LONE STAR WATER SMART

A Montgomery County Water Conservation Study

Prepared for Senator Robert Nichols

By

Lake Conroe Communities Network

August, 2010

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DLD FINAL

ALLIANCE FOR WATER EFFICIENCY

Some information in this Presentation “Was derived using the Water Conservation Tracking Tool Developed by the Alliance for Water Efficiency, and is used with explicit permission.”

Study Charter and Purpose

- Commissioned by Senator Robert Nichols in December 2009
  - Characterize Current Water Use in County
  - Project Future Water Demand
  - Identify “Best Practice” Water Conservation Strategies
  - Investigate Potential Water Conservation Savings
  - Investigate and recommend potential legislation required to support County-wide conservation program

H20 Fast Facts – Montgomery County

- Total Water Used (2009) 70,532 AC-FT
- County Population (2009) 447,718
- GPCD (Gallons Per Capita Per Day) 141

- 94% of Water is Used by Municipal Sector
- 36% of all Municipal Water is used for "Irrigation and Other on annual basis"

MANUFACTURING/ELECTRIC 3.2%, GOLF 2.7%, TREE FARM 0.3%

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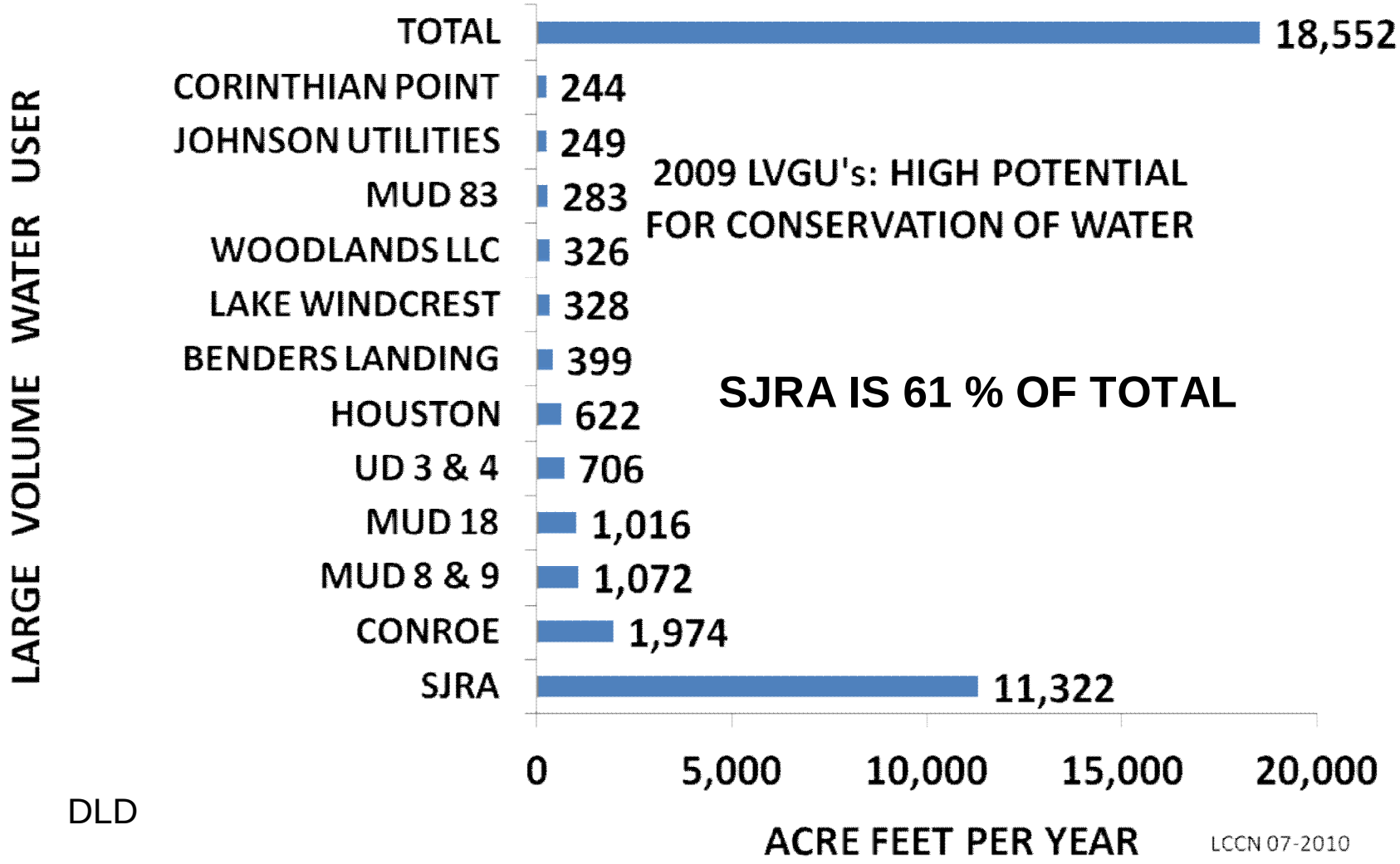
HIGH VOLUME IRRIGATORS

- 24 LVGUs utilize more than 50% of their produced water for irrigation and other outdoor purposes
- 12 of these high volume irrigators use a total of 18,552 AF/YR, or 70% of total "irrigation and other water" used county wide
- *Water efficient irrigation strategies targeted at these LVGU's will have an important impact on overall municipal water use*

