



## OVERVIEW

- Water Industry – Supply and Demand
- Outdoor Water Management
- Industry overall does a poor job
- Bayou Woods Study Area Example - IR
- Why uncommon– mindset/values
- What needs to happen

A graphic with a blue wavy background and several water droplets of varying sizes. The text "OVERVIEW" is centered at the top in black, sans-serif capital letters. Below it is a bulleted list with red text.

## Outdoor Water Management Areas

- **Irrigation Management**

- Site Development
- Amenity Water Features
- Low Impact Development (LID)
- Stormwater Management

## PROPER IRRIGATION MANAGEMENT

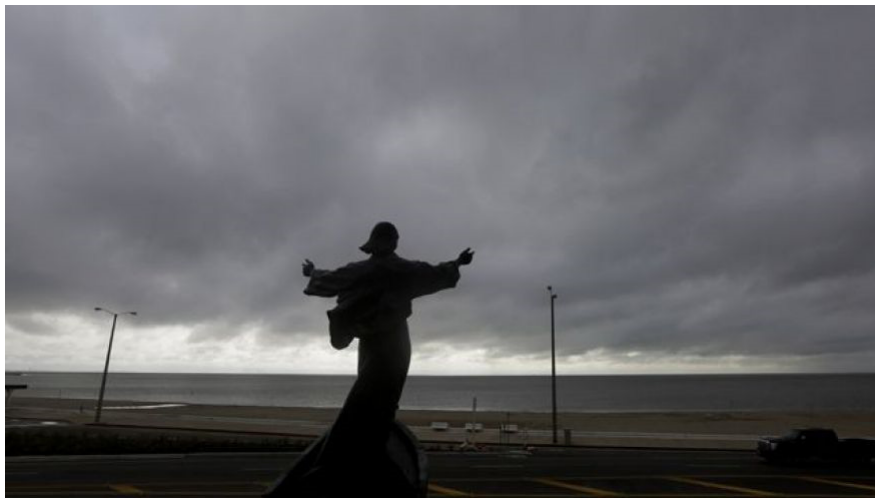
- USES LESS WATER AS A WHOLE
- HEALTHIER PLANT MATERIAL
- SAVE TIME, MONEY AND WATER
- NO REAL SACRIFICE – CHANE OF MINDSET
  - (MONEY AND TIME)



## **Texas drought fades with heavy rains**

Experts point to El Niño for wetter start, but warn of low levels in Austin

May 18, 2015



## **'BILL' SLAMS TEXAS**

**Storm dumping up to 12 inches on Lone Star State**



**Texas drought killed 301  
million trees**



**Drought-Stricken Texas Town Turns To Toilets For  
[Water](#)**



Study warns of mega drought to come

## WHY FOCUS ON IRRIGATION MANAGEMENT

- RISING WATER COSTS
- INCREASING REGULATION
- GROWING DEMAND
- DROUGHT IS A COMING
- THERE IS A BETTER WAY





## Your Thoughts

- What % of potable water is utilized for outdoor uses, primarily irrigation
- What ARE standard goals (in terms of % reduction) for water conservation
- What segment of the water industry gets the most money, attention, effort....Supply Creation or Demand Reduction – Why?

## CONCEPT REVIEW

- Math
- Philosophy
- Politics

## Math 101

- $A+B = 100$
- A and B are equal
- What are A and B

50

## Math 102

- $\underline{B \times .5 =}$   
25
- $\underline{A+B =}$   
75
- $\underline{\text{Total \% reduction} =}$   
25%

