

# GROUNDWATER 101



Milan J. Michalec, Cow Creek Groundwater Conservation District

# Bottom Line Up Front



- **"The primary message of the 2012 State Water Plan is a simple one: In serious drought conditions, Texas does not and will not have enough water to meet the needs of its people, its businesses, and its agricultural enterprises."**

Edward G. Vaughan, chairman of the Texas Water Development Board

# Purpose

- Provide a basic knowledge of water issues
  - ▣ To inform
    - Sources: Public domain
- Here to inform, not alarm
  - Increase awareness
  - Education is the key to understanding
    - Water is not complicated, it's confusing

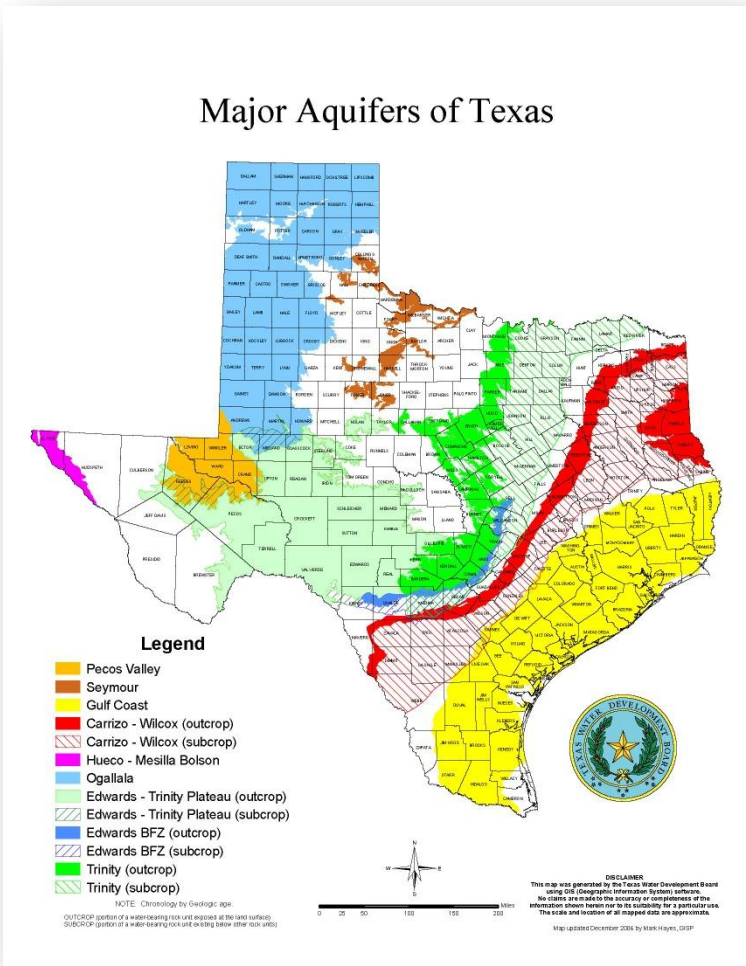
# Introduction

- Water is the Hill Country!
  - ▣ The natural scenic beauty, the native wildlife, and the local historical and cultural heritage of the Hill Country
    - All owed to the clear running water from the seeps and springs of the Trinity Aquifer system
      - The challenge: Sustainable growth for the future
- Water Issues:
  - ▣ ***Law***
  - ▣ ***Availability***
  - ▣ ***Funding***
  - ▣ ***Drought***
  - ▣ ***The Future-What Can We Do?***

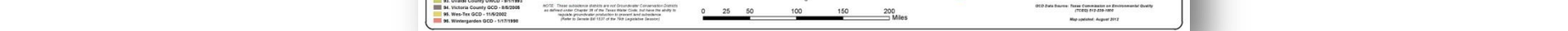
# 1. Texas Water Law

- Texas water laws are a mixture of two separate doctrines—surface or underground storage
  - About 40 percent of Texas' water is in storage on the surface
    - Generally can only be used by permission of the state
  - About 60 percent is beneath private property
    - Protected by law as the property of the landowner
      - Can be reasonably regulated by a Groundwater Conservation District

| Response | Percentage |
|----------|------------|
| Yes      | 75%        |
| No       | 25%        |




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## 2. Water Availability

- Long-term assessment and planning to meet Texas' future water demand is contained in the 2012 State Water Plan—50 year look into the future
  - Identifies 562 "potentially feasible" water management strategies recommended by 16 regional water planning groups
  - Water must be both **physically** and **legally** available
    - These two aspects combined during time of drought defines "available water"



# Regional Water Planning Groups



# 3. Water Funding

- State Water Plan must be implemented to ensure economic viability-subject to political will
  - The cost to implement these strategies is \$53 billion
    - Represents only one-fourth of the \$231 billion total cost for other water related requirements, such as:
      - Water supply treatment and distribution
      - Wastewater treatment
      - Flood control
  - \$\$ come from federal, state, local government or rate payers
    - The recognition of these costs and who will pay the bill is significant

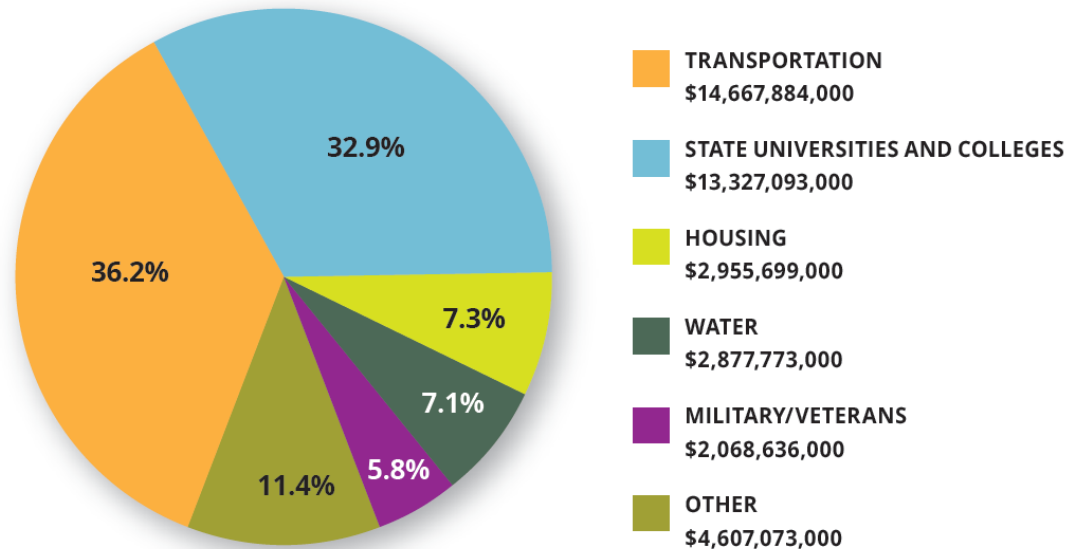
Progress is not so clear!

# State Debt

## TEXAS TOTAL STATE DEBT OUTSTANDING BY CATEGORY

AS OF AUG. 31, 2011

**OUTSTANDING TOTAL  
\$40.5 BILLION**

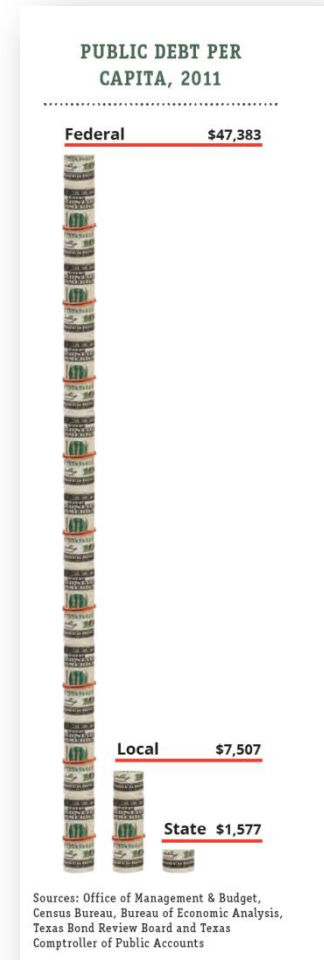


Note: Numbers may not sum due to rounding.  
Source: Texas Bond Review Board

Source: Texas Comptroller of Public Accounts, "Your Money and Local Debt", 2012

# Total Public Debt

- Per Capita Debt: The amount of local, state and federal debt of every man, woman and child in Texas



Source: Texas Comptroller of Public Accounts, "Your Money and Local Debt", 2012

# 4. Drought

- **"The primary message of the 2012 State Water Plan is a simple one: In serious drought conditions, Texas does not and will not have enough water to meet the needs of its people, its businesses, and its agricultural enterprises."**

Edward G. Vaughan, chairman of the Texas Water Development Board

- Texas water planning requires management under a “worst case scenario”—the drought of record
  - ▣ By definition, the drought of record is from 1950 to 1957
  - ▣ Represents a benchmark risk—a known condition
- Should the drought that began in 2010 persist, **it could likely be worse than the drought of record**
  - ▣ Dr. John Neilson-Gammon, State Climatologist: “What was the worst one-year drought on record for Texas has lasted for two years so far.”

# 4. Drought

- The response to drought can range from voluntary conservation to banning outdoor watering
  - ▣ Restricted use of water during drought is NOT water conservation
    - It is a temporary response to a temporary condition, but one that can have a crippling effect socially and economically

# 5. The Future of Water

- By 2060, the population of Texas is expected to essentially double—from 25.4 million to 46.3 million
  - ▣ To meet the water needs by 2060, the state will need 8.3 million acre feet of new water
    - 2012 State Water Plan recommends water management strategies that include conservation, drought management, reservoirs, wells, water reuse, desalination and others
  - ▣ The total quantity of water that must be gleaned from conservation and re-use strategies statewide is 34%
    - Water expected to become available when reusable (recycled) water and water from conservation strategies are combined
    - Region “L” conservation strategies account for 10%
- The contribution of land stewardship must be recognized as the lowest-cost option to provide higher quality and quantity of water

# 5. The Future of Water

- Homeowners associations, taxing entities, and regulatory agencies have adjusted their rules and policies as a result of Legislative activity
  - ▣ Not only allows, but **encourages** innovative techniques that can produce additional water
    - One of the most promising is rainwater harvesting
- The value of the land in concert with viable, cost-effective alternatives must be recognized
  - ▣ Financial and governmental organizations can support this decisive transition away from traditional sources



# What Can We Do?

- **There are ways to increase local water supply today:**
  - ▣ **1. Support local solutions, through local funding, with a local impact**
    - Support the business development of ecosystems services by recognizing the value of land for tourism, improved water quantity and quality and the open spaces we enjoy so much in the Hill Country

# What Can We Do?

- **2. Reward landowners who wish to keep their water rather than sell it**
  - ▣ All living things benefit from this conservation
- **3. Acknowledge the potential for rainwater harvesting**
  - ▣ Potential large scale centralized systems for business
  - ▣ Drinking water quality for whole-house
  - ▣ Non-potable use for landscape

# What Can We Do?

## □ **4. Recognize the limitations of the land**

- Not everyone can build what they want due to water considerations
  - Question the projects that cannot prove they have the water they will need

## □ **5. There is no such thing as surplus water**

- Some support acquiring “surplus water” as a popular approach to resolve localized water shortages
  - Water is finite—all of the water we can use for our future is here today

# What Can We Do?

- “Surplus water implies that the water is serving no use and is available. I repeat, all water is serving a useful purpose, and transferring from one area to another has social and environmental consequences that must be well understood before taking such action.”

Con Mims, Executive Director of the Nueces River Authority

# What Can We Do?

## □ **The Wild Cards-Awareness**

### □ **Exempt wells**

- **Impact to groundwater management**

### □ **Legislature**

- **House Bill 1763, Senate Bill 332, Environmental Flows**

### □ **National**

- **EPA regulation**

### □ **International**

- **Rio Grande Compact**

# Edge Falls



# Summary

- Forewarned is forearmed
  - ▣ For any problem, there's a corresponding solution
    - But when the problem is water, it's just not that easy!
      - It's not complicated, it's confusing
      - Be water aware-what is the source?
- It is from water that life in Kendall County may remain attractive, profitable and perpetual

Water Education Is The Key

THANK YOU!



Milan J. Michalec, Cow Creek Groundwater Conservation District