



Austin, Texas  
June 30, 2016

# ***(Almost) Funding a Landscape Watering Retrofit to Weather Based Irrigation Controllers Using SWIFT***

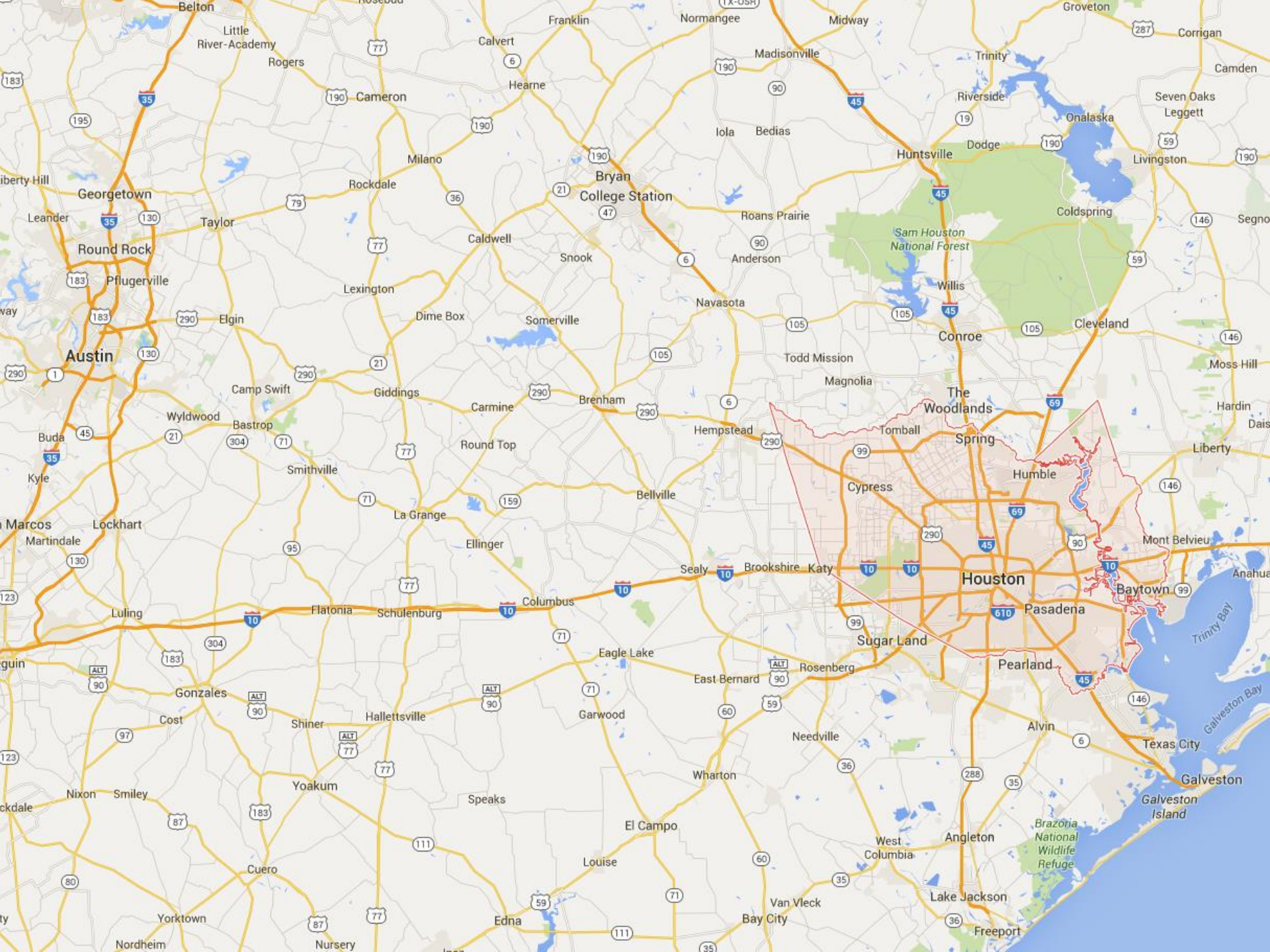
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# TOPICS

