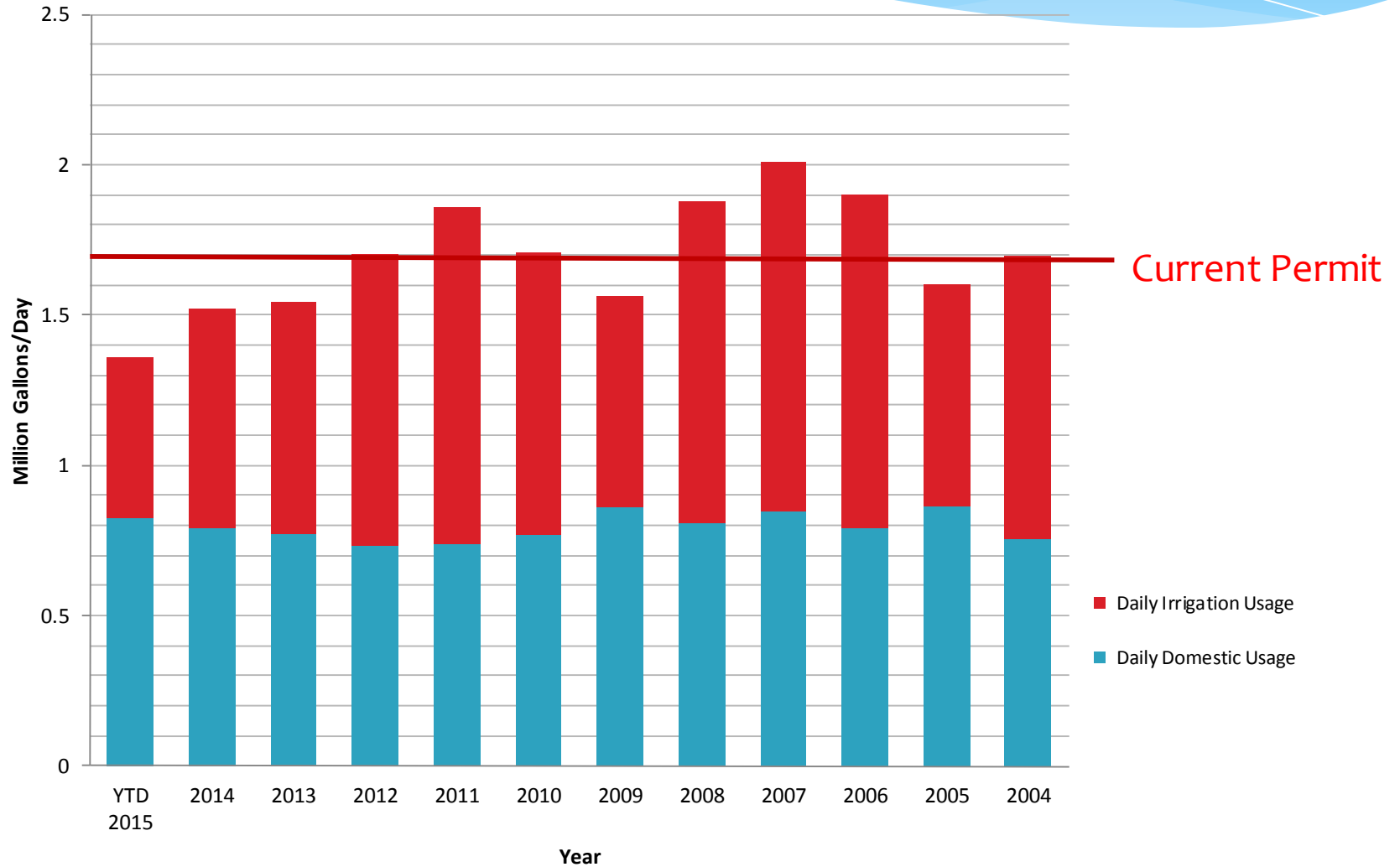
Year	Total Golf Course Irrigation	Shallow Wells	%	Deep Well (Aquifer)	%	Surface Water (Lagoons)	Rainfall (inches)
2004	264,916,471	103,605,900	39%	33,663,000	13%	48%	45.57
2005	314,847,020	95,856,900	30%	9,161,000	3%	67%	59.02
2006	419,250,504	183,801,800	44%	54,189,001	13%	43%	37.07
2007	407,970,609	161,393,700	40%	67,618,190	17%	43%	55.26
2008	349,589,848	144,231,800	41%	64,436,200	18%	41%	48.45
2009	315,529,698	65,728,244	21%	17,381,310	6%	73%	60.28
2010	380,693,107	196,635,850	52%	32,853,244	8%	40%	42.48
2011	361,381,947	188,196,900	52%	50,270,000	14%	34%	34.5
2012	280,121,016	188,869,180	67%	38,540,296	14%	19%	34.62
2013	235,157,680	116,104,923	49%	22,747,258	10%	41%	48.27
2014	239,970,718	95,323,200	40%	46,690,730	19%	41%	50.46
		<b>Shallow Well Average</b>	<b>43%</b>		<b>Surface Water Average</b>	<b>44%</b>	