HIGH VOLUME IRRIGATORS



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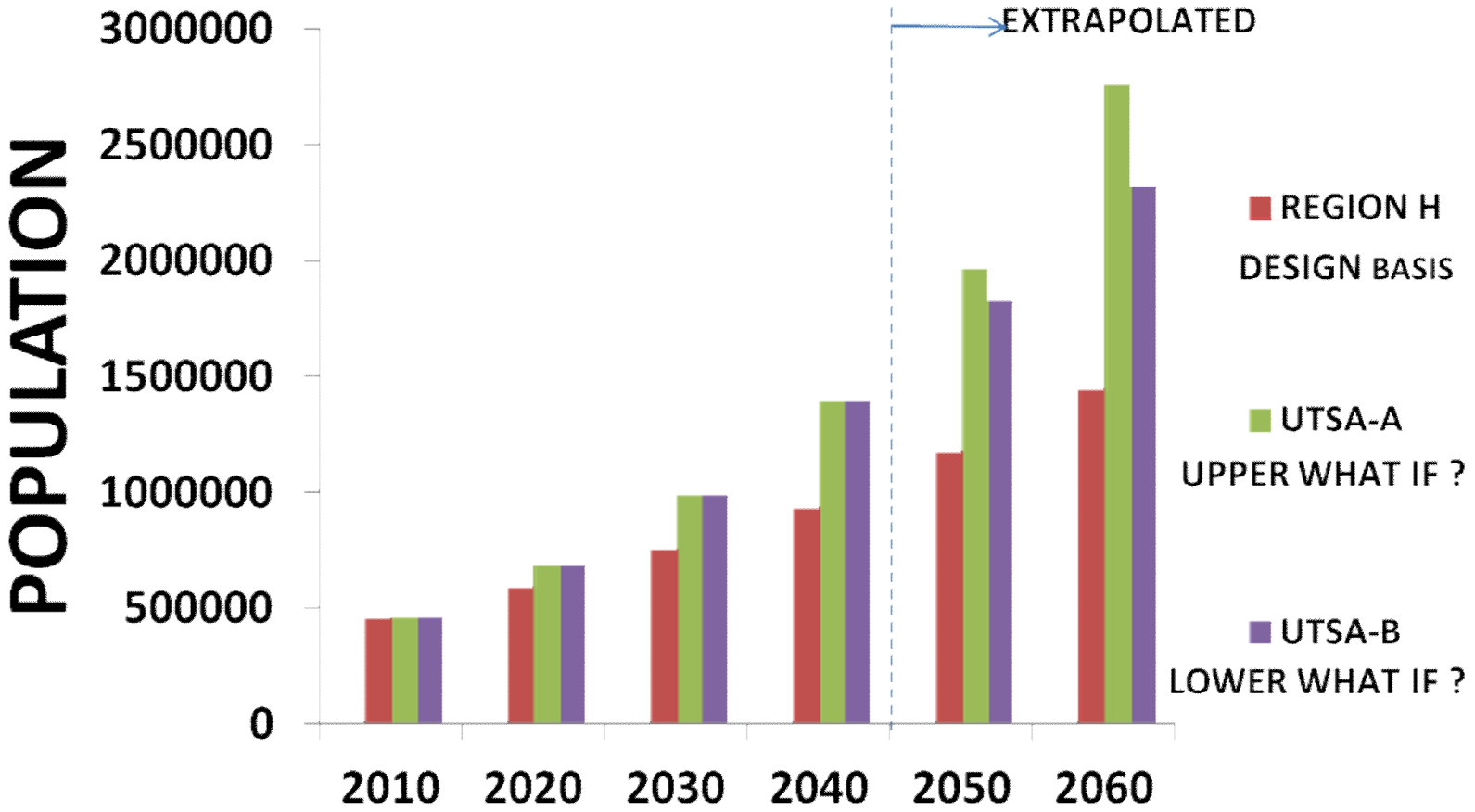
Population Projections

- *Population growth will drive future water use*

- This study uses population projections provided by the Texas State Demographer
  - Dr. Karl Eschbach at University of Texas at San Antonio
  - 3 growth scenarios – Region H, UTSA-A and UTSA-B
  - UTSA -A & -B Extrapolated 2040 > 2060

- Texas Water Development Board (Region H) uses more conservative population projections