- **Background on water utility**
- **Project drivers**
- **Technical considerations**
- **Project concept**
- **Economic evaluation**
- **Policy issues**
- **Process steps**
- **Summary**

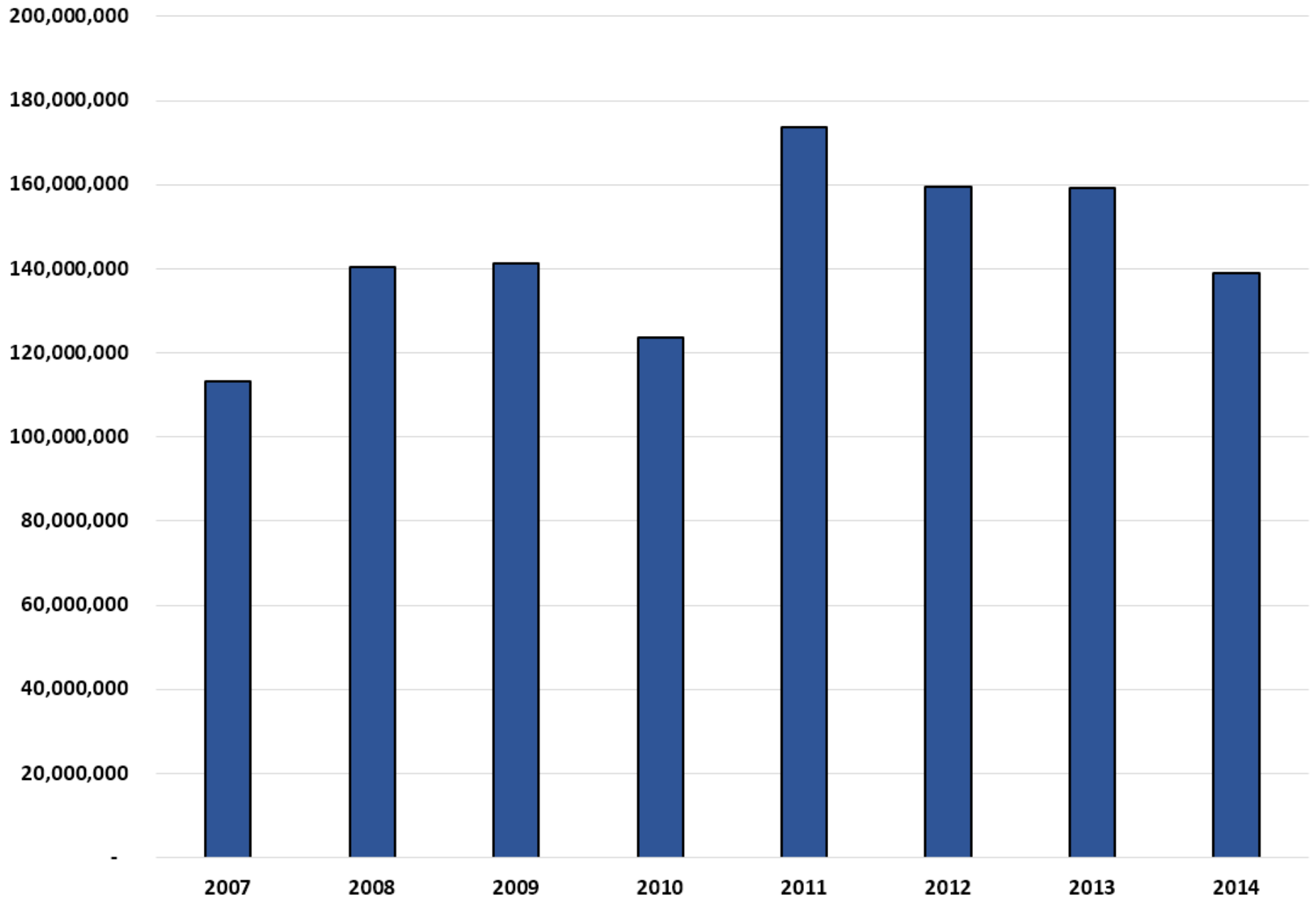