# The Situation - TLA

## The Landings Association and Utilities Inc.

- \* Prior to 2010, the water withdrawal permit for Skidaway Island, via Utilities, Inc. of Georgia, was 2.61 mgd. This permit amount was reduced to 1.695 mgd.
  - A permitted decrease of 35%
  - 3rd largest reduction by volume in the Red Zone.
  - Drought in 2011 and 2012 increased irrigation usage and compounded the problem.

# Usage vs. Permit Level



# TLA's Response to the Issue

- \* Development of Water Committees
- \* Implementation of a Conservation Based Tier Rate Structure
- \* Utility Water Loss Controls
  - Cellular automated meter infrastructure
  - Increased measure for auditing
  - Conservation Coordinator
- \* Education Programs
  - Winter Water Symposium
  - Education articles
  - Engagement and presentation with Island Groups
- \* Alternative Water Supply for Irrigation
  - Shallow Well Study and Monitoring

# TLA Development of Community Water Committees

Chartered committees:

## TLA Water Rate Committee

*To conduct an annual review of the UI planned rate adjustment under the terms and conditions of the 2003 Settlement Agreement Between UI and TLA.*

## TLA Strategic Water Committee

*To develop and establish overall water policy and to provide direction on strategy development relevant to community water sources and supply.*

## Water Conservation Committee

*To collaboratively promote community conservation of water supply including all shallow/deep aquifers, surface waters and community water through conservation, best management practices and education*