POPULATION PROJECTIONS USED IN STUDY



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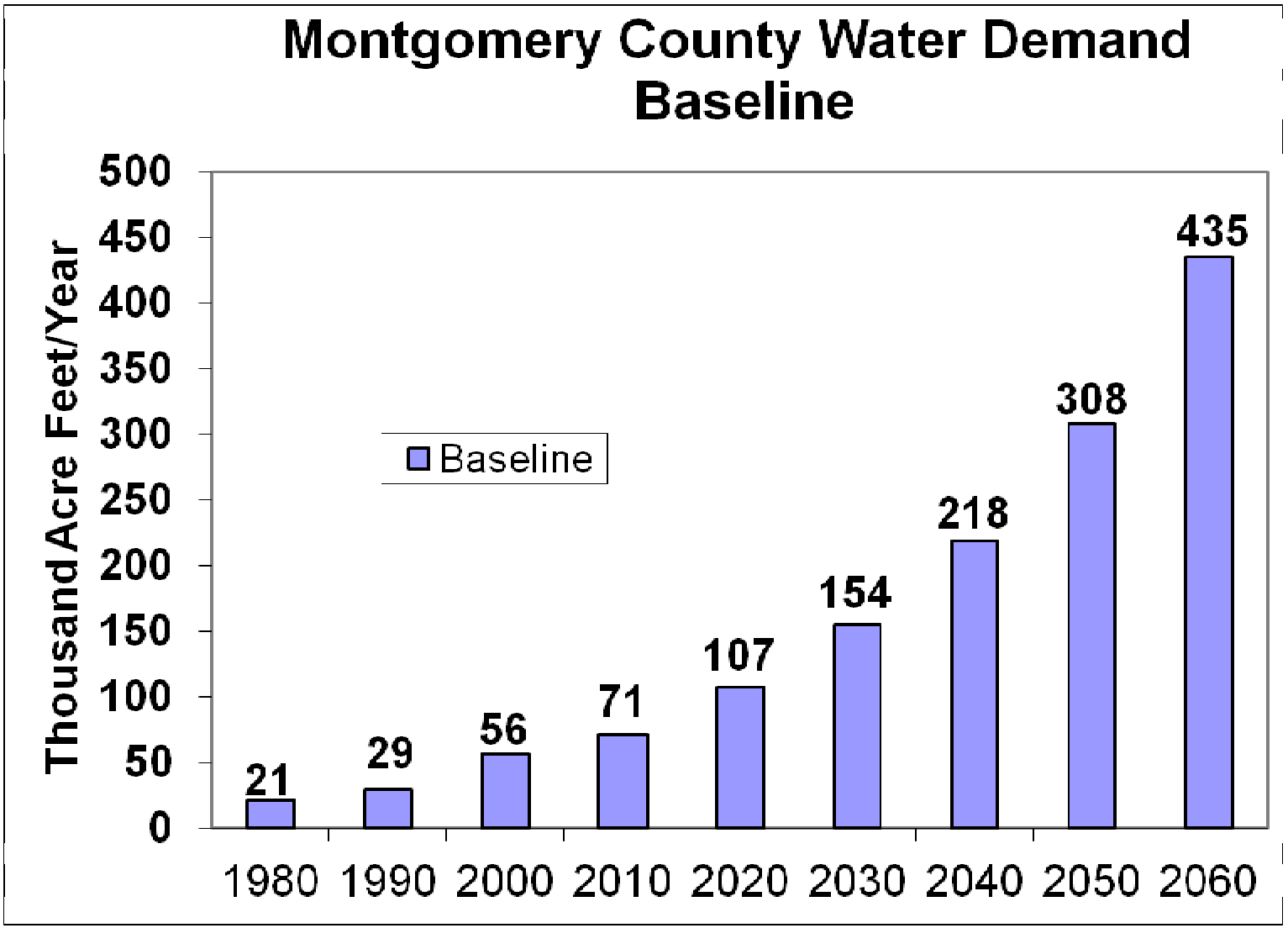
Alliance For Water Efficiency (AWE)

- *The Alliance for Water Efficiency is a non-profit organization dedicated to the efficient and sustainable use of water.*

- *The Alliance developed a Conservation Tracking Tool (an Excel based model) to help evaluate water savings, costs, and benefits of conservation programs for water utilities.*

- The Study Team has estimated future water demands and potential water savings from selected conservation strategies using the Conservation Tracking Tool applied to the UTSA-A population projection and Montgomery County 2009 water use data.

Estimated Water Demand Through 2060



Conservation Strategies

- Effectively implement State plumbing code changes mandated for 2014.

- Set standards for new residential/commercial irrigation and other outdoor use including : reduced turf grass, drought tolerant landscape, improved irrigation design, water use audits, etc.

- Incentives to replace existing inefficient residential/commercial plumbing fixtures and appliances, reduce turf grass and increase drought tolerant plants and improve irrigation systems.

