



# Region C Water Planning Group Meeting

TRA Central

Wastewater Treatment Plant

August 18, 2003

# Agenda

- Discussion Items Related to Water Conservation and Reuse
  - DWU water conservation program
  - Ongoing water conservation programs in Region C
  - Current reuse supplies
  - Neighborhood study

# Agenda (continued)

- Action Items for Consideration
  - Vote on amending the 2001 *Region C Water Plan*
  - Vote on Central Carrizo-Wilcox groundwater availability model policy
  - Approve correction to Trophy Club population being double counted
  - Proposed adjustments to the per capita water needs projections

# Agenda (continued)

- Additional Discussion Items
  - Update on Trinity GAM
  - Present topics for quarterly newsletter
  - Supply newspaper articles since June meeting
  - Supply speaker comments from June meeting (emailed to RCWPG prior to meeting)
  - Update on overall status and next steps

# Discussion Items on Water Conservation and Reuse

# Dallas Water Utilities Conservation Program

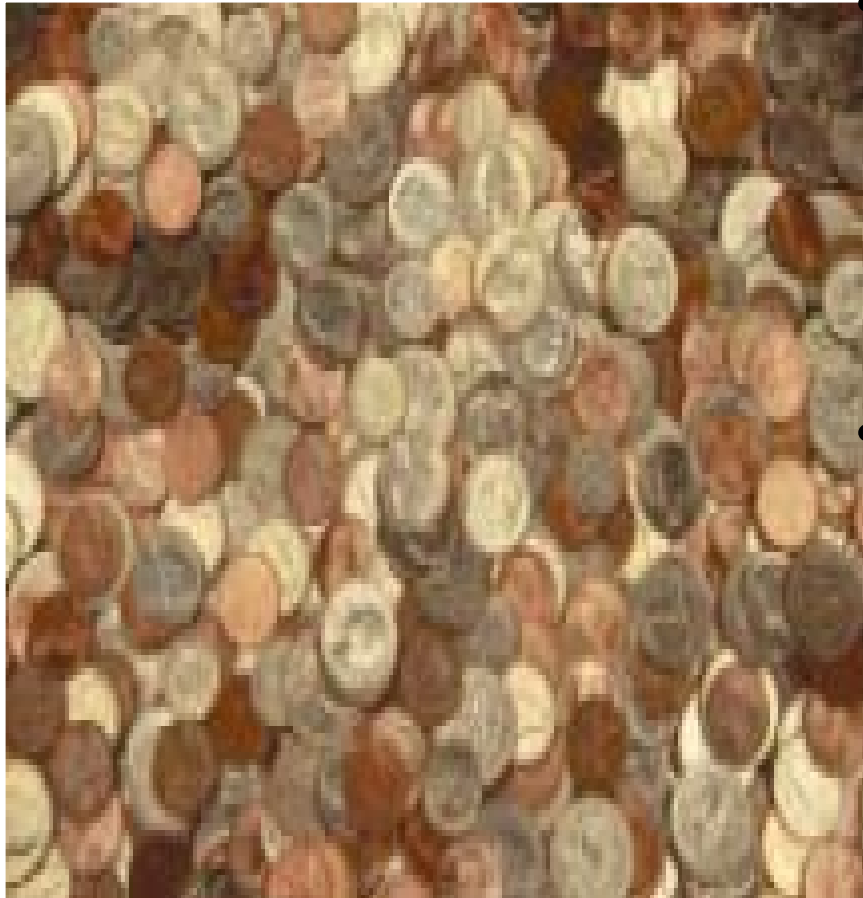
*An Alternative to Curb Supply  
Needs*

# Dallas Water Utilities Conservation Program Goals

- Reduce per capita water use/demands
- Reduce indoor/outdoor water use
- Delay the need to build new facilities
- Public education



# Conservation Tier Water Rates



- Residential customers using more than 15,000 gallons of water a month pay a higher rate for that water (74 cents more per every 1,000 gallons)
- Commercial customers using more than 10,000 gallons and more than 1.4 times their annual monthly average also pay a higher rate for that water



# Lawn & Landscape Watering Restrictions

***A person commits an offense if violation occurs on property that he owns, leases or manages.***

- It is an offense to water a landscape in a manner that wastes water or causes runoff
- Do not cause water to fall on sidewalks, driveways or other areas that are not lawns or landscapes



# Lawn & Landscape Watering Restrictions Continued



- It is an offense to operate a system with broken or missing sprinkler heads or one that is poorly maintained and leads to water waste
- Do not water or irrigate your landscape during any form of precipitation

# Sprinkler System Rain & Freeze Devices

- Changes to the plumbing code
  - Any new irrigation system installed on or after January 1, 2002 must be equipped with rain sensors and freeze gauges
  - Irrigation systems installed before that date have until January 1, 2005 to add them.