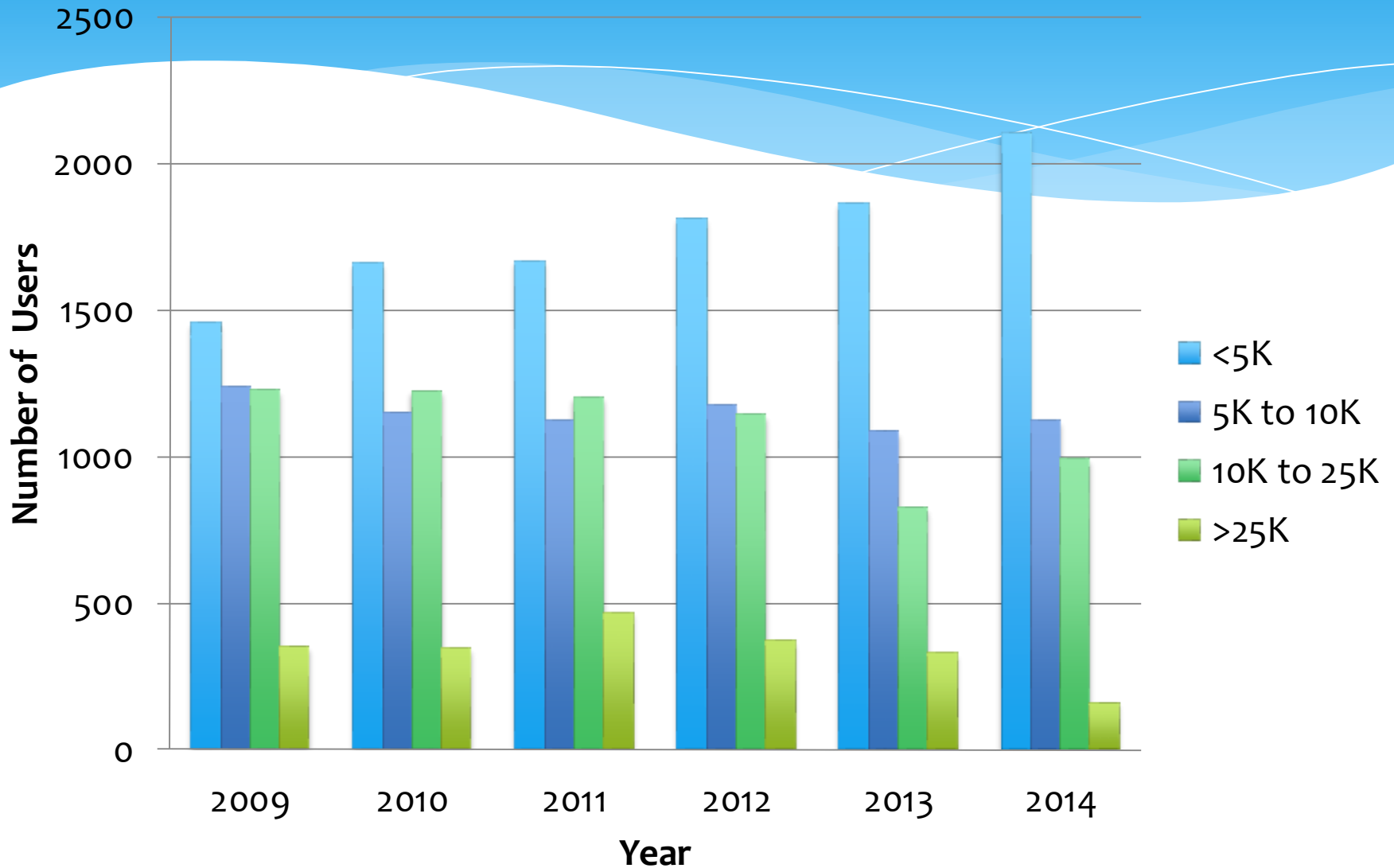
# Water Rate Committee

## Conservation Based Tier Rate Structure:

(prices are per 1,000 gallons)

	<u>2014</u>	<u>2015</u>
<b>Tier I</b> Less than 5,000 gallons	\$2.25	\$2.25
<b>Tier II</b> 5,000 to 10,000 gallons	\$3.06	\$3.06
<b>Tier III</b> (10,000 to 25,000 gallons)	\$5.65	\$6.45
<b>Tier IV</b> (Over 25,000 gallons)	\$12.01	\$13.72

# Rate Tiers by Year



# Strategic Water Committee

## Alternate Potable Water Sources

- \* Purple Pipe to Major Residential Irrigation Users
  - \* Infrastructure upgrade for distribution system
  - \* Wastewater Treatment PlantTOTAL \$13M
- \* Purple pipe to Club and provide Club with 145k gallons annual average of alternate water source (such as Miocene)
  - \* Infrastructure upgrade required to distribute water to TLC for golf course use
  - \* Wastewater Treatment PlantTOTAL \$9.5M
- \* Cretaceous Well
  - Estimated cost for well
  - R/O Water Treatment Plant
  - Discharge system + NPDES permits requiredTOTAL \$9.7M
- \* Purchase water from the City of Savannah
  - \* Estimated cost including all tap feesTOTAL ~\$16M