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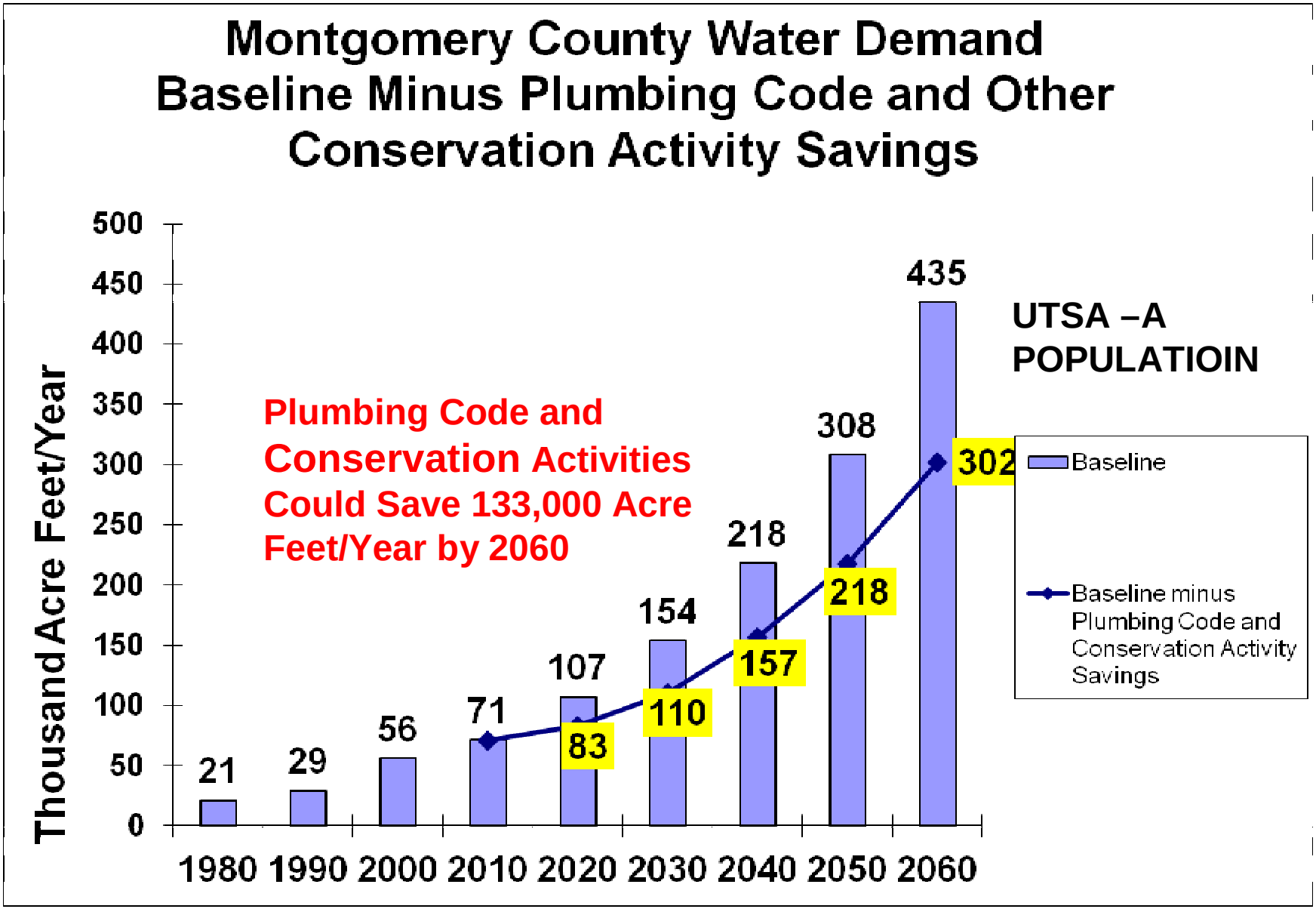
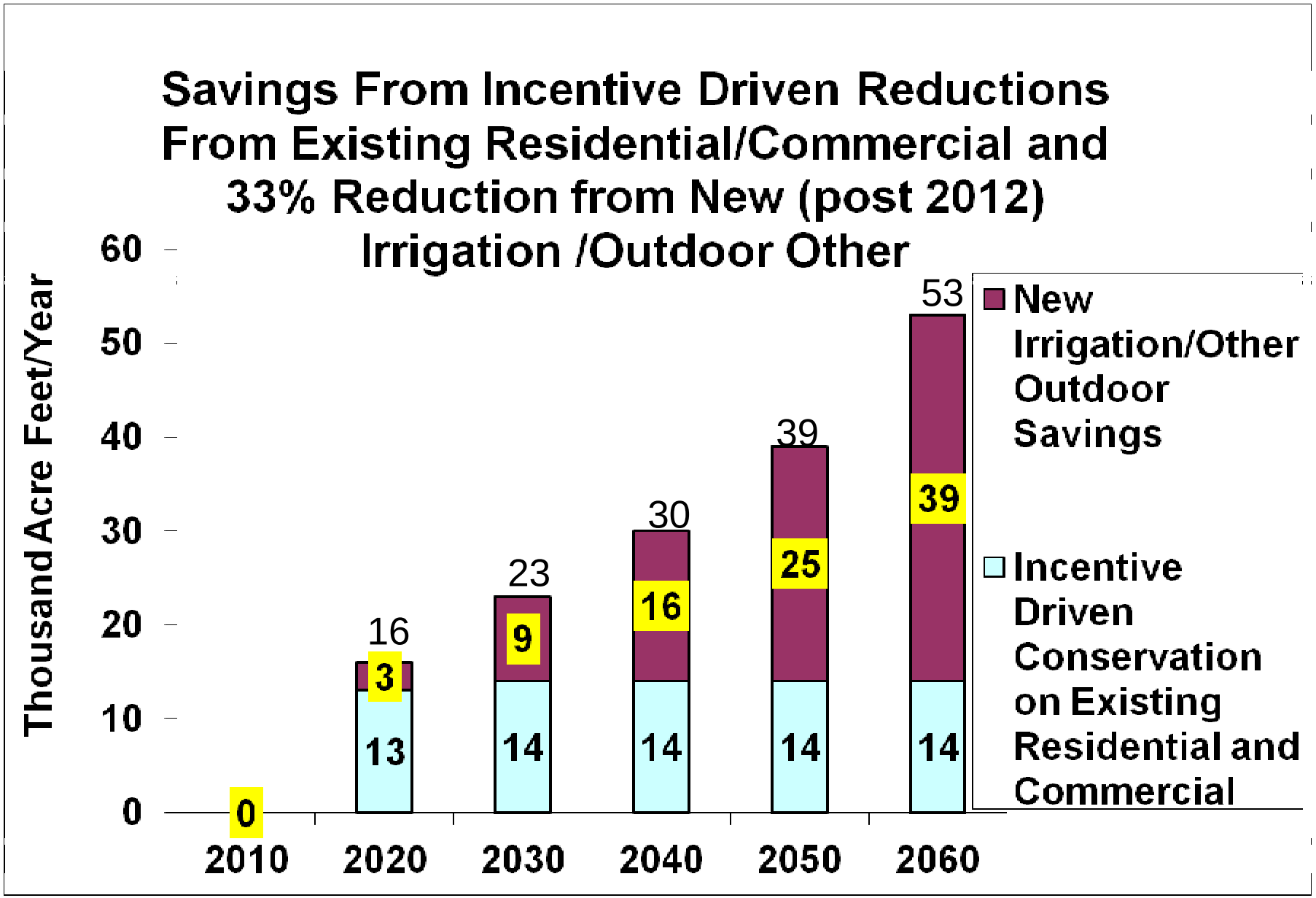
Montgomery County Water Demand Baseline Minus Plumbing Code and Other Conservation Activity Savings



Estimated Conservation Benefits



Short and Long Term Impacts

- Near term, the largest conservation benefits will come from an aggressive program of incentive driven activities for *existing* residential and commercial consumers.

- Longer term, the greatest benefit will be from establishing more water efficient standards and practices for *future* residential and commercial consumers.

- Our savings estimates are likely understated, particularly with respect to commercial water use.

Are These Conservation Results Realistic?