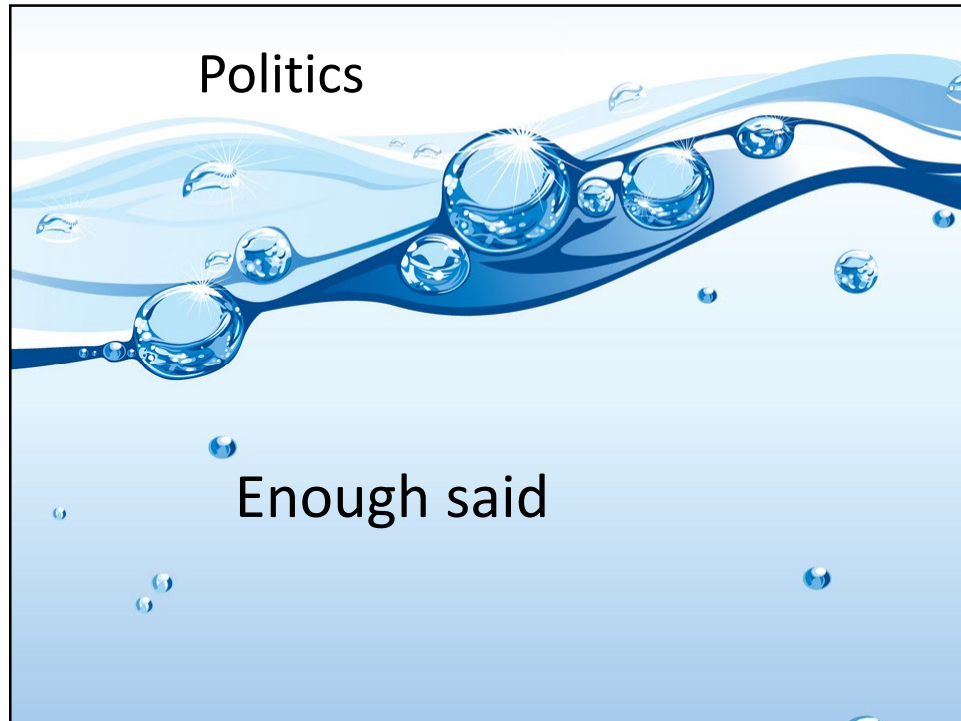
## Math 103

- Indoor Water Use is A
- Outdoor Water Use is B

## Philosophy

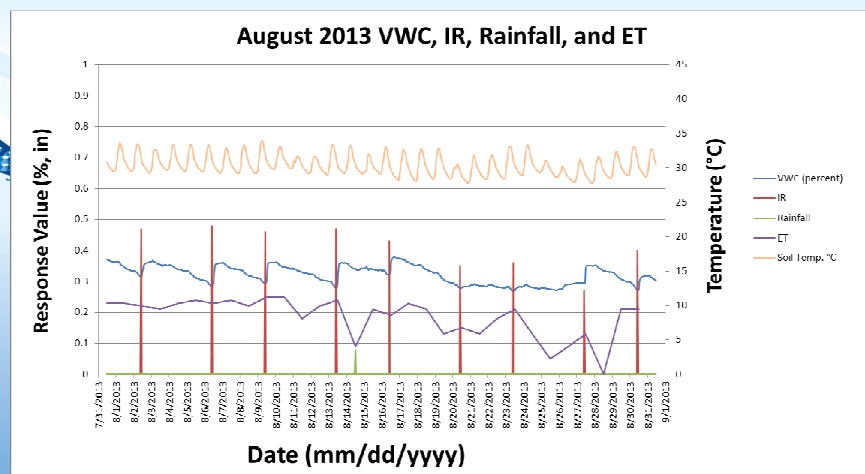
- Ain't broke don't fix it
- Lots of rain, what drought
- This is the way we have always done it
- Old habits are hard to break



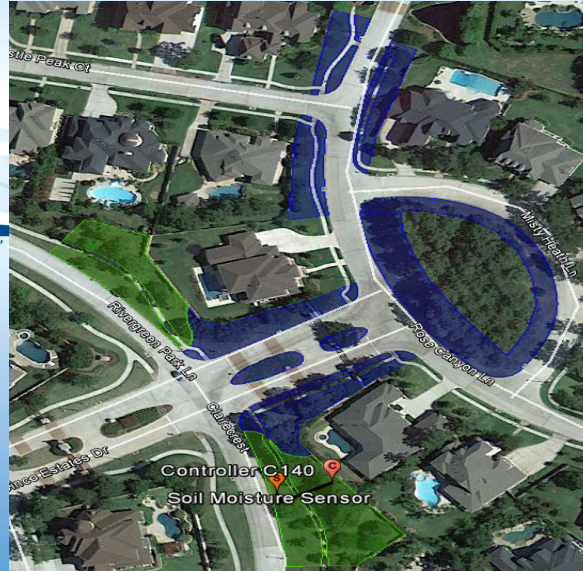


## STUDY COMPONENTS

- COST EFFECTIVE SOLUTION
- PHYSICAL CHANGES
- CENTRAL CONTROL
- SMS MONITORED
- MANAGEMENT SUGGESTIONS
- MANAGEMENT CONTROL
- 10 YEAR WATER USE HISTORY