# Strategic Water Committee

## Alternate Irrigation Water Sources

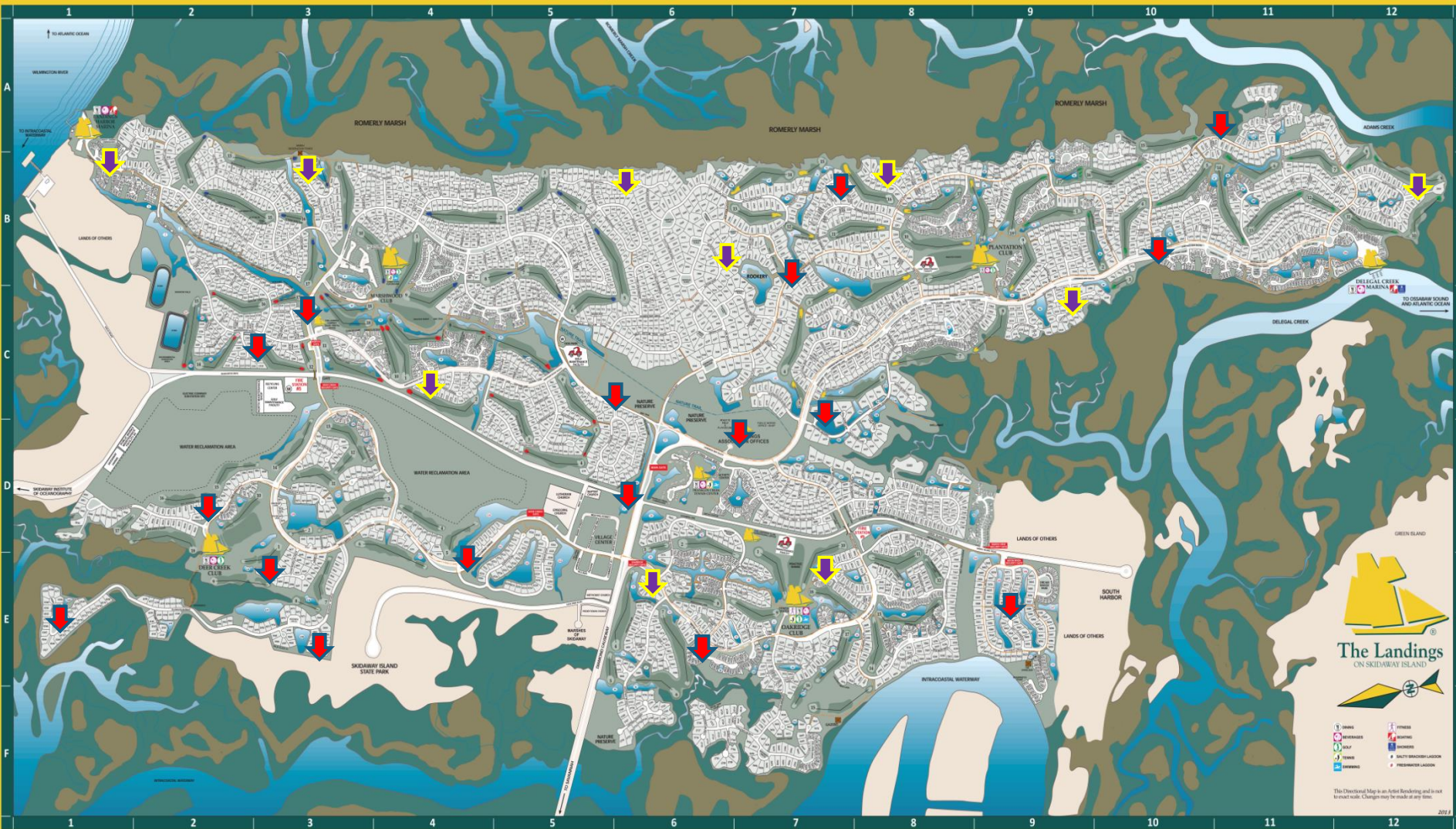
### Shallow Well Study of Skidaway Island

- \* Understanding of Recharge versus usage and total capacity.
- \* Maps of existing wells with estimated depths
- \* Maps of wells influenced by saltwater intrusion by marsh or lagoon influence
- \* Maps of monitoring well locations and recommendations for future wells
- \* Maps of low-volume users and areas of future shallow well development
- \* Report summary of data collected over the past 20+ years on Skidaway Island

# Community Funded Shallow Well Monitoring Program Expansion

↓ New Wells

↓ Existing Wells



# Water Conservation Committee:

## Education Programs

### Winter Water Symposium

- Presentations ( Water Supply, Innovations in Irrigation)
- \* Exhibitors Booths (Ways to save water indoors and out)
- \* Q&A Panel (Utilities Inc., Thomas and Hutton, TLA, TLC, ValleyCrest)
- \* Raffles including free irrigation audits by a Irrigation Professional

### Education articles

- \* How to Perform Irrigation Audits
- \* Auditing your Indoor Water Use
- \* How to Properly Water in the Winter
- \* Understanding Shallow Wells .....

### Engagement and presentation with Island Groups

- \* Kiwanis, Rotary, Skidaway Audubon, CCA, and Garden Clubs

### Developing New Programs

- \* Fall Water Event Planning
- \* Specifically target high users (4 Tier) and educate how to reduce
- \* Promote and Expand Shallow Well Installation
- \* Develop our Brand for future communications
- \* Irrigation Audit/Irrigation Clock Program
  - \* Trial Residential House: 19,940 gallons saved per month
- \* Identify and Develop Funding Partners
- \* Increase Island Wide Representation in the Committee
- \* Promoting Green Technologies

# Utilities Inc. Initiatives

## \* Conservation Coordinator

UI hired this position in September 2014. The Conservation Coordinator will work on water loss and conservation, as well as a communication plan on these issues. This information and data will be used by TLA to help tailor community policies and programs. The Conservation Coordinator will collaborate with other conservation and sustainability groups.