- Yes!
- In the late 70s, San Antonio and Bexar County leadership implemented a long range water conservation strategy.
- Over a 30 year period, while its population was growing, the San Antonio Water System (SAWS) has reduced its water usage from 204 to 129 gallons per day per capita. (-37%)

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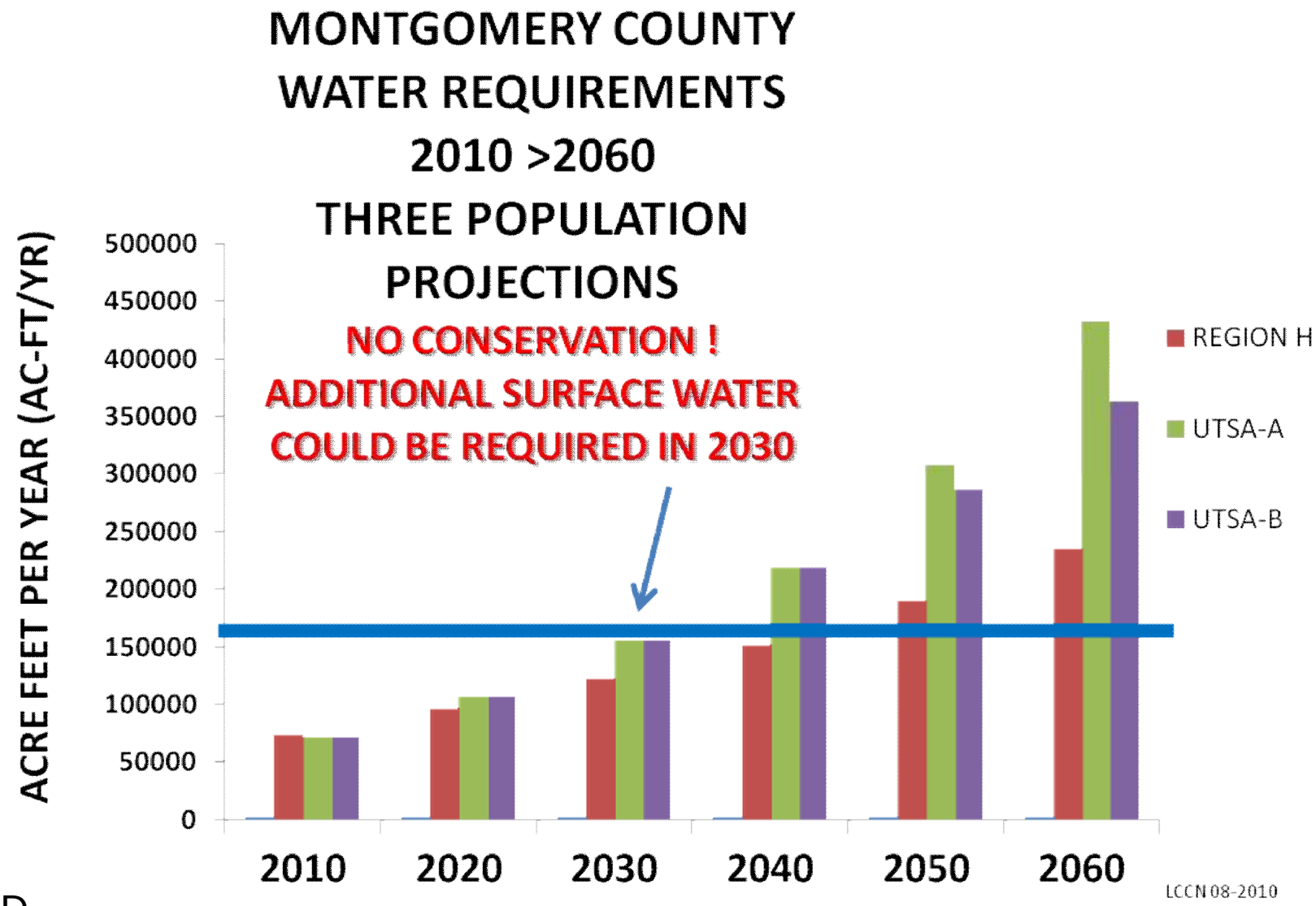
MONTGOMERY COUNTY
WATER REQUIREMENTS
2010 >2060
THREE POPULATION
PROJECTIONS
NO CONSERVATION !
ADDITIONAL SURFACE WATER
COULD BE REQUIRED IN 2030
ACRE FEET PER YEAR (AC-FT/YR)
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
2010
2020
2030
2040
2050
2060
REGION H
UTSA-A
UTSA-B
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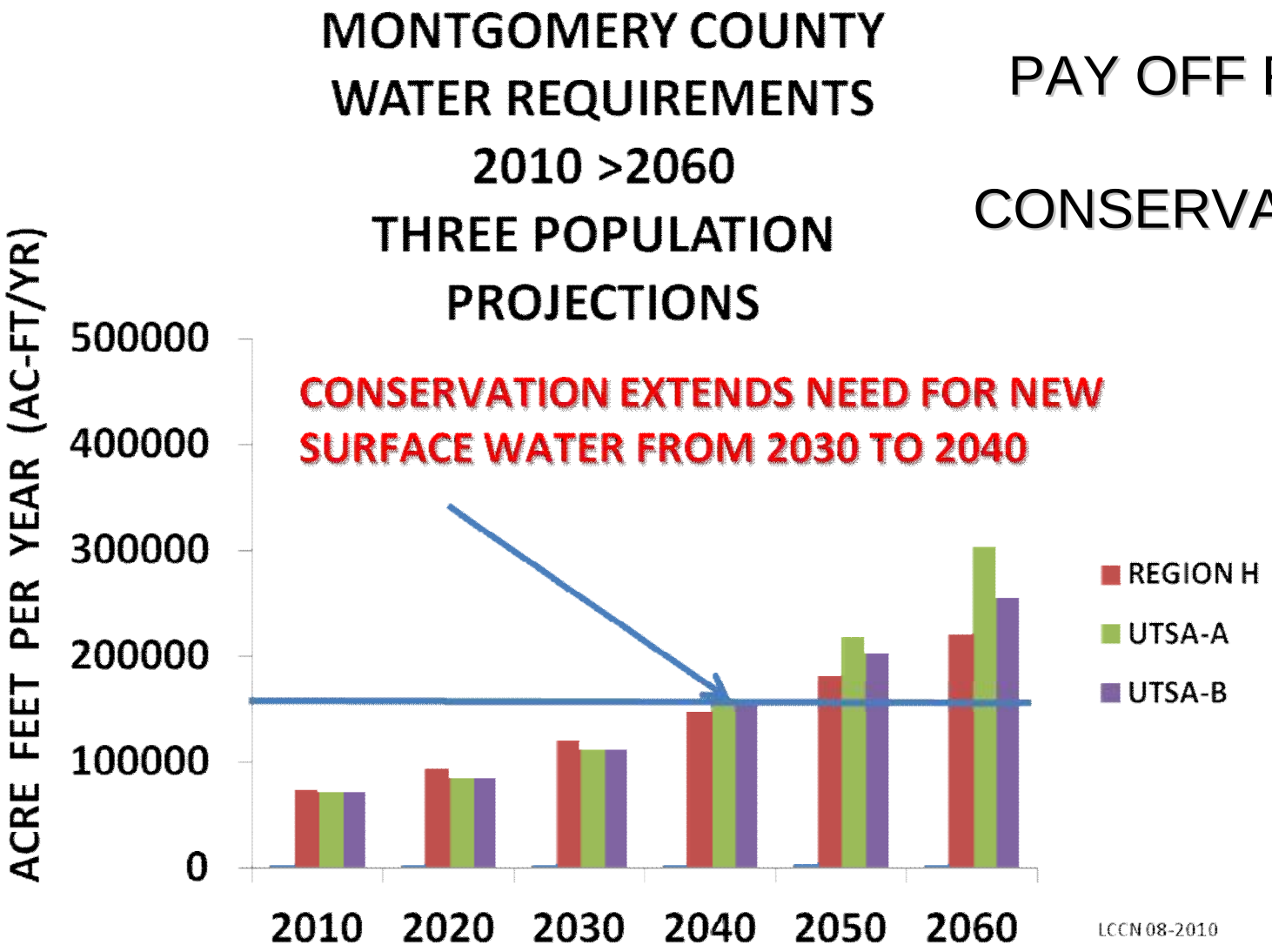
PAY OFF FOR

CONSERVATION



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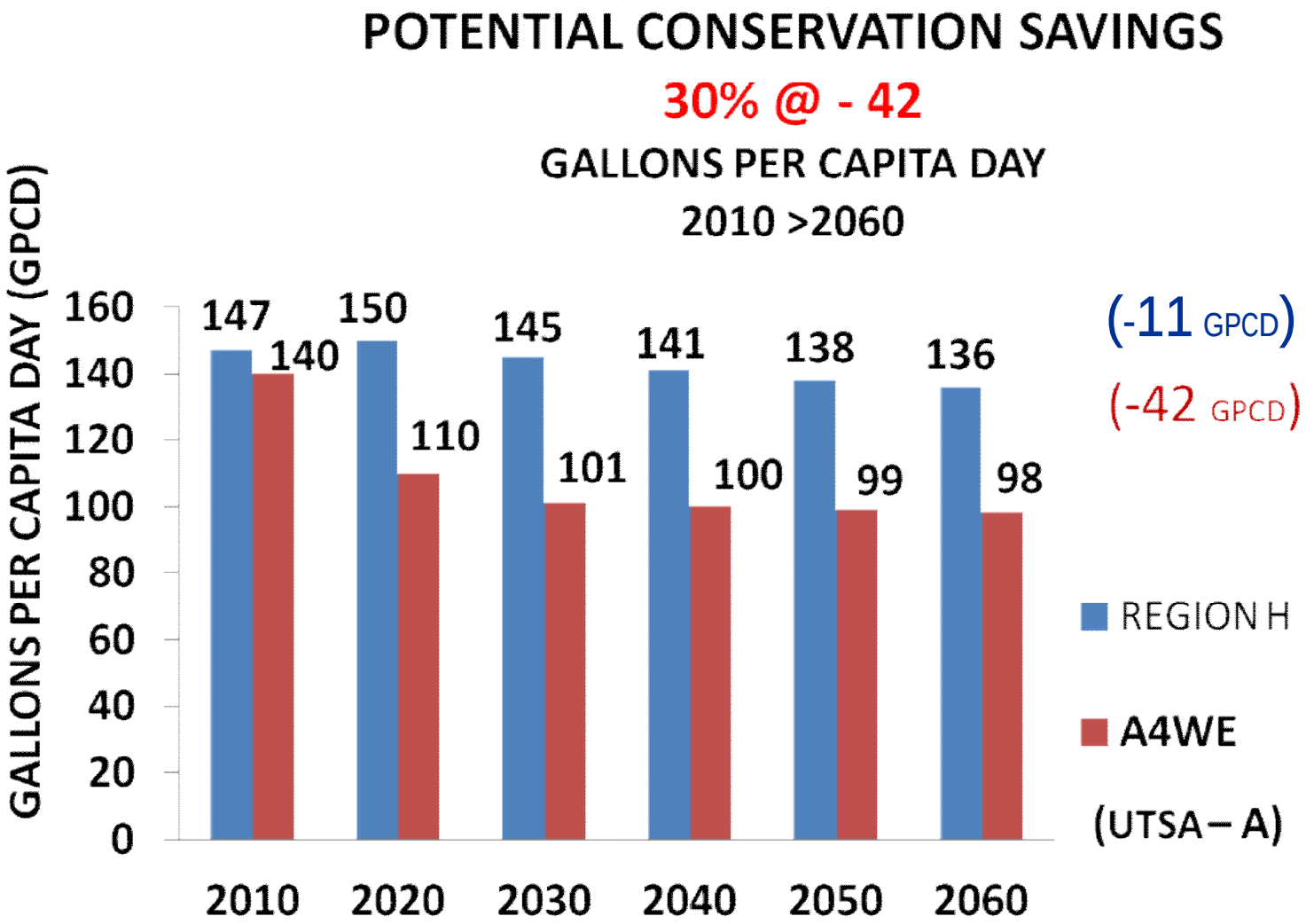
Conservation is No Longer Optional

- Conservation is ***mandatory*** if we have any hope of reducing future water use and avoiding future water shortages
- Truly effective conservation strategies will result in ***permanent*** reductions in water use, not simply substitution of one water source for another
- Aggressive water conservation will preserve our groundwater resources and defer additional surface water needs



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Is a 30% Reduction in GPCD Possible??

- Not Sure, but SAWS reduced usage by 37% !
- Possible only if Montgomery County Government and Lone Star Groundwater District collaborate to develop a long range plan for county wide water conservation management.
- Plan would establish reasonable conservation goals and county mandated conservation practices for developers, builders, irrigators, large volume water users, and individual water consumers

AP

Managing Conservation

- Developing and managing a county-wide comprehensive water conservation program can best be achieved through joint efforts of Montgomery County and Lone Star Groundwater Conservation District

- *Montgomery County Commissioners Court* has the appropriate building permitting, rule making and taxing authority to enable a successful water conservation program including incentives and rebates.

- *Lone Star Groundwater Conservation District* brings existing water conservation expertise and rule making experience.

- Legislation may be required to fully empower the County and Lone Star to lead and manage water conservation going forward.

AP

Recommended Water Smart Focus Areas

- Analyze and track water use in Montgomery County, drive aggressive GPCD reduction goals, and develop innovative water conservation programs.

- Require Municipalities, MUDs, and other LVGUs to develop individual water conservation and use plans, including reasonable but expedited goals and objectives.

- Develop realistic incentive and rebate programs using cash, appraisal discounts or other programs to encourage LVGU's and consumers to adopt water efficient behaviors.

Recommended Water Smart Focus Areas

- Collaborate with developers, builders, irrigators, and landscapers to revise building permit programs, municipal ordinances and deed restrictions to require:
  - water friendly landscaping (Xeriscaping)
  - implementation of drought tolerant grass and plants
  - reduction in grass landscaping to same area as building footprint
  - maximum use of rain water harvesting for irrigation
  - minimizing spray head use for irrigation
  - Installation of TCEQ mandated low water plumbing fixtures
- Encourage maximum use of effluent for irrigation:
  - Require new golf course projects to submit effluent irrigation plans
  - Require new MUD permit applications to address plans for effluent recovery and irrigation

Recommended Water Smart Focus Areas

- Discourage amenity spray fountains and encourage waterfalls and other water efficient amenities
- Design model water rate structures which rewards low water use behaviors, and encourage adoption by all LVGUs.
- Review water use rules, ordinances, and enforcement programs used by other cities (e.g. San Antonio, Austin) and adapt for implementation in Montgomery County

Recommended Water Smart Focus Areas

- Assist legal counsel and legislators to prepare and advocate legislation required to implement county-wide water conservation rules and programs

ACKNOWLEDGEMENT

- **Senator Nichols, Judge Sadler and staffs**
- **MC LVWU's, Lone Star Groundwater Conservation District, TCEQ, TWDB and Region H for support**
- **Alliance for Water Efficiency**
- **LCCN Board**
- **Study Team members**

Thank you

General Discussion

Remember handouts on table

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Appendix

Xeriscaping

Xeriscaping

Xeriscaping and Rainwater Harvesting Irrigation

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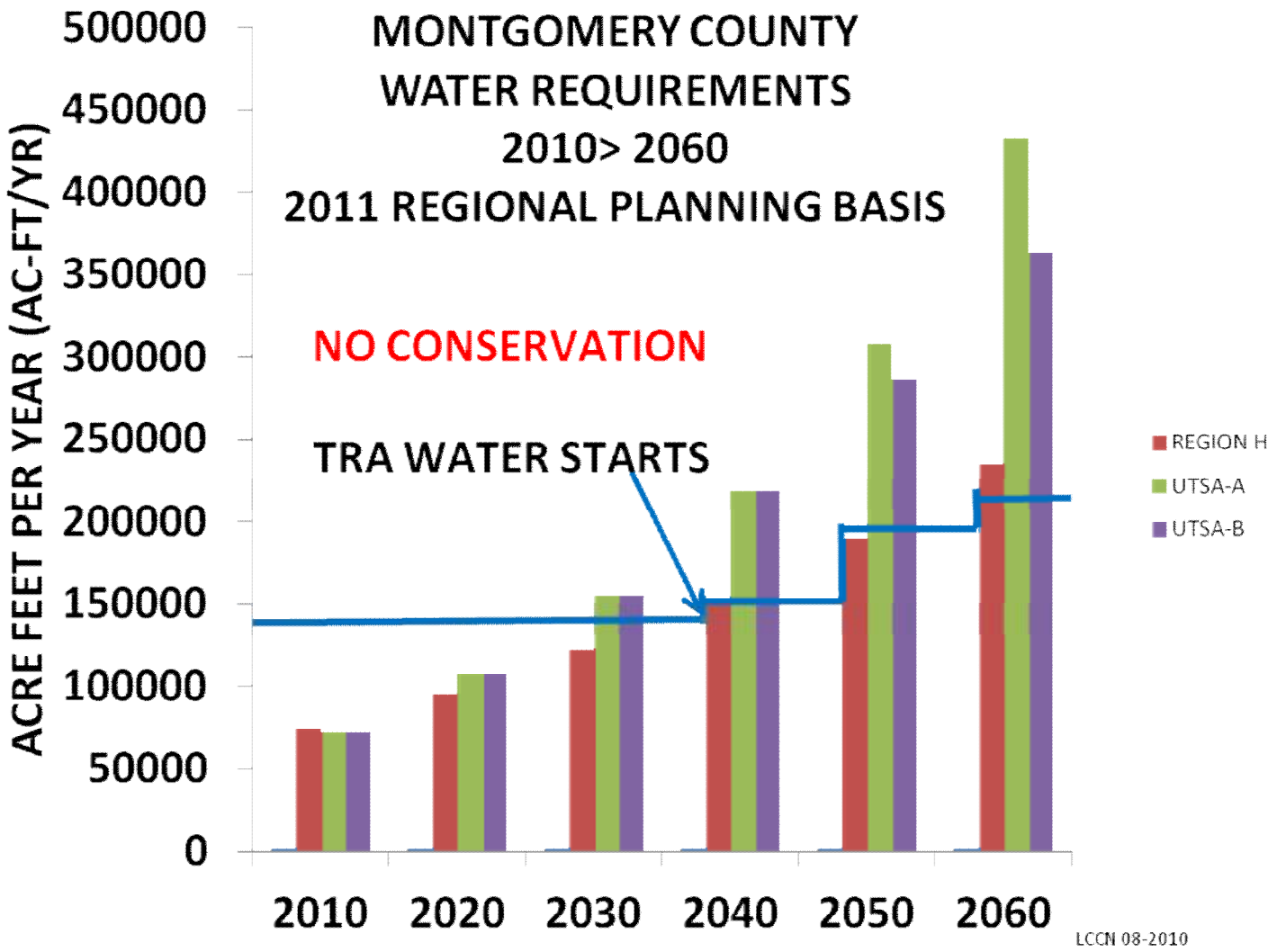
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2011 REGIONAL PLANNING BASIS
NO CONSERVATION
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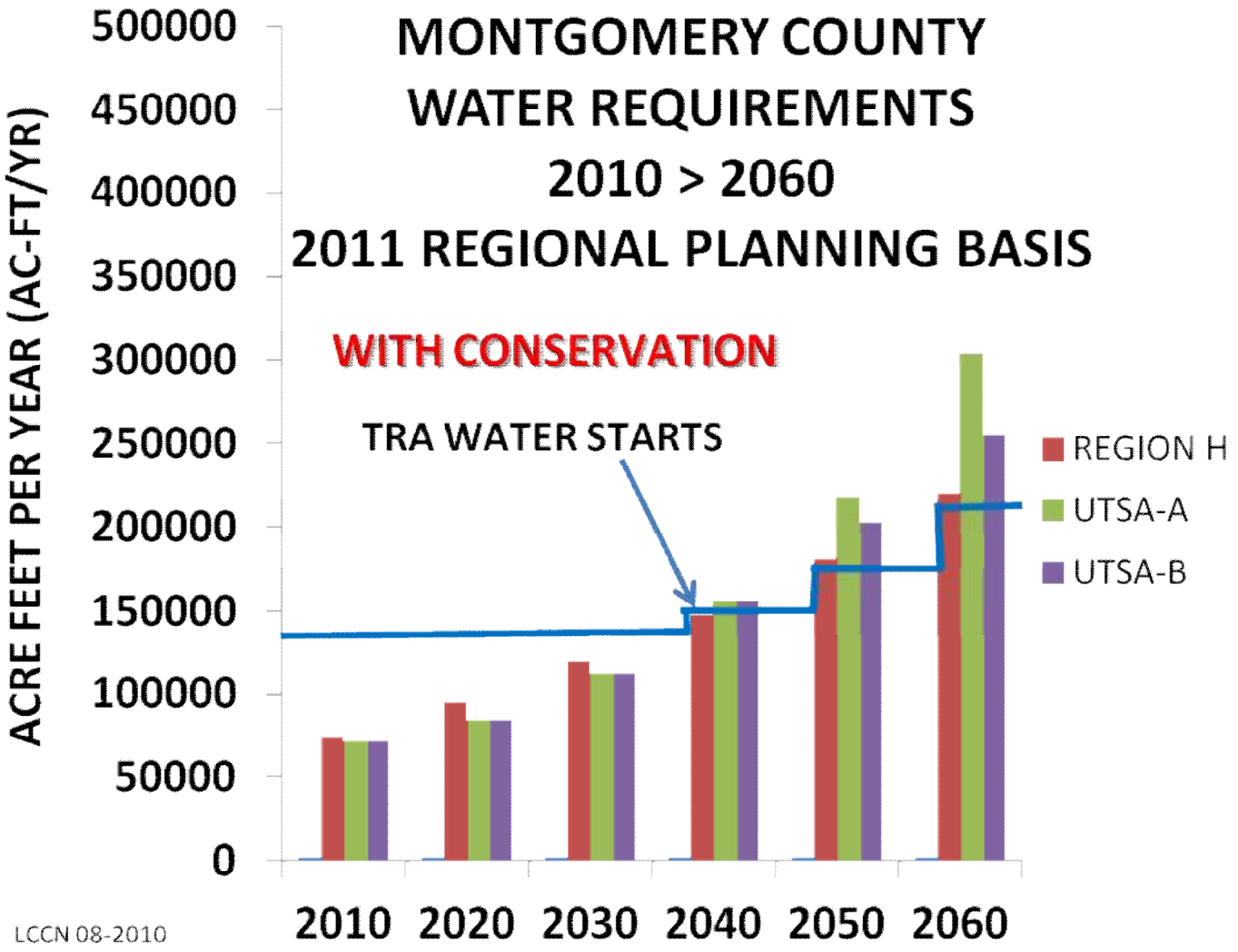
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GPCD SAVINGS FROM WATER EFFICIENT FIXTