



Region C Water Planning Group

December 10, 2007



Action Items

- A. Officer Election for 2008
- B. Letter(s) to Water Conservation Advisory Workgroups
- C. Letters to TWDB Regarding Draft Rules



Officer Elections

Jim Parks



Letter(s) to Water Conservation Advisory Council Workgroups

Stephanie Griffin

Overview Water Conservation Advisory Committee

- Members selected by TWDB
- Composed of five workgroups
 - Work Group 1: monitor effectiveness of state public awareness program and develop public recognition program
 - Work Group 2: monitor trends in water conservation implementation and monitor target and goal guidelines
 - Work Group 3: monitor the implementation of water conservation strategies by water users in regional water plans

Overview Water Conservation Advisory Committee Cont.

- Work Group 4: monitor new technologies for possible inclusion in Best Management Practices Guide and develop a state water management resources library
- Work Group 5: conduct a study to determine level of desirability of requiring the TWDB to certify training facilities/programs which would provide assistance to water utilities in developing their water conservation plans

Ideas that Work Group One Might Consider

- Create a list of possible sources of funding.
- Gather data on the effectiveness of the Water IQ program from entities which have already implemented the program.
- Look at possibility of incorporating Water IQ into public school curriculum.
- Designate a State staff person to oversee the program.

Ideas that Work Group Two Might Consider

- Develop standard methodology and definition for per capita water use (gpcd)
- Determine who does not have a conservation plan. Should they be required to develop a plan?
- Develop process for water user groups to measure and track progress of conservation. Develop method of reporting to TWDB.

Ideas Work Group Three Might Consider

- Focus on conservation information included in regional water plans.
- Consider surveying entities to determine the strategies implemented in the previous five years and the strategies planned for implementation in the next five years. Compare responses to the Regional Water Plan to monitor implementation.

Ideas Work Group Four Might Consider

- Develop cost estimates to staff, equip and maintain. Is it a cost effective endeavor?
- Define the subject material and categories to be included.
- Establish State staff and resources to maintain the online and/or on-site library.
- Include peer reviewed information, not articles of opinion.
- Consider allowing universities to link this information with their database searches.

Ideas Work Group Five Might Consider

- Determine objectives and benefits of a certification process. Is it worth the extra cost to develop? What would be the advantage of a certified plan?
- Survey entities to determine desirability of requiring TWDB to certify training programs to provide assistance to water utilities in preparing conservation plans.
- Certification should not be mandatory.

Additional Comments

- The Work Groups could benefit from greater participation of
 - Regional Water Planning Groups
 - public
- Most Work Groups have only met once and are currently developing objectives.

Discussion/Action

- What are your thoughts on sending letter of ideas to Water Conservation Advisory Council?





Letter to TWDB Regarding Draft Rules

Stephanie Griffin

Draft Rules for 2009-2011 Planning

- TWDB posted draft rules for comment
- Comments due December 16
- Most changes simply update the language
- FNI provided comment letter on behalf of FNI

Ideas for RCWPG to Consider Submitting to the TWDB

- Adjusting the text in Section 357.7(a)(3)(B) to include additional yield resulting from the operation of two or more water resources as a system.

Ideas for RCWPG to Consider Submitting to the TWDB

- Section 357.7(a)(8)(I) allows for alternative strategies to be substituted for original recommended strategies. The intent is to provide flexibility to the plans, but the language is still somewhat limiting. You might consider replacing the phrase “no longer feasible” with “no longer recommended”, as proving a project to be “no longer feasible” may prove to be a difficult challenge.

Ideas for RCWPG to Consider Submitting to the TWDB

- You may also choose to comment on the 125 percent limitation in Section 357.7(a)(8)(I). Some alternative strategies may provide more than 125 percent of the shortage in some decades. For the purposes of right-sizing projects, we would recommend that the project not be downsized simply to meet the 125 percent clause in a particular decade.

Discussion/Action

- Does the RCWPG want to provide comments to the TWDB?





Discussion Items

- A. Progress Report on Special Studies
- B. Presentation on Projects Completed Since 1997
- C. Discussion of Water Demands and Per Capita Use
- D. Schedule Update



Progress on Special Studies

1. Study 1 – Conservation and Reuse
2. Study 2 – Toledo Bend
3. Study 3 – Reuse Pilot Projects
4. Study 4 – County Studies

Study 1 – Conservation and Reuse Technical Memorandum

- Objectives of survey were to:
 - Identify Best Management Practices (BMP's) that have been implemented
 - Evaluate the effectiveness and costs of the BMP's being implemented
 - Identify water reuse strategies that have been implemented or are being considered
 - Identify public outreach programs
 - Receive updates to water conservation and drought contingency plans

Study 1 – Conservation and Reuse Technical Memorandum

- Mailed surveys on August 31st
- Surveys received were as follows:

Entities	Mailed	Received	
		No.	Percent
WUGs	235	95*	40%
WWPs	35	24	69%
Total	270	119	44%

* 17 additional WUGs responded that they were not involved with water supply and provided no data with the returned survey.