## \* Replacing existing residential meters with cellular automated meters.

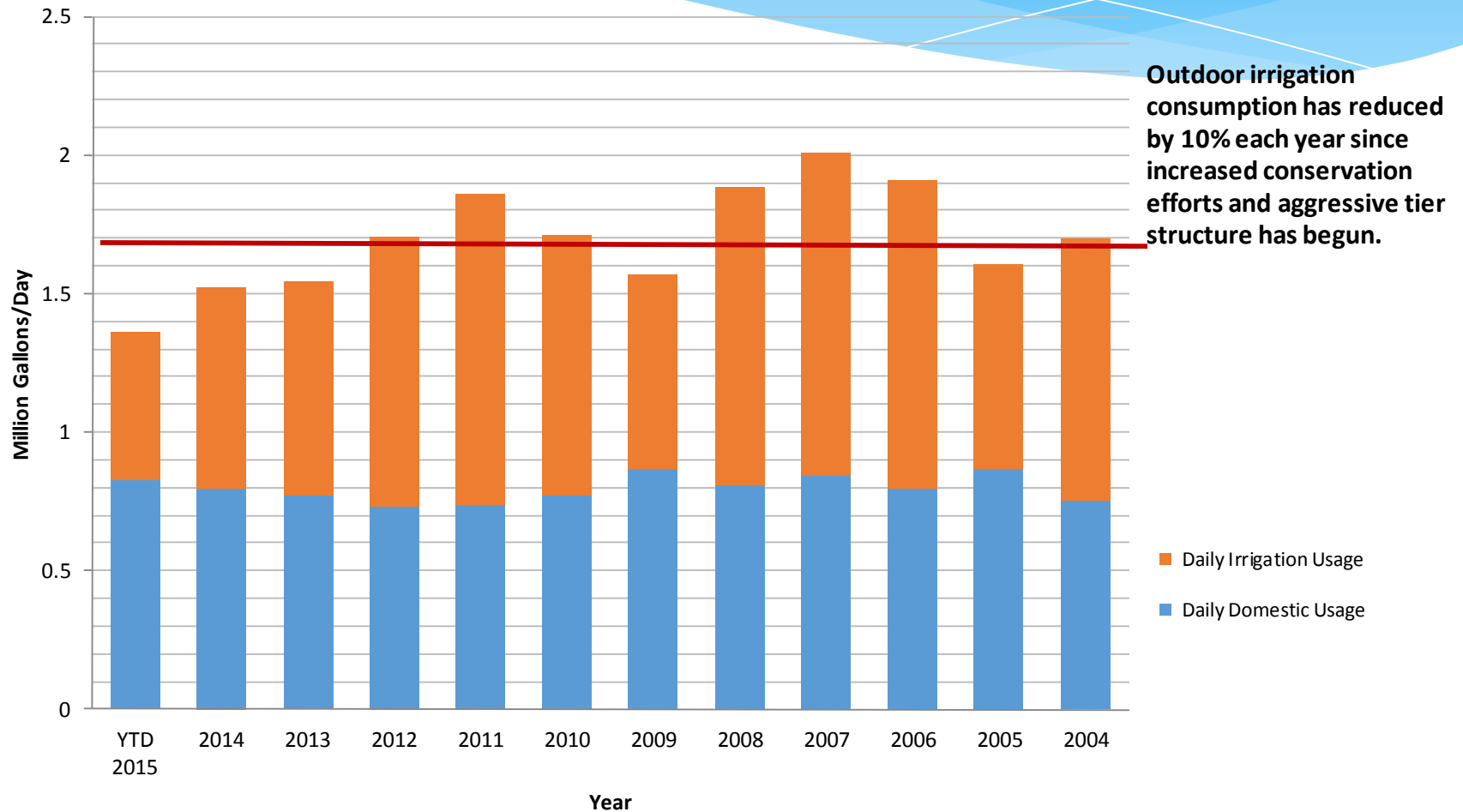
- Utility and customer can monitor usage daily
- Warnings and alerts for high threshold usage

## \* Increased measures for auditing the system.

- Currently at 8 % water loss
- Installing leak detection devices which is linked to cellular system



# Is it Working?



# What's the Take Home?

- \* **DO NOT EXPECT YOUR WATER COMPANY TO DO THIS FOR YOU!** To successfully resolve this issue more than just the permit holder has to be involved.
- \* The Island entities and community volunteers worked together to increase awareness and promote change.
- \* The Landings was able to reduce per capita usage with 10 % growth in population
  - Additional 30 homes per year
  - Further island development will compound the issue.
- \* Utilities Inc. is currently fully utilizing the permit capacity
- \* Outdoor irrigation consumption has reduced by 10% each year starting in 2011 with the increased conservation efforts and aggressive tier rates.
- \* TLA's Committees will continue to evaluate additional alternative water sources for potable and irrigation sources.

# Thank you !

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*Leading our community to excellence through continuous improvement!*