## Cinco Ranch, TX





## STUDY STEPS

- MODIFICATIONS BY CONTRACTOR (FEB 2012)
- CONCEPT REVIEW WITH CONTRACTOR (FEB 2012)
- 2 MONTHS OBSERVE (4/5-2012)
- 10 MONTH RECOMMENDATIONS (6-12 TO 3-13)
- 7 MONTH MASUEN MANAGED (4/10-2012)

## MANAGEMENT ISSUES NOTED

- IRRIGATION DURING RAIN EVENTS
- IRRIGATION RIGHT AFTER RAIN EVENTS
- FREQUENT, ALMOST DAILY IRRIGATION
- SHORT WATERING CYCLES
- MINIMAL/POOR USE OF CYCLE SOAK
- LITTLE TO NO ATTENTION TO MICRO-CLIMATE

## RESULTS OVERVIEW

- 2 MONTH OBSERVATION – 19% INCREASE
- 10 MONTH RECOMMENDATION – 22% DECREASE
- 7 MONTH MASUEN MGT – 43% DECREASE
- 21.12" Et Deficit VS 17.38" deficit HISTORICALLY

## FACTS AND FIGURES

- MANAGEMENT EFFICIENCY – 43% REDUCTION
- LOST SAVINGS - \$554,000/YR – 200,000,000  
GALS (OVER PREVIOUS 5 YEAR PERIOD)
- POTENTIAL SAVINGS (\$595,661/YR) (14-18)
- HEALTHIER AND MORE ATTRACTIVE SITE



## Before and After



## SHORT STORY

- GOOD WATER MANAGEMENT SAVES
  - LOTS OF MONEY
  - LOTS OF WATER
- INDUSTRY ILL-EQUIPPED
- THE TRUE LOW HANGING FRUIT

# Why

- Industry does not demand it  
Value  
Mindset  
Habit
- Math (\$), Philosophy, Politics

VALUE OF WATER

## WATERS PERCIEVED VALUE



\$1,000 AF (\$3/1000)



\$326,700 AF



\$381,150 AF



\$411,209 AF



\$726,000 AF

SPORTING EVENT -  
\$4.00/16OZ BOTTLE

\$10,454,4000 AF

## Industry Mindset

- RELATIVELY SPEAKING
  - LS low on \$ and priority
  - IR lower
  - LS/IR maintenance even lower
  - LS/IR management lowest

## Industry Habit

- LACK OF A TRULY HOLISTIC MINDSET

## MINDSET EXAMPLES - CA

- California under 25% water use reduction
- California \$450million to remove turf (grants)
- DROUGHT TO CAUSE \$2.7B hit to CA AG and cost as many as 18,600 jobs
- Lake Mead by 2017 low enough to trigger automatic water delivery cuts to Arizona and Nevada....and possibly even CA

## MINDSET EXAMPLES 2 - CA

- Executive order released by California Governor Jerry Brown on April 1
  - More efficient irrigation systems
  - Graywater usage and other alternative water sources
  - On-site stormwater capture
  - Limit on portion of turf in landscapes

## MINDSET EXAMPLES 3 - CA

- Carlsbad CA – 1 billion for R/O plant (northern San Diego) – 7% of their 111,000 population
- Santa Barbara built R/O in 90's due to drought...started raining so they never used...now they are un-moth balling it at a cost of another \$40 million
- Monterey - \$300 million – power costs



## MINDSET EXAMPLES - TEXAS

- Amendment 6 - \$2B – 20% for conservation but PRIMARILY for reuse plants
- NFBWA - 15% across the board reduction vs \$400 million – 2% for conservation
- Luce Bayou/NEWPP/2<sup>ND</sup> PIPING - \$2.3 BILLION

## THE POTENTIAL

- LOWER OVERALL INDUSTRY COSTS
- LOWER WATER COSTS
- SUSTAINABLE M&O COSTS
- SUSTAINABLE WATER DEMAND
- COMPLIANCE TO CURRENT REGS

## A DIFFERENT AVENUE

- Paradigm shift – CHANGE THE WAY WE OPERATE
- Think long term vs short term
- Must change value structure
- Plan and operate holistically
- Integrate the industry
- Train professionals - TNLA

## TWO PATHS TO CHOOSE

FIND OUR OWN WAY

HAVE OTHERS FIND IT FOR US