Study 1 – Conservation and Reuse Technical Memorandum

- List of Best Management Practices
 - Basic Water Conservation Package
 - Low-flow plumbing fixture rules
 - Public and school education
 - Water use reduction due to increasing water prices
 - Water system audit, leak detection and repair, and pressure control
 - New efficient residential clothes washer standards

Study 1 – Conservation and Reuse Technical Memorandum

- List of Best Management Practices
 - Expanded Water Conservation Package
 - Water conservation pricing structure
 - Water waste prohibition
 - Coin-operated clothes washer rebate
 - Residential customer water audit
 - Industrial, commercial, and institutional (ICI) general rebate
 - ICI water audit, water waste reduction, and site-specific conservation program
 - Reuse of treated wastewater effluent

Study 1 – Conservation and Reuse Technical Memorandum

- List of Best Management Practices
 - Additional strategies provided by survey participants:
 - Evapotranspiration (ET) Irrigation Controllers
 - Rain and Freeze Sensors
 - Twice Per Week Irrigation
 - Time of day water restrictions
 - Meter replacement program
 - Even/Odd Watering Each Summer
 - Low-water landscape code and conversion incentives
 - High efficiency irrigation required and conversion incentives
 - Site Specific Conservation Program

Study 1 – Conservation and Reuse Technical Memorandum

- Summary of BMPs
 - Of the 95 WUGs who responded
 - 86 have implemented at least one BMP
 - Most commonly implemented BMPs
 - Low-flow plumbing fixture rules (34%)
 - Public and school education (43%)
 - Increasing water prices (61%)
 - Water system audit, leak detection/repair (55%)
 - Water conservation pricing structure (41%)
 - Most effective BMPs
 - Water system audit, leak detection/repair
 - Water conservation pricing structure
 - Water waste prohibition
 - Reuse

Study 1 – Conservation and Reuse Technical Memorandum

- Summary of BMPs
 - Of the 24 WWP's who responded
 - 16 have implemented at least one BMP
 - Most commonly implemented BMPs
 - Low-flow plumbing fixture rules (54%)
 - Public and school education (58%)
 - Increasing water prices (42%)
 - Water system audit, leak detection/repair (50%)
 - Water conservation pricing structure (46%)
 - Most effective BMPs
 - Increasing water prices
 - Water conservation pricing structure
 - Reuse

Study 1 – Conservation and Reuse Technical Memorandum

- Summary of Reuse Projects
 - Of the 95 WUGs who responded
 - 3 have implemented reuse strategies (<0.3 MGD)
 - 4 others are considering reuse strategies
 - Of the 24 WWPs who responded
 - 6 have implemented reuse strategies (<7 MGD)
 - 5 others are considering reuse strategies

Study 2 – Toledo Bend Reservoir

- Region C and I consultants teleconference scheduled for this week.

Study 3 – Athens Pilot Project

- The 2006 Region C Water Plan recommended that the Athens Municipal Water Authority (AMWA) augment its water supply in Lake Athens with treated wastewater effluent
- Met with Athens Municipal Water Authority on October 25 to kick off project

Study 3 – Athens Pilot Project

- Tasks accomplished
 - Analyzed Lake Athens water quality data
 - Analyzed water quality data for WWTP discharges
 - Developed Lake Athens water balance using hydrological information from the Neches WAM

Study 3 – Athens Pilot Project

- Next steps
 - Establish detention time, percent blend, and treatment level criteria for reclaimed water in Lake Athens
 - Use the flow balance to estimate reclaimed water detention times for various reclaimed water flowrates
 - Evaluate potential pipeline routes for conveying reclaimed water to Lake Athens
- Draft report due in September 2008

Study 3 – Fort Worth Pilot Project

- The 2006 Region C Water Plan recommended that Fort Worth implement four direct reuse projects:
 - Mary's Creek
 - Central Business District
 - Village Creek
 - Alliance Corridor

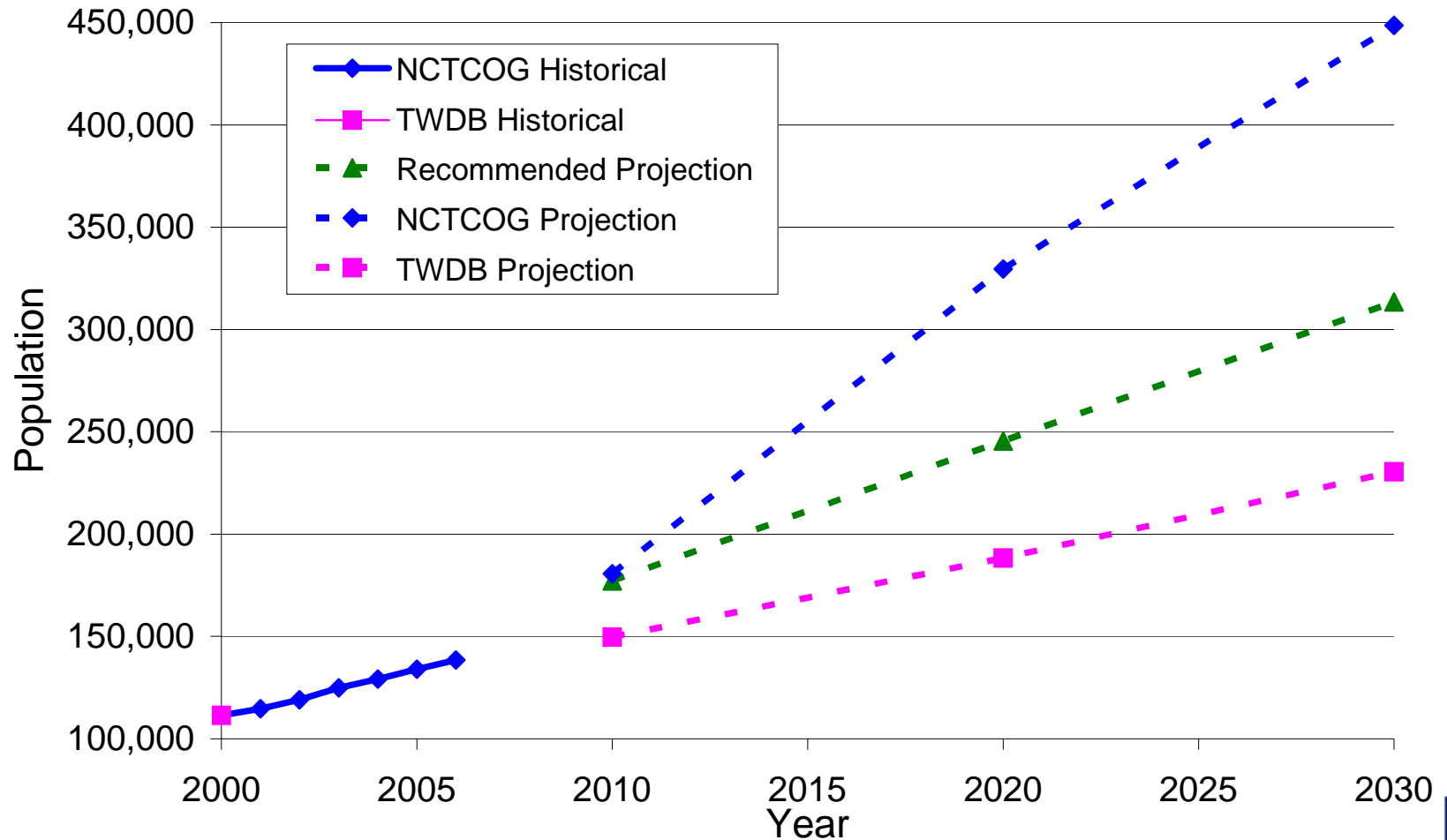
Study 3 – Fort Worth Pilot Project

- Next step
 - Kickoff meeting with City of Fort Worth to select the three projects that will be refined
- Draft report due September 2008

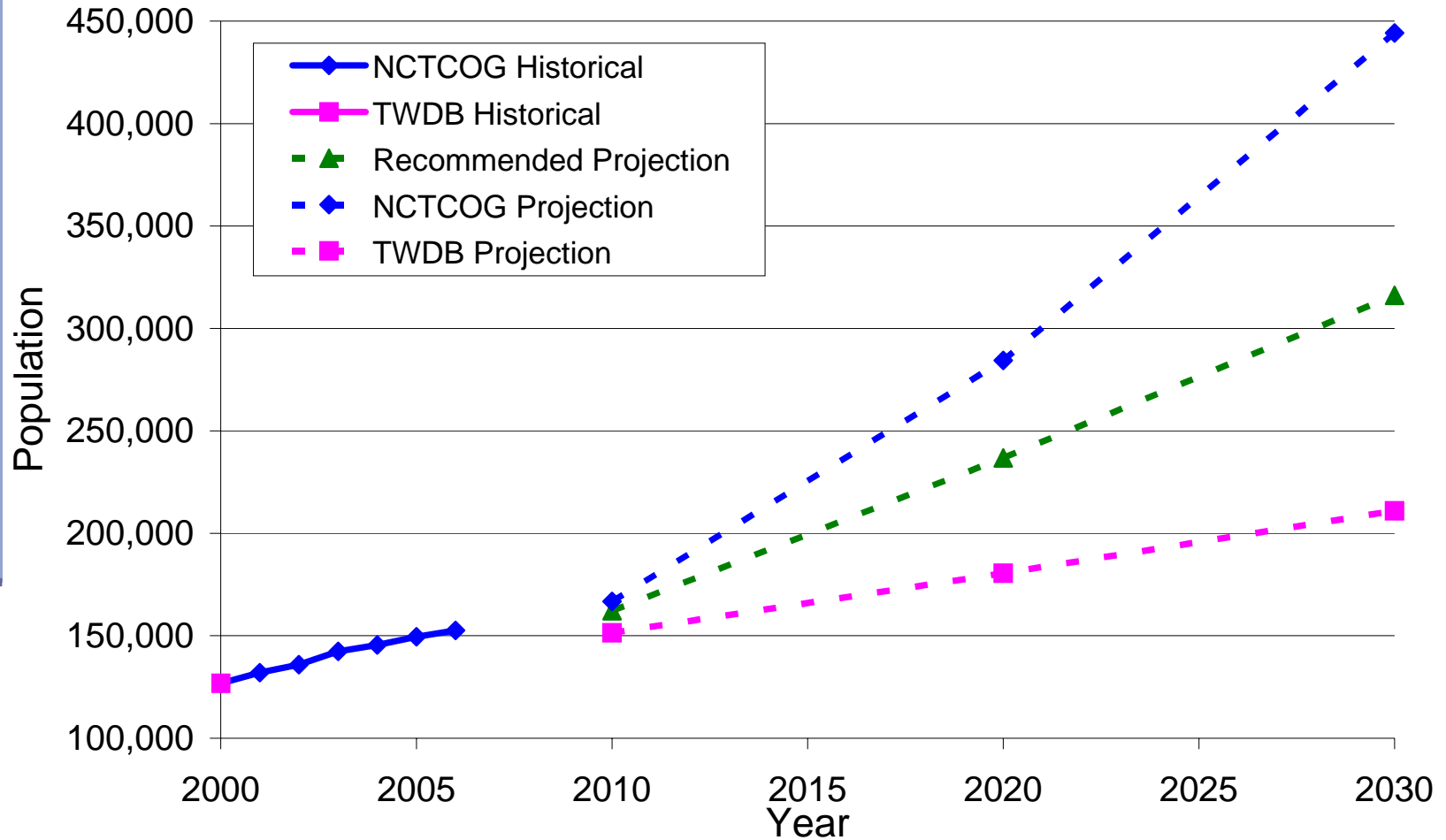
Study 4 – Four County Study

- Completed survey of WUGs/WWPs
- Developed draft projections

Comparison of Population Projections Ellis County



Comparison of Population Projections Johnson County



Study 4 – Four County Study

- Current Activity
 - Summarizing current supplies
 - Meeting with large wholesale providers later this month
 - Developing a comparison of supply and demand