# **WATER UTILITY**

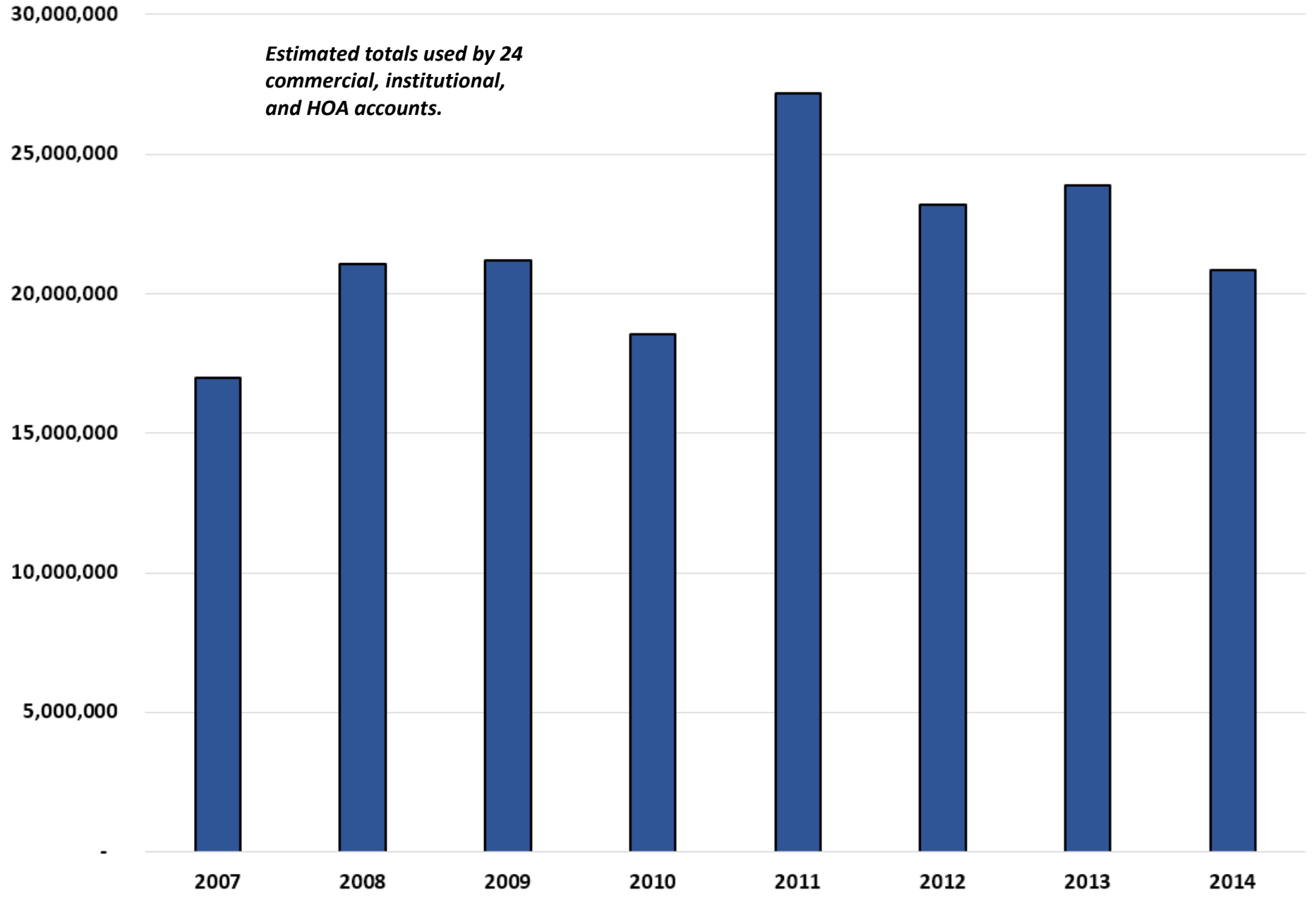
- **Overall size: 542 acres**
- **Remaining developable area: 130 acres**
- **Water connections: 2,000**
- **Water plant connection capacity: 3,250**
- **Available bonding capacity: \$19 million**