# Time-Of-Day Watering Restrictions

- Watering of lawns and landscapes is prohibited between the hours of 10 a.m. and 6 p.m., June 1 – Sept. 30 of any year



# Lawn & Landscape Watering Exceptions



- Hand watering is permitted at any time
- The use of soaker hoses is permitted at any time

# Fines

- A warning is issued for the first violation
- Subsequent violations will result in a fine of not less than \$250 or not more than \$2,000

# Public Education & Outreach

- Television Commercials
- Billboards
- Radio Spots
- Outreach Video
- Xeriscape Seminars
- Community Group Presentations
- Environmental Fairs



# Your Role

- Inspect current irrigation systems and operations to ensure compliance with conservation ordinance
- Don't allow your sprinkler system to water driveways, sidewalks and streets
- Don't water during any form of precipitation
- Water early in the morning
- Water only when your turf needs it (1-1 ½ inches every 5 to 7 days)
- Encourage your company to adopt water-wise measures





# Available Resources

- Posters
- Fact sheets
- Speakers
- Brochures
- Handy reference material
- Website: [www.dallascityhall.com](http://www.dallascityhall.com)

**To request information**

Call 214/670-3155

**Who Do I Call To Report  
Water Waste?**

**Call 3 1 1**

# Ongoing Water Conservation

- Texas Smartscape CD
- Tiered rate structures in many cities
- Water rebate programs for entities who use less water than the previous year
- Richland-Chambers wetlands project
- Leak detection and repair programs
- Meter testing and replacement programs
- Plumbing retrofits
- Enforcement
- Reuse

# Ongoing Water Conservation

- Xeriscape gardening demonstrations
- Education programs/Public outreach
  - Learning to be Water Wise
  - Waterwise program
  - Presentations to various organizations, such as Rotary Club, Lions Club, & Chamber of Commerce
- Publications
  - Brochures
  - Newsletter articles
  - Bill stuffers
  - Information on city websites

# Currently Available Reuse Supplies

- 28 unique supplies in Region C
- These supplies used for:
  - Water supply augmentation
  - Irrigation
  - Cooling Water
  - Aesthetics/Environmental
  - Dust Control

# Currently Available Reuse Supplies

- Currently available reuse supply projected to be greater than 90,000 ac-ft/yr
- Other reuse projects are in various stages of planning and implementation but are not currently available.

# Neighborhood Conservation Study

- Purposes of study:
  - Quantify benefits of low-flow plumbing fixtures, irrigation water audits, and other implemented conservation methods
  - Quantify impacts of different factors on water use
  - Use results to inform recommendations on water conservation strategies

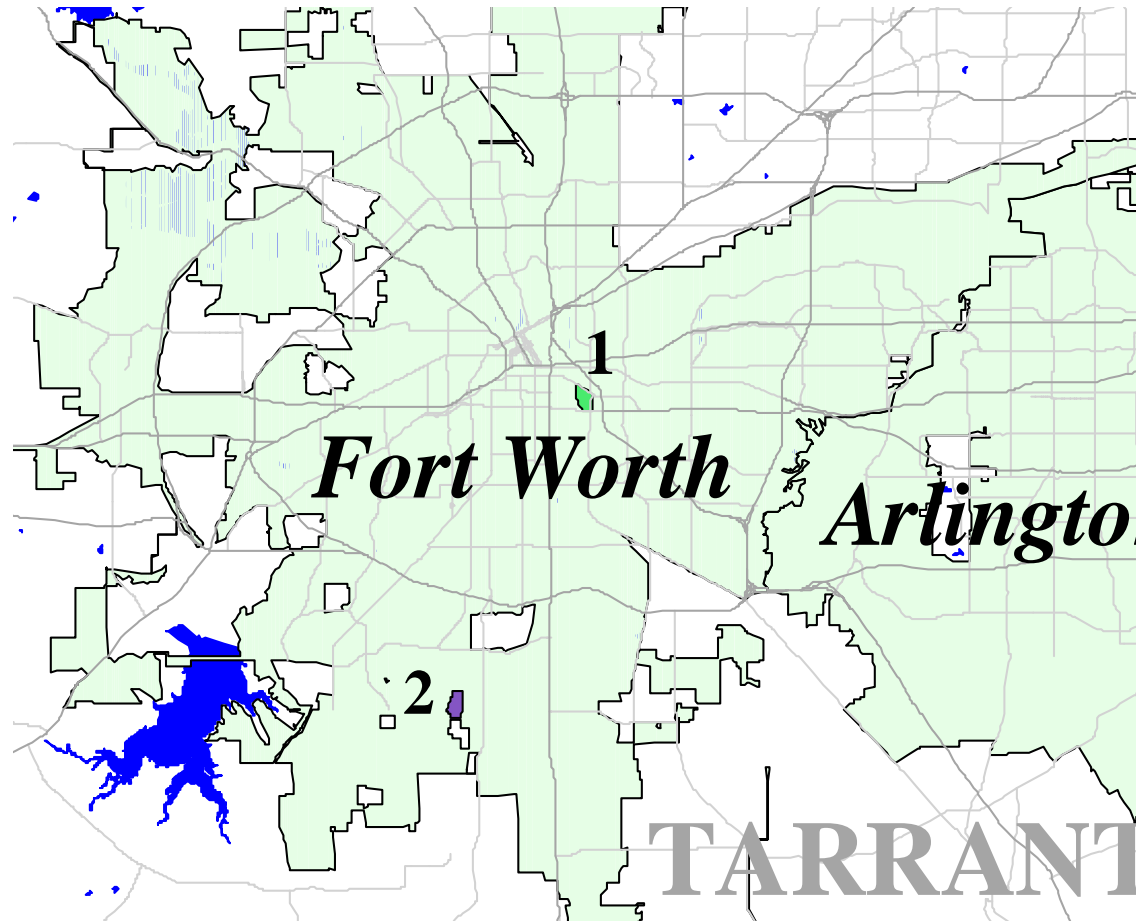
# Screening Criteria

- Used screening criteria to identify six candidate neighborhoods
- Income
  - Low
  - Medium
  - High
- Housing Age
  - Older
  - Newer
- Suburban population density
- Lot size information only readily available for Tarrant County. Will use this information in analysis of water use data.

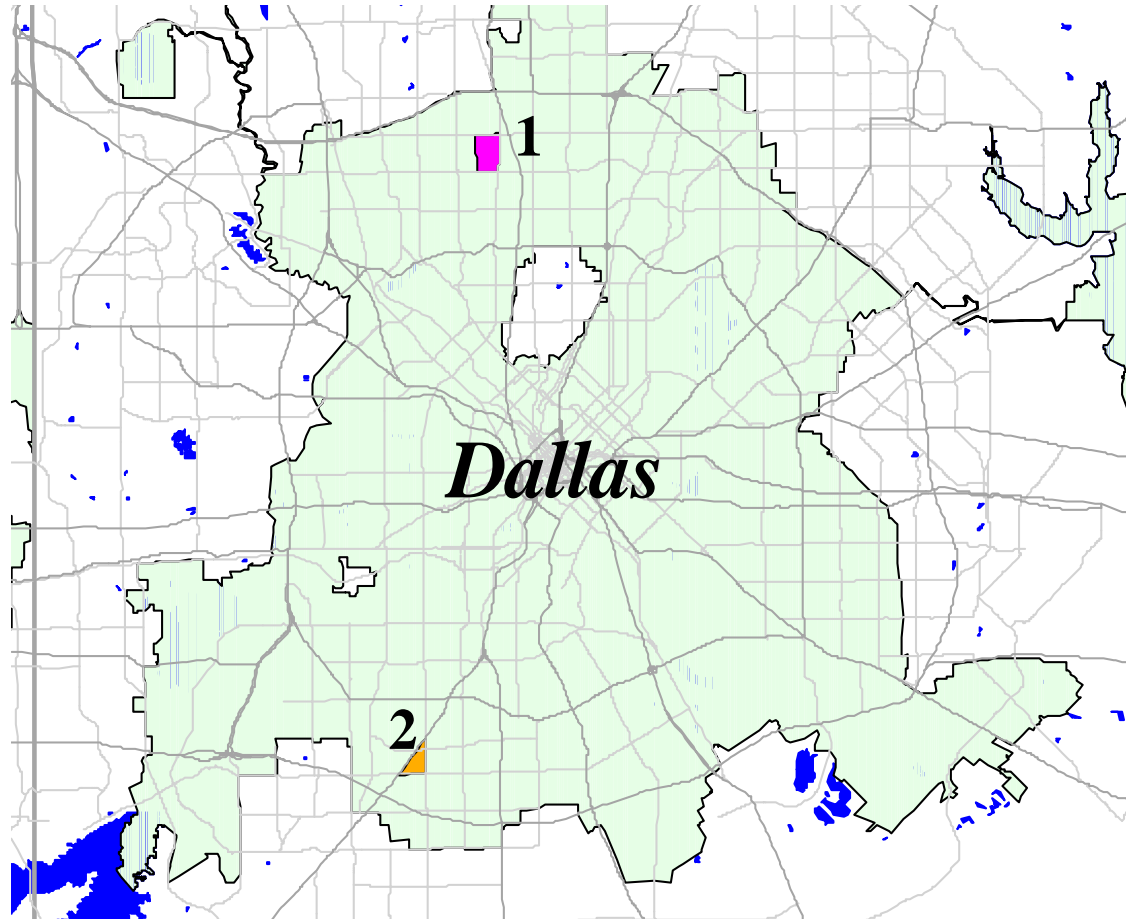


# Candidate Neighborhoods

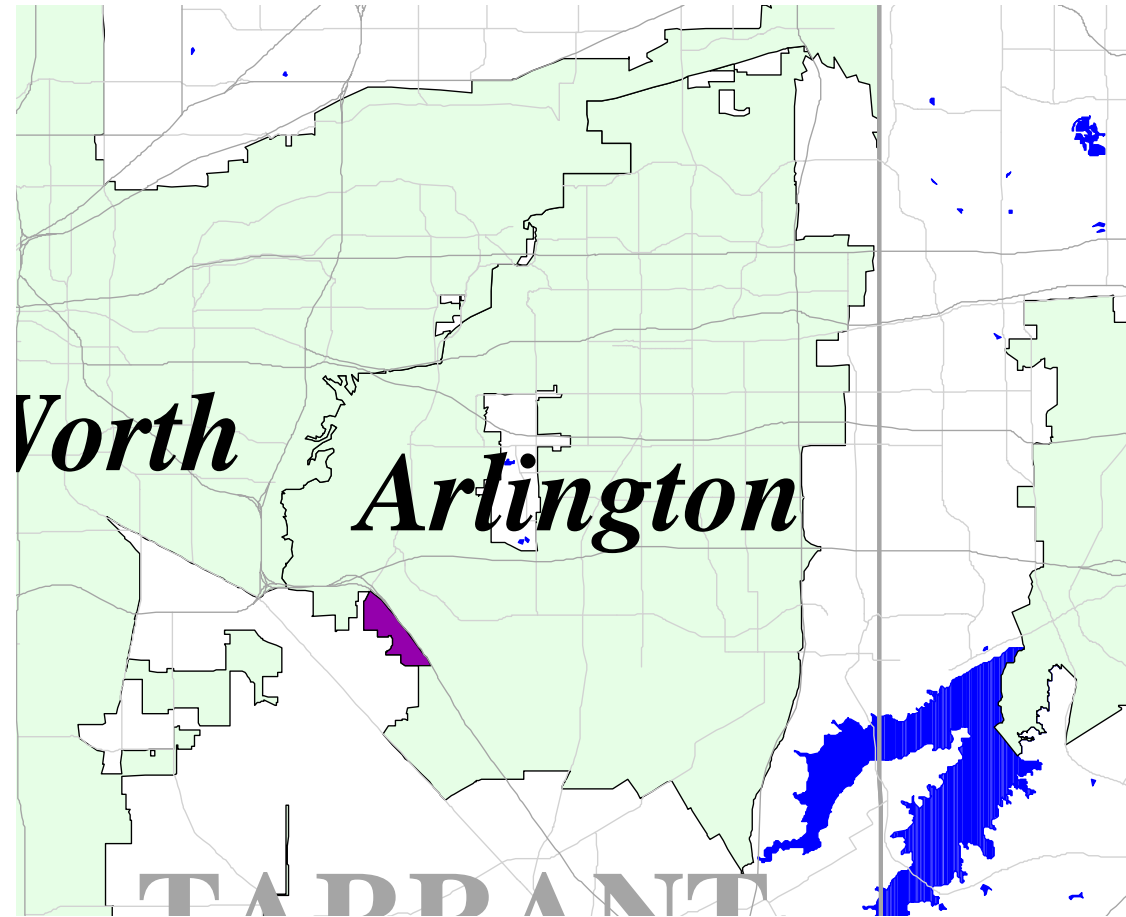
- Have performed initial screening to identify six candidate neighborhoods in the following cities:
  - Fort Worth (2)
  - Dallas (2)
  - Arlington (1)
  - Plano (1)
- Denton irrigation audit customers



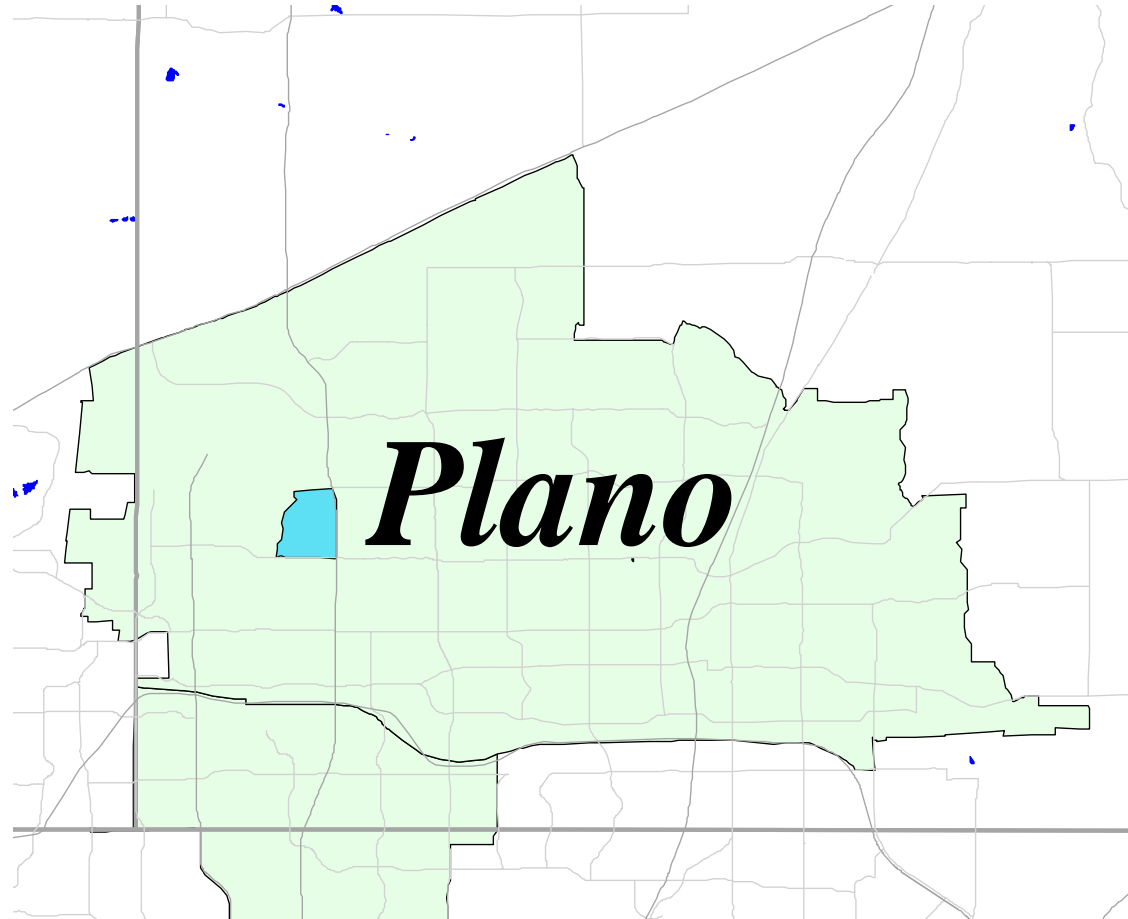
	<u>1</u>	<u>2</u>
• Median Family Income:	\$17,167	\$64,583
• Housing Constructed Since 1992:	5.7%	4.9%



	<u>1</u>	<u>2</u>
• Median Family Income:	\$183,932	\$51,806
• Housing Constructed Since 1992:	1.7%	0.0%



- Median Family Income: \$67,039
- Housing Constructed Since 1992: 80.1%



- Median Family Income: \$197,096
- Housing Constructed Since 1992: 78.0%



- Customers that have had Irrigation Water Audits performed

# Neighborhood Summary

Neighborhood	Median Family Income	Housing Constructed Since 1992
Fort Worth 1	\$64,583	4.9%
Fort Worth 2	\$17,167	5.7%
Dallas 1	\$183,932	1.7%
Dallas 2	\$51,806	0.0%
Arlington	\$67,039	80.1%
Plano	\$197,096	78.1%
Denton	Various	Various

# Current Tasks

- Discussing participation, data availability, and implemented water conservation methods with water suppliers
- Finalizing neighborhood selection



# Future Tasks

- Obtain and analyze historical water usage data to determine impact of different factors on water use and water conservation
- Present results to RCWPG

# Action Items for Consideration

# Proposed Amendment for Athens

- Athens Municipal Water Authority (AMWA) is currently pursuing a reuse permit
- This strategy was not included in the 2001 *Region C Water Plan*
- The 2001 plan omitted AMWA's contractual commitment to the Texas Parks and Wildlife Department Fish Hatchery (3,023 acre-feet per year)

# Proposed Amendment for Athens

- Also, the firm yield of Lake Athens appears to be lower than originally reported in the 2001 plan.
- Athens needs additional water supply that cannot be met by water conservation and drought management measures.
- Five alternative water management strategies would also be added to the 2001 plan with this request.
- An interbasin transfer will be needed for each of the proposed strategies.

# Proposed Amendment for Athens

- Revisions since the June hearing
  - Changed Forest Grove to be an alternative strategy instead of a recommended strategy
  - Removed Lake Athens II entirely
  - Added water conservation measures
  - Developed cost estimates for water conservation measures
  - Developed quantifiable impacts to the environment

# Proposed Amendment for Athens

- The text of the 2001 plan would be adjusted as follows:
  - Page 5.71 adjust the last sentence for Henderson County to read “The currently available supplies are sufficient to meet projected demands in the county except for Athens, Malakoff, and livestock. Athens is planning to reuse their wastewater. The estimated capital cost for this recommended water management strategy for Athens is \$10,680,000 (See Appendix R, Table R-218). Malakoff is planning to build a surface water supply system based on raw water from the Tarrant Regional Water District’s Cedar Creek Reservoir. The estimated capital cost for Malakoff’s new water supply system is \$7,809,000. Livestock water needs will be met by a contract between Athens Municipal Water Authority and Texas Parks and Wildlife using water from Lake Athens.”

# Proposed Amendment for Athens

- Add the following statements below the previous statements as “Alternative proposed water management strategies for the City of Athens include:
  - Purchase available water in the unused Forest Grove Reservoir and pipe it to Lake Athens
  - Purchase water in the unused Forest Grove Reservoir and build a new treatment plant at Forest Grove
  - Purchase water from Lake Palestine through a Dallas owned pipeline
  - Purchase water from the Upper Neches River Municipal Water Authority’s Lake Palestine through an Athens owned pipeline
  - Purchase water from Tarrant Regional Water District’s Cedar Creek Reservoir through an Athens owned pipeline”

# Proposed Amendment for Athens

- Table 5.32 will be updated to include “Indirect reuse” under Sources of Additional Supply.
- Appendices Q (environmental impacts) and R (cost estimates) will be updated.
- TWDB Tables 2, 4, 5, 11, 12, and Henderson County summary will be updated to include the above strategies.



# TWDB's Main Concerns

- Overdrafting Lake Athens in the year 2000
  - Year 2000 use is actual water use.
  - Add water management strategy to temporarily overdraft Lake Athens in the year 2000
  - We temporarily overdrafted other sources of water in 2000:
    - Dallas
    - Trinity aquifer
    - Woodbine aquifer

# TWDB's Main Concerns

- Lack of quantitative analysis of environmental impacts associated with proposed amendments
  - Added a quantitative analyses including acreage of land affect by pipeline construction, acres of wetland impacted by proposed projects, and threatened and endangered species impacted by proposed projects

# TWDB's Main Concerns

- Lack of water conservation strategies as recommended water management strategies
  - Must use the new regulations in amendments
  - Updated demands to reflect per capita demand projections recommended in the second round of planning
  - The new gpcd includes water savings based on the plumbing code. We are recommending additional water conservation measures as well.

# Questions/Discussion

Consultants seeking RCWPG-  
adoption of amendment to submit  
to the TWDB for final approval

# Central Carrizo-Wilcox Groundwater Availability Model (GAM)

- Memorandum supplied describing suggested operating policy remain the same as that submitted for the Northern Carrizo-Wilcox GAM
  - Assume 100% of recharge is the available water supply as an initial estimate

# Central Carrizo-Wilcox Groundwater Availability Model (GAM)

- RCWPG approval of policy
- RCWPG send written request to TWDB for them to model the operating policy, including the request that the results be broken down by county and basin

# Trophy Club Population Double Counted

- While finalizing request to correct double counting of population and water needs for Trophy Club, we noticed that we had changed the population in the City in 2000. The population in the year 2000 was based on the Census and should not have been adjusted.
- We made this correction prior to sending the memo to the TWDB

# Proposed Adjustments to Municipal GPCD Projections

- Reasons for suggested changes
  - Corrections to inaccurate data
  - Driest year not 2000
  - Increasing trend
  - Rapid growth
  - Commercial development
  - Minimum per capita use



# Proposed Adjustments to Municipal GPCD Projections

- Corrections to inaccurate data
  - City of Dallas had the largest error (originally reported as 198 gpcd, and corrected to 247 gpcd in 2000)
  - Significant increases caused by correcting year 2000 use affected Parker, Grand Prairie, Sunnyvale, and Mansfield
  - Significant decreases caused by correcting year 2000 use affected Denton, Midlothian, and Waxahachie
  - Affected 19 WUGs
  - Accounted for 174,147 acre-feet in 2060 (6.8% increase)

# Proposed Adjustments to Municipal GPCD Projections

- Driest year not 2000
  - 1998, 1999 and 2000 were all dry years in Region C, and 2000 was not always the driest
  - In some areas of the region, the driest year was in the 1995-1997 time frame
  - Planning for drought conditions indicates that we should plan on dry year demands as our starting point
  - Affected 114 WUGs
  - Accounted for 72,716 acre-feet in 2060 (2.9% increase)

# Proposed Adjustments to Municipal GPCD Projections

- Increasing trend
  - Many cities have historical trend of increasing use, particularly in areas of rapid growth
  - Based on linear regression analysis of water usage from 1990 to 2000 and dry years
  - Affected 52 WUGs
  - Accounted for 65,391 acre-feet increase in 2060 (2.6% increase)

# Proposed Adjustments to Municipal GPCD Projections

- Rapid Growth
  - Occurs as cities change from rural to urban communities
  - Changes are due to nature of the housing and land use changes (irrigated lawns, swimming pools, water using appliances, etc.)
  - Increased commercial water use
  - Affected 23 WUGs
  - Accounted for 43,464 acre-feet in 2060 (1.7% increase)

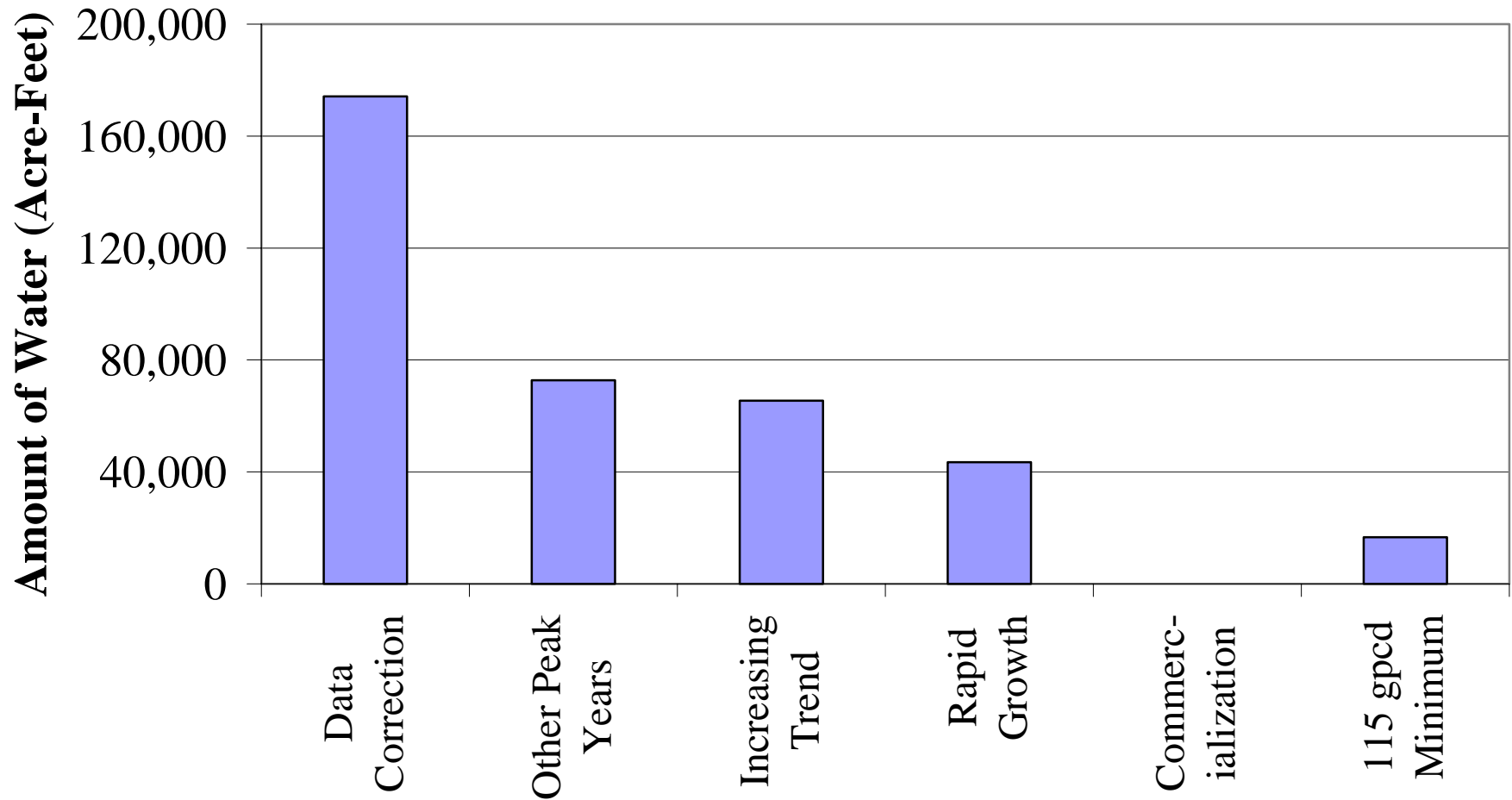
# Proposed Adjustments to Municipal GPCD Projections

- Commercial Development
  - Some cities have reached (almost reached) their population buildout, but have substantial undeveloped commercial acreage. As commercial use increases, the municipal per capita use will also increase.
  - Accounts for 0 acre-feet in 2060 because other factors affect the increased water needs before the commercial development.

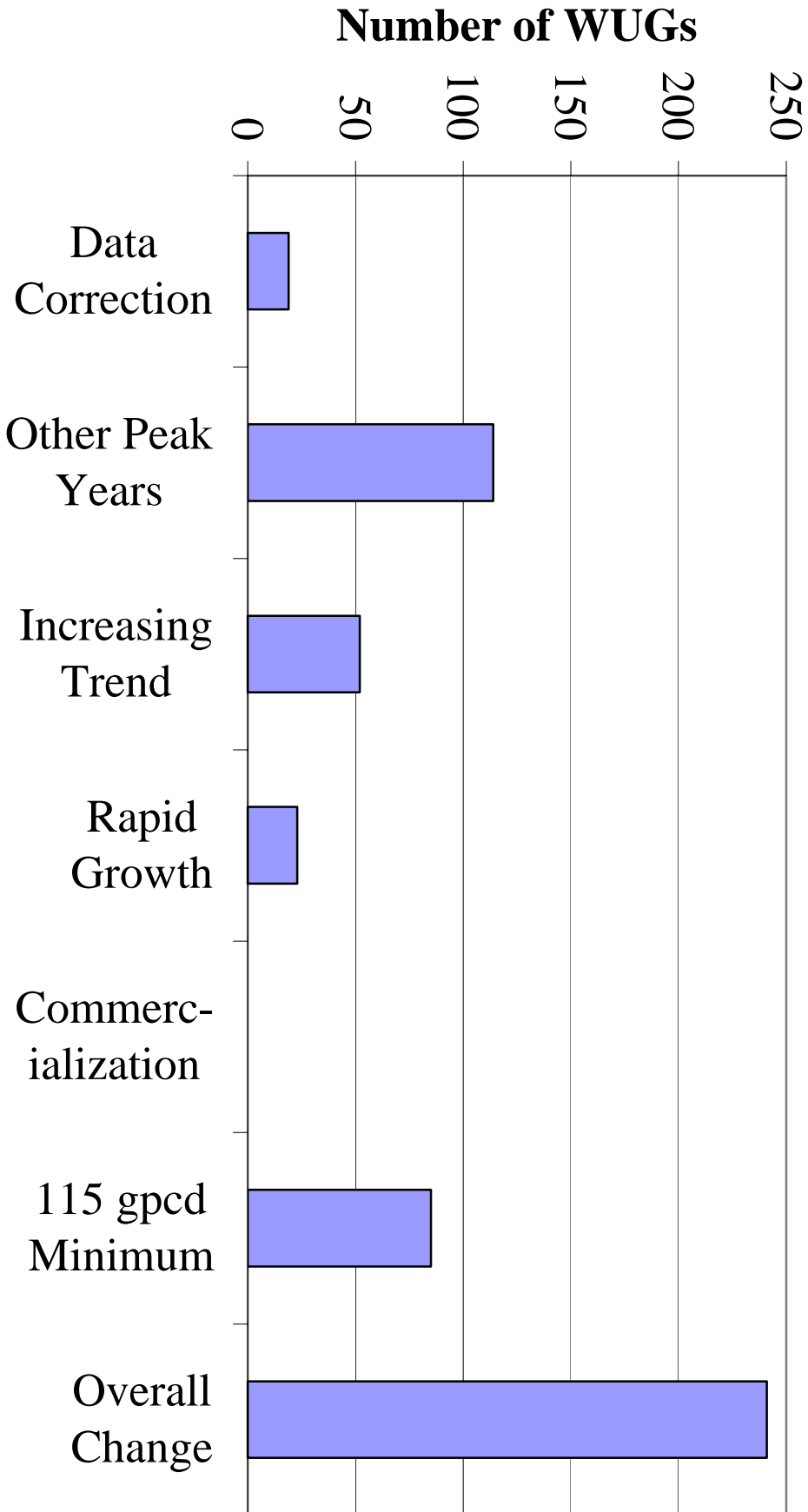
# Proposed Adjustments to Municipal GPCD Projections

- Minimum per capita use
  - Designed to provide adequate water supply and adequate quality of life
  - 115 gpcd assumed as minimum per capita use prior to applying reductions due to plumbing code
  - Reduced over time for plumbing code factors
  - Affected 85 WUGs
  - Accounted for 16,688 acre-feet in 2060 (0.7% increase)

## Change in Projected 2060 Municipal Use Attributed to Reasons for Suggested Changes

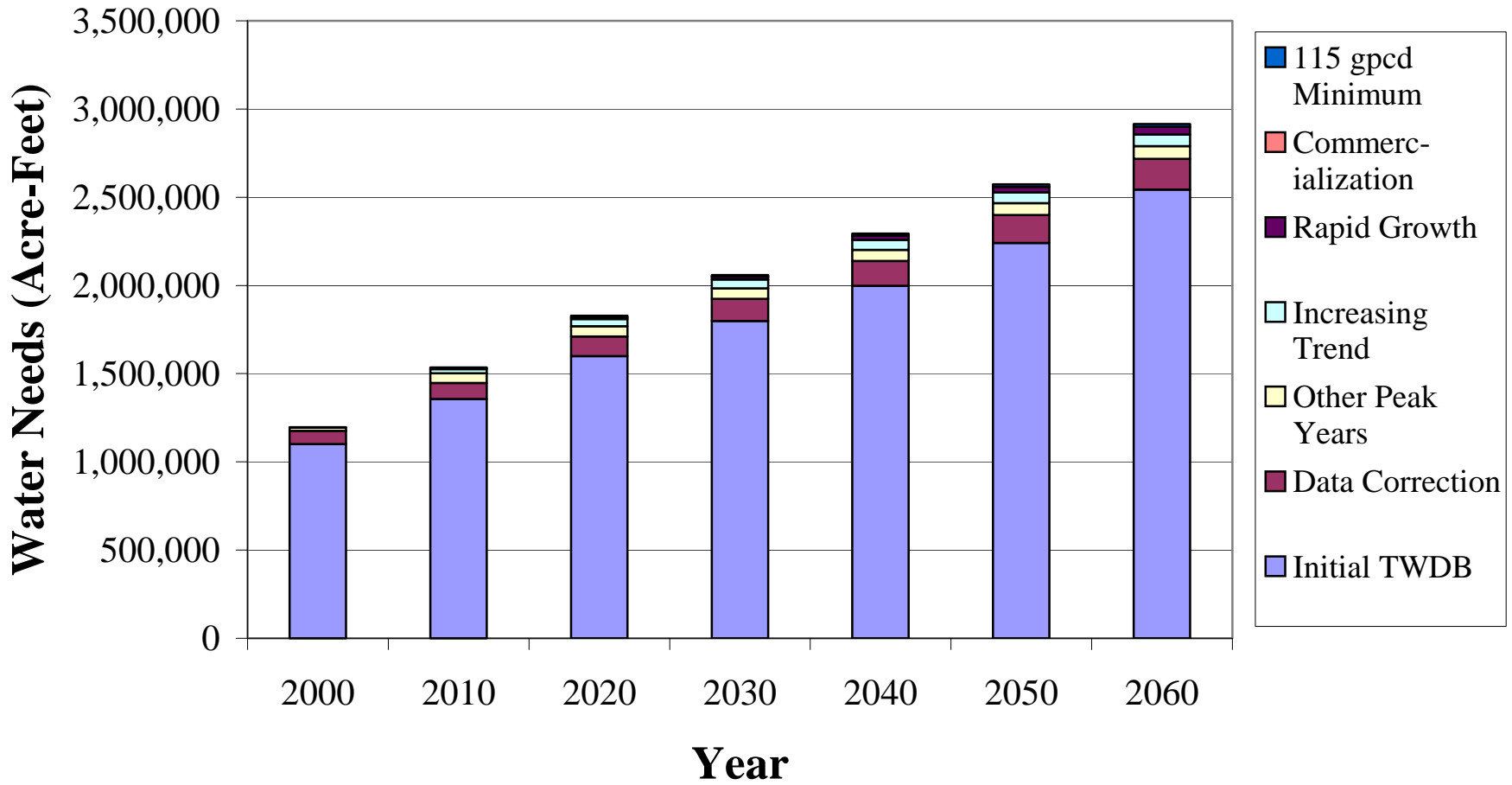


# Number of Water User Groups (WUGs) Affected by Each Suggested Change





# Comparison of Projected Municipal Water Needs in Region C



# Proposed Adjustments to Municipal GPCD Projections

- Recommended gpcd includes reductions for plumbing code, per TWDB guidelines
- Water conservation measures are to be included as water management strategies later in the planning process, per TWDB guidelines

# Proposed Adjustments to Municipal GPCD Projections

- Other water use categories are being reviewed. Memos on each category will be completed in the near future.
  - Manufacturing
  - Mining
  - Steam electric power
  - Irrigation
  - Livestock

# Proposed Adjustments to Municipal GPCD Projections

- Seeking RCWPG approval of suggested revisions to gpcd projections to submit to TWDB for their approval

# RCWPG Discussion Items

# Trinity GAM

- Trinity GAM held second stakeholder meeting on August 5<sup>th</sup>
- Concerned with using old year 2000 projections from 1<sup>st</sup> round of SB1 planning
- Recommend using actual year 2000 groundwater use data
- Analyzing groundwater data currently available for cities
- Waiting on TWDB to provide groundwater use by WSCs and SUDs for the year 2000

# Trinity GAM

- Schedule
  - Stakeholder meetings every 3-4 months (4 left to schedule)
  - Draft report due in Spring 2004
  - Final Report due to TWDB September 2004

# Public Participation Update

## PUBLIC PARTICIPATION TOPICS:

- Calendar listing for RCWPG meeting
  - Distributed to media; info posted on Region C Web site
- Q3 Newsletter Update
- Highlights of recent press coverage and current events



# Q3 Newsletter Update

- Status of proposed amendments to 2001 *Region C Water Plan*
- Feature article on Richland-Chambers Wetlands project led by Tarrant Regional Water District
- Highlights of other water conservation programs in place within the region
- Water conservation tips
- Next meeting information
- Updates regarding water issues in the news

# Recent Press Coverage

- See press clips packet
- Highlights:
  - *Star-Telegram* article on conservation
  - Multiple articles on Toledo Bend pipeline proposal
- Currently developing op-ed column by Jim Parks on Region C plan components and next steps in planning process, for submission to local media

# Additional Handouts

- Packet of newspaper articles since the June RCWPG meeting
- Summary of speaker comments during the public comments portion of the June RCPWG meeting (emailed prior to meeting)

# Overall Status and Next Steps

- Correcting assumptions made in the surface water availability models (WAM) to determine surface water availability. Consultants continue to work on determining water availability of existing sources.
- Consultants will draft letter for Jim Parks to sign requesting TWDB to run the Central Carrizo-Wilcox GAM according to Region C operating policy

# Overall Status and Next Steps

- TWDB has provided the results of the Northern Carrizo-Wilcox GAM. We will be analyzing these results in comparison to the results of the Central Carrizo-Wilcox GAM.
- Continue work on Neighborhood Water Conservation Study
- Developing the 3<sup>rd</sup> quarter RCWPG newsletter