Study 4 – Parker-Wise Study

- Begin meeting with WUGs/WWPs in January
- Developing agendas for meetings

Study 4 – County-Wide Meetings

- Cooke-Grayson Counties
 - Fannin County
 - Freestone County
 - Navarro County
 - North Kaufman County
-
- Begin meeting early in 2008 to have information in-hand for next TWDB funding request

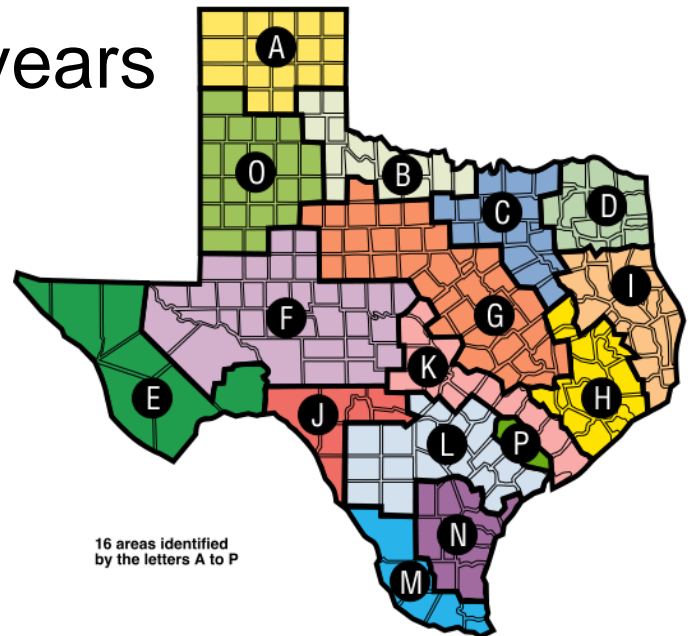


Projects Completed Since 1997

Tom Gooch

Background

- SB1 established in 1997 by Texas Legislature
- Texas was divided into 16 regions
- 50-year planning horizon
- Grassroots effort for statewide water planning
- Plans updated every 5 years



16 areas identified
by the letters A to P

What has Region C accomplished?

- Completed two cycles of regional water planning
 - *2001 Region C Water Plan*
 - *2006 Region C Water Plan*
- Third cycle of planning underway – special studies
- All projects seeking permits and/or state funding must be in regional water plan
- Contributed toward the implementation of the following projects...

Large-Scale Water Conservation Initiatives

- Dallas
- North Texas Municipal Water District
- Arlington
- Fort Worth
- Tarrant Regional Water District
- Many other cities and suppliers



Reuse Projects

- Completed
 - Garland/Forney reuse for power plant
 - NTMWD Wilson Creek reuse expansion
 - Grapevine/Dallas County Park Cities MUD
- Under Construction (to be completed 2008)
 - NTMWD East Fork Raw Water Supply Project
 - TRWD wetlands (phased completion)

Reuse Projects



- In Progress
 - Dallas' contract for return flows
 - UTRWD reuse of Lake Chapman water
- Permitted
 - Athens MWA
 - Trinity River Authority
 - Dallas' Ray Hubbard & Lewisville
 - Irving
- Total reuse more than 730,000 AF/Y

Connection to Existing Supplies

■ Completed Projects

- Irving pipeline from Lake Chapman to Lake Lewisville
- TRWD Benbrook Project
- Weatherford pipeline to Lake Benbrook
- Denton pipeline from Lake Ray Roberts
- Collin-Grayson Municipal Alliance pipeline (GTUA and NTMWD)

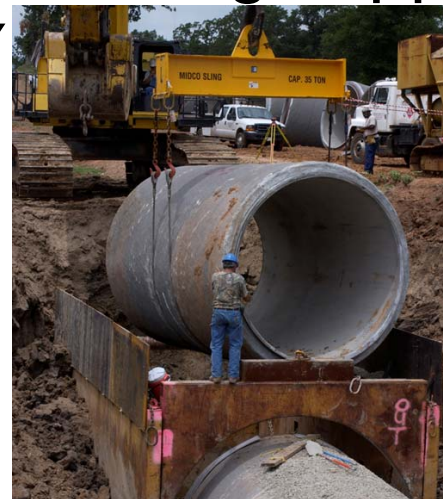


Connection to Existing Supplies

- Completed Projects
 - Ennis connection to TRWD supplies
 - Terrell connection to NTMWD
 - Gainesville development of Moss Lake supply
 - TRWD high capacity pumping from Richland-Chambers Reservoir
 - Wise County Water Supply from Walnut Creek SUD

Connection to Existing Supplies

- Under Construction (to be completed 2008)
 - TRWD Eagle Mountain connection
 - NTMWD Lake Tawakoni pipeline
 - Dallas' Lake Fork pipeline
- Total from connecting to existing supplies is more than 380,000 AF/Y



New Reservoirs

- Muenster Lake (Cooke County) 500 AF/Y



Permit Applications Being Pursued

- NTMWD – Lower Bois d’Arc Creek Reservoir
- TRWD – Oklahoma supplies
- UTRWD – Lake Ralph Hall and Oklahoma supplies

- Total permit applications is greater than 800,000 AF/Y

Additional Supplies

- Numerous new water treatment plants
- Numerous water treatment plant expansions
- Additional groundwater wells
- Numerous wholesale water pipelines from city/supplier to city
- Implementation of water conservation plans
- Implementation of drought contingency and emergency response plans

What does this mean to North Texas?

- North Texas has added over 1.9 million AF/Y of supply since 1997
- Increased interest in conservation and reuse
- Region C is better prepared for drought

- Region C Water Planning Group still has work to do to meet the water needs of this growing population.



Water Demands and Per Capita Use

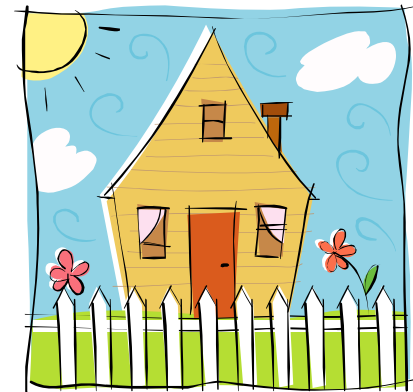
Tom Gooch

Water Demands

- Municipal
- Manufacturing (Industrial)
- Steam Electric Power
- Mining
- Irrigation
- Livestock

Municipal Water Demands

- Includes
 - Residential demands – single and multi-family
 - Commercial demands – businesses, restaurants, hotels, etc.
- Region C predominantly municipal demands
- Municipal demands include reduction due to plumbing code savings (low-flow fixtures)

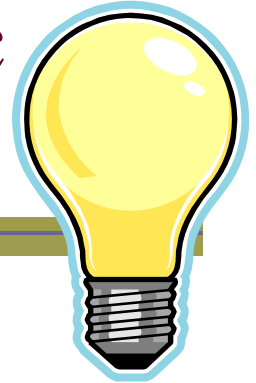


Manufacturing Water Demands

- Companies that use water in the process to make the end product
- TWDB tracks manufacturing water use according to SIC code



Water Demands for Steam Electric Power Generation



- Water needed for cooling purposes
- TWDB sponsored study of steam electric power generation that was included in Region C work
- Statewide, power demand appears to be growing faster than projected
- Location of power demand is difficult to predict

Mining Water Demands



- Water used for mining processes, including hydraulic use, drilling, washing sand and gravel, and oil field repressuring
- Region C historically had only a small amount of mining demand
- Development of Barnett Shale NOT included in 2006 Plan; should be included in 2011 Plan

Irrigation Water Demand

- Agricultural irrigation of crops, trees, and pastureland
- Includes water used on golf courses and parks that do not receive water through a municipal distribution system
- Very little irrigated crops in Region C
- Some irrigation of golf courses



Livestock Water Demands

- Water used to maintain livestock
- Typically groundwater wells and stock tanks
- Small amount of livestock demand in Region C
- Fish hatchery in Athens is considered a livestock demand

Per Capita Water Use

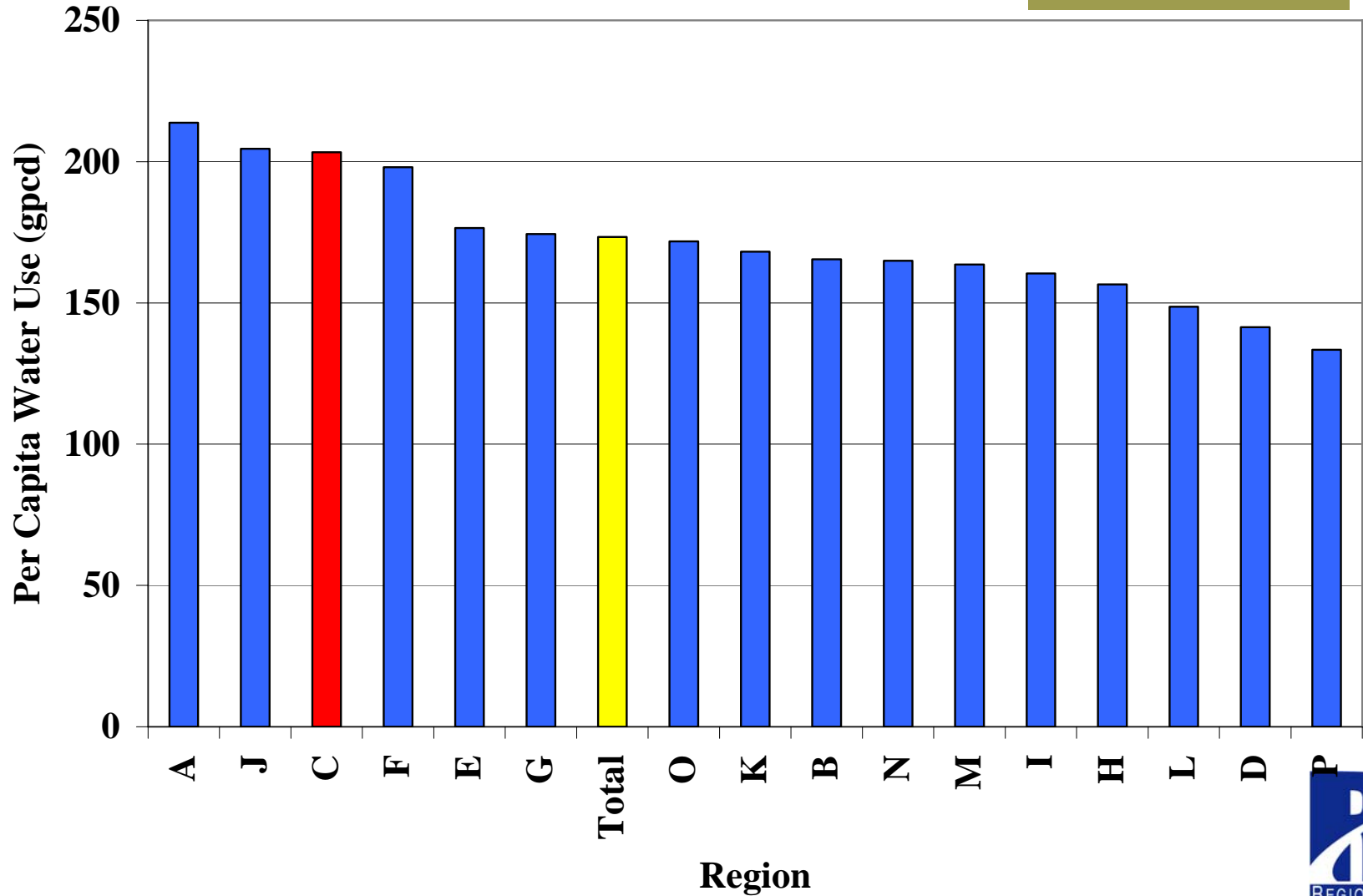
- Many definitions
 - Basic definition: amount of water used divided by population
- Results change based on assumptions
- Measured in gallons per person per day (gpcd)

Municipal Per Capita Water Use

- Many definitions:
 - TCEQ: total water diverted for residential, commercial, and public and institutional uses divided by actual population served
 - Water Conservation Implementation Task Force: total water diverted for potable use divided by total population with credit for volume of indirect reuse
 - TWDB definition: amount of water diverted for municipal purposes divided by the population. Wholesale water sales and industrial water use are not included.

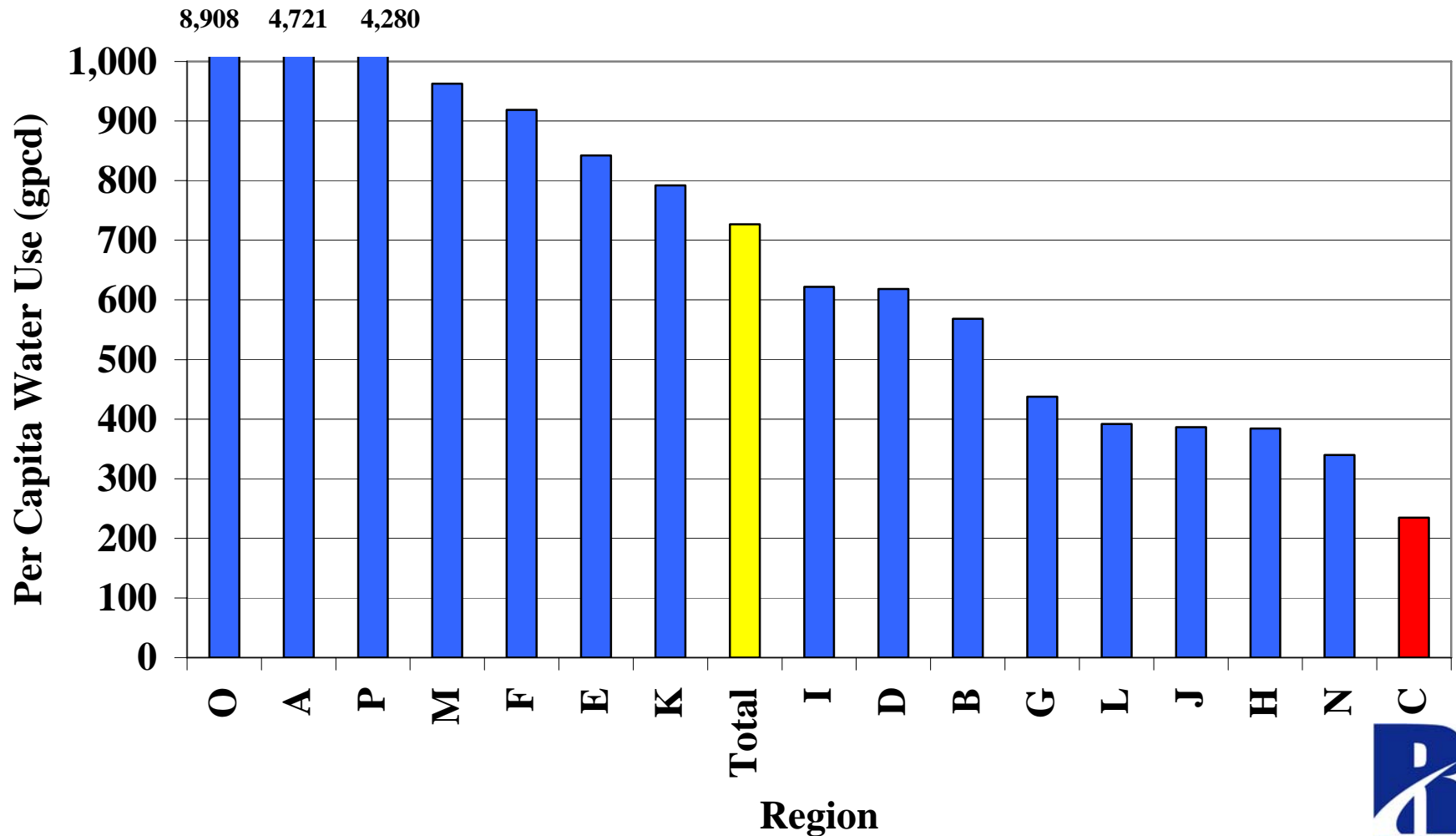
Year 2000

Municipal Per Capita Water Use

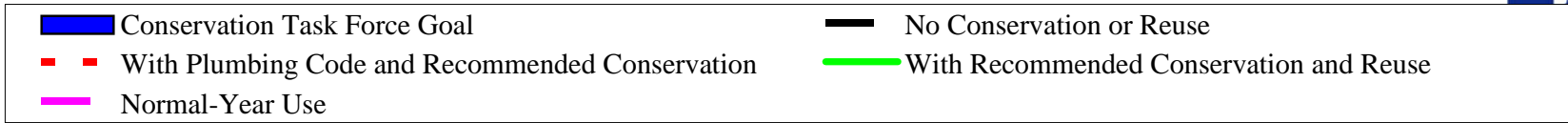
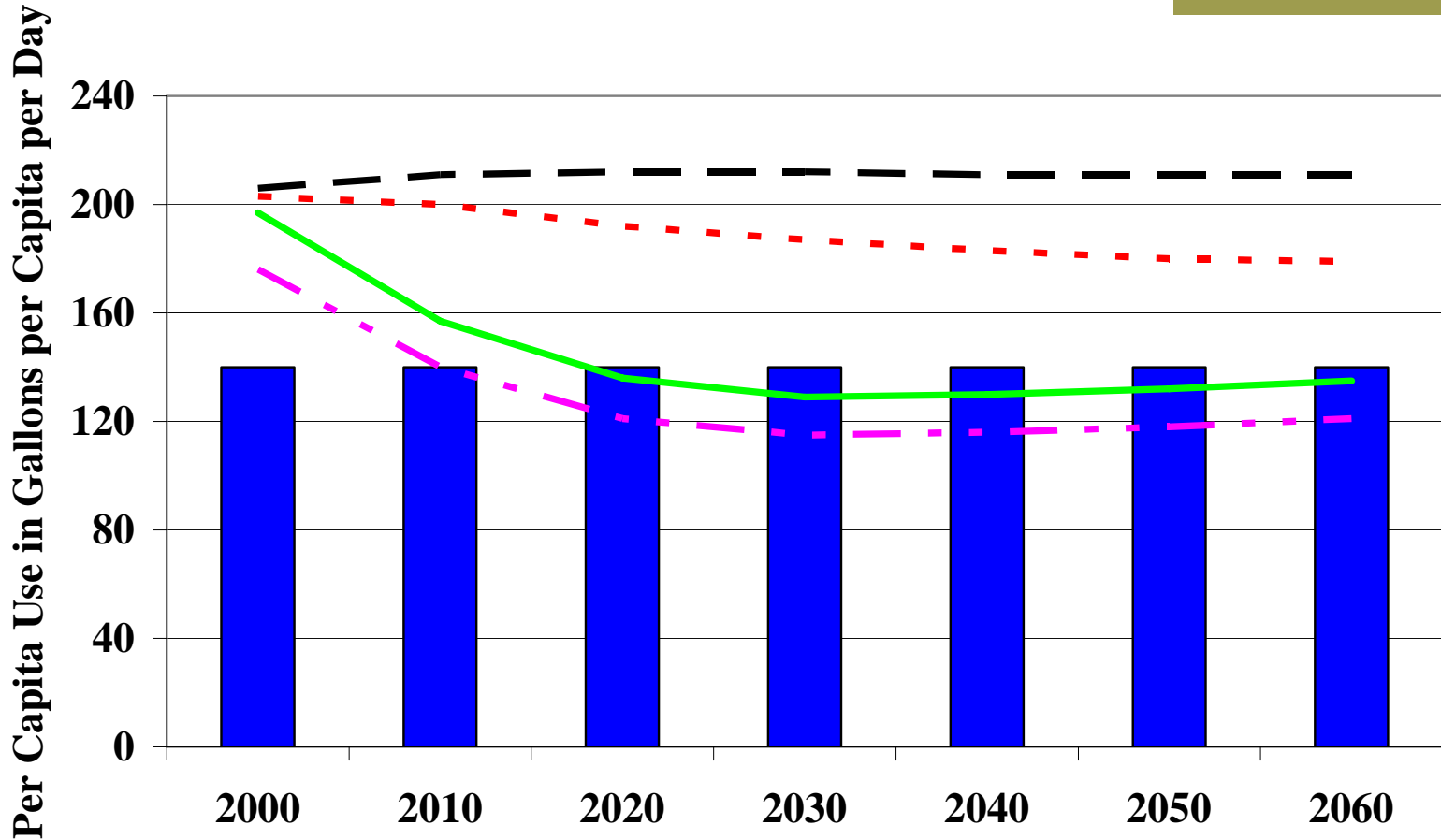


Year 2000

Total Per Capita Water Use



Projected Municipal Per Capita Water Use in Region C



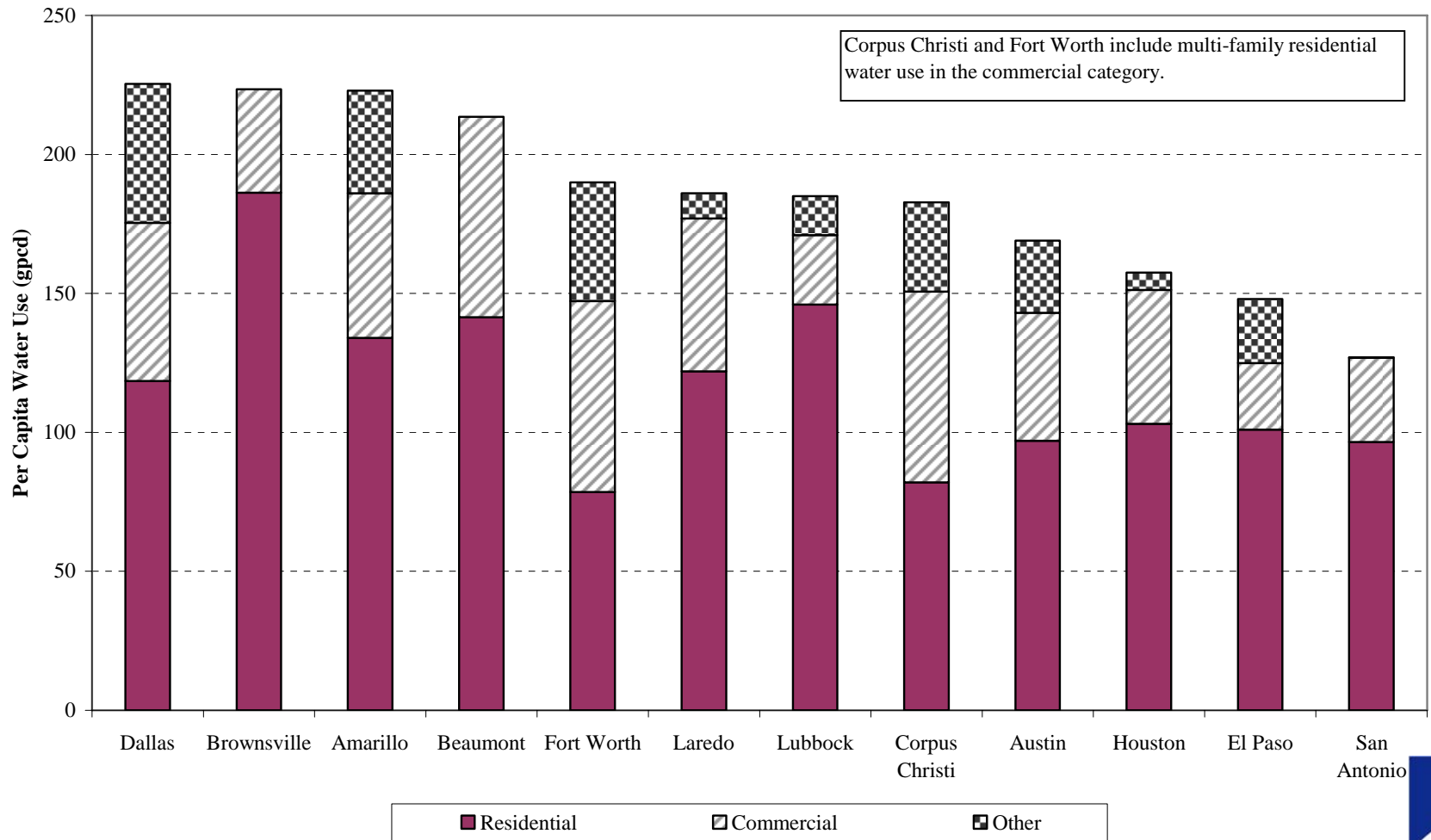
Purpose of Per Capita Water Use

- Measure an entity's water use from year to year
- Develop demand projections using population projections multiplied by projected gpcd

Disadvantages of Per Capita Water Use Comparison

- Should NOT be used to compare water use from one entity to another
- Does not reflect weather conditions and can result in an overestimate of conservation savings from year to year
- Entities track types of sales differently

Five Year Average Net Municipal Per Capita Water Use by Category



Conclusions of Per Capita Water Use

- Useful to an individual entity
- Not a good comparison of water use from entity to entity
- Does not account for weather



Schedule Update

Stephanie Griffin

Updated Schedule

- February 2008
 - Updates on special studies
 - Present memos associated with the Conservation/Reuse study
 - Present memo on population and demand projections for the Four County Study
 - Discuss TWDB RFP for 2009-2011 work
 - Guest Speaker: State Climatologist Office

Updated Schedule

- May 2008
 - Updates on special studies
 - Present draft report on the Conservation/Reuse study
 - Present draft report on Parker-Wise County study
 - Present memos on Other County Meetings
 - Public meeting to discuss proposed scope of work and funding application (due 6/13/08)

Updated Schedule

- September 2008
 - Present final report for Conservation/Reuse study
 - Present draft report for Four County study
 - Present final report for Parker-Wise County study
 - Update on TWDB contract status for 2009-11 work

Updated Schedule

- November 2008
 - Present draft report for Athens Reuse study
 - Update on Fort Worth reuse study
 - present revision for final report for Four County study
 - Update TWDB scope of work and contract status for 2009-2011 work

Updated Schedule

- February 2009
 - Present final report on Athens Reuse study
 - Present draft report and discuss revisions for final report for Fort Worth Reuse study
 - Update on final TWDB scope of work for 2009-2011 work



Thank you for attending.

Materials are available at
www.regioncwater.org