### Total District Usage (Gallons)

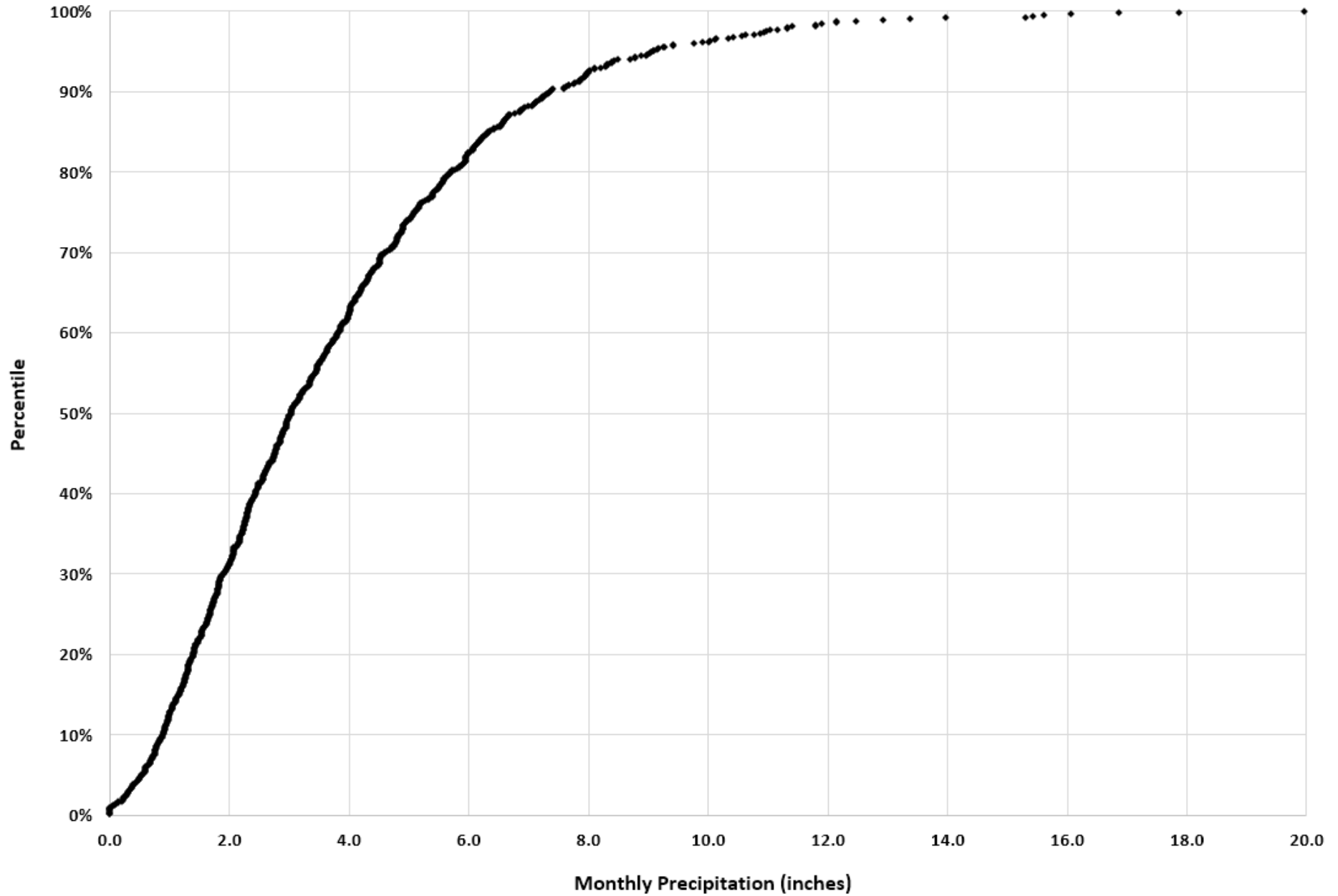


# Irrigation Account Usage (Gallons)

*Estimated totals used by 24 commercial, institutional, and HOA accounts.*

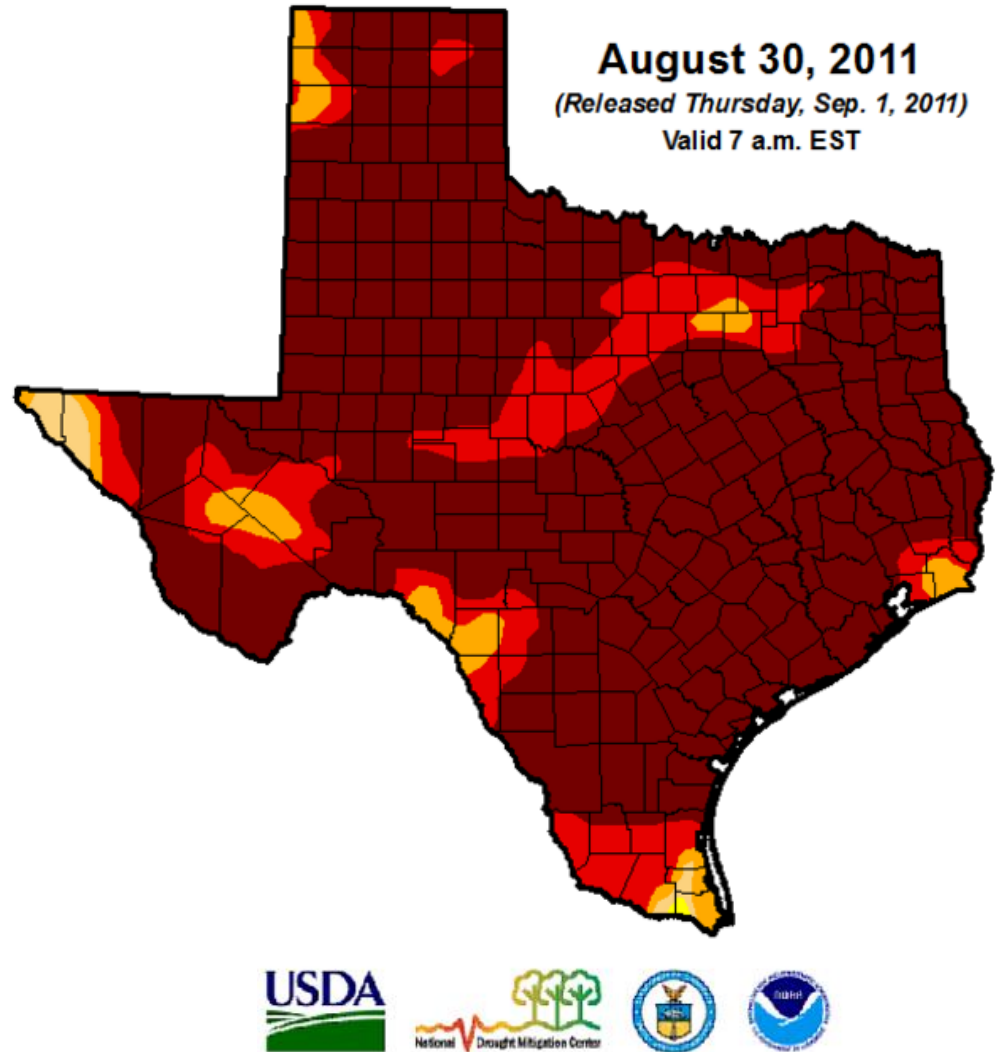


# Monthly Rainfall Totals for Tomball Station 1941 to 2014



# PROJECT DRIVERS

- Drought of 2011
- Perceived high outdoor use
- Anticipated water cost increases
- Availability of SWIFT
- Region H Water Plan 12% conservation goal
- A low cost, quick evaluation couldn't hurt, right?





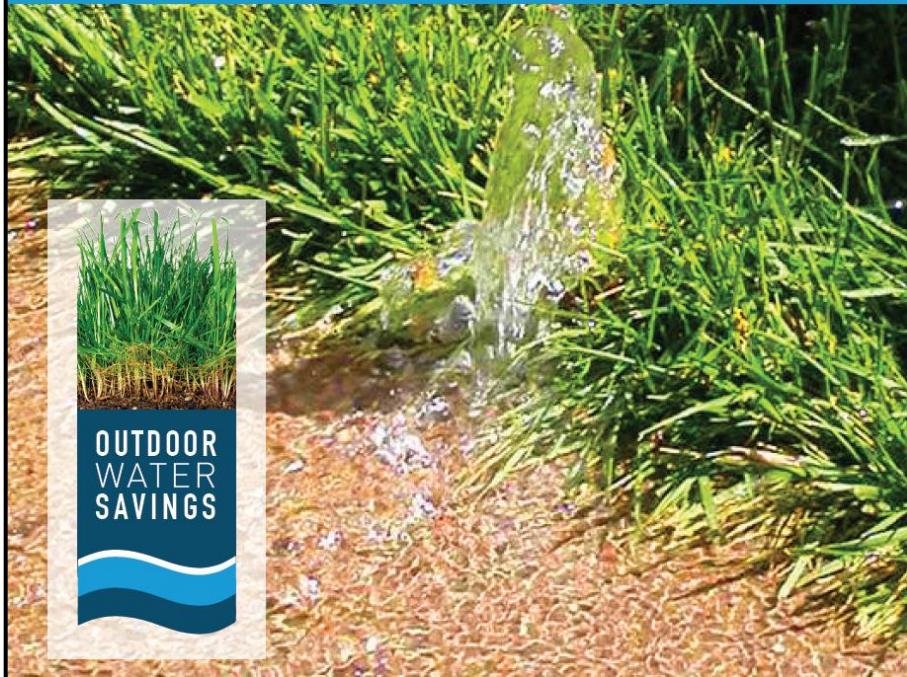
# TECHNICAL CONSIDERATIONS



## Outdoor Water Savings Research Initiative

January 2015

PHASE 1 - ANALYSIS OF PUBLISHED RESEARCH



- *Outdoor water savings are achievable and can be significant*
- *Numerous studies documented ... savings [of] 15 to 65% or more*

# TECHNICAL CONSIDERATIONS

- **Study of 3,112 weather based irrigation controllers (WBICs)**
- **Aggregate utility-wide savings ranged from 2.1% to 41.6%**

## **EVALUATION OF CALIFORNIA WEATHER-BASED “SMART” IRRIGATION CONTROLLER PROGRAMS**

Presented to the  
California Department of Water Resources  
By The Metropolitan Water District of Southern California and  
The East Bay Municipal Utility District

Proposition 13 Urban Water Conservation Outlay  
Grant Agreements 4600003098 and 4600003099

**July 1, 2009**

Facilitated by: California Urban Water Conservation Council

Prepared by:

Peter Mayer, William DeOreo, Matt Hayden, and Renee Davis  
Aquacraft, Inc., Water Engineering and Management

Erin Caldwell and Tom Miller  
National Research Center, Inc.

Dr. Peter J. Bickel

# TECHNICAL CONSIDERATIONS

**Over 180 *WaterSense* labelled irrigation controllers available in the United States**



**WaterSense<sup>®</sup> Specification for Weather-Based  
Irrigation Controllers**

Version 1.0

November 3, 2011

# TECHNICAL CONSIDERATIONS

- SoCal Water\$mart rebates provided for qualifying water conservation products/activities
- Certain WBICs are qualifying products



**THE METROPOLITAN WATER DISTRICT  
OF SOUTHERN CALIFORNIA**

## **Weather Based Irrigation Controllers**

Qualifying Products List as of Jan 28, 2015

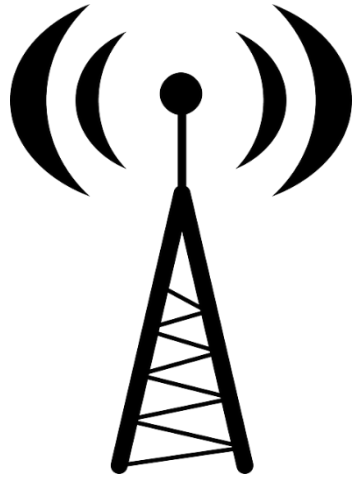
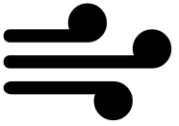
# TECHNICAL CONSIDERATIONS

- Under estimated number of residential irrigation systems based on “drive by” recon
- Project focused on 24 commercial and HOA irrigation accounts

# PROJECT CONCEPT

- Retrofit timer based irrigation controllers with weather based irrigation controllers (WBICs)
- Water utility maintains ownership and operational control
- Reduce outdoor use by 40%





# ECONOMIC EVALUATION

- Annual water savings:
  - 9.2 million gallons
  - 7% of annual use
- Rate structure adjustment possible to cover lost revenue and ongoing implementation cost
- Over three year “finance period,” cost of water saved averaged: \$13.64 / 1,000 gallons
- Future implementation years would require additional utility funding



# STUDY FINDINGS AND OUTCOME

- Retrofit of too few properties
- Perception that public money would be used to benefit private parties
- Cost per gallon too high
- Did not consider future cost of water in life cycle analysis
- No “direct” way to secure Regional Water Authority credits or financial assistance for using “Alternative Water”
- Project not pursued

# **FUTURE OPPORTUNITIES**

- **We tend to over-water in the Houston region**
- **Landscape watering demand is huge**
- **WBICs are well suited for this region**
- **Larger scale implementation on commercial, residential, and District landscapes will drive “unit costs” down**
- **WBICs should be considered by Districts with:**
  - **Increasing water demand**
  - **Large irrigation areas**
  - **Subject to regional water authority / subsidence district fees and / or cost increases**

# POLICY ISSUES

- **Benefit accrual or “gift” prohibition**
- **Ownership of hardware**
- **“Operations” vs. “Ongoing Implementation”**
- **Useful life of asset vs. loan term**
- **Bonding capacity**
- **Reduced revenue**
- **Not (yet?) viewed as “alternative water” by Subsidence District or Regional Water Authorities**
- **No capital or consumption credits offered**

# PROCESS STEPS

- **Modify or amend Region H and State water plan**
- **Complete Texas Water Development Board Infrastructure Survey**
- **Complete and submit Water Conservation Plan**
- **Complete and submit Drought Contingency Plan**
- **Seek loan term consistent with asset life**
- **Prepare and submit abridged application by February 2017**
- **TWDB prioritize / rank applications spring of 2017**
- **Prepare full application in summer of 2017**
- **Close bond sale in fall/winter 2017**

# ACKNOWLEDGEMENTS

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- James Bronikowski, TWDB



# QUESTIONS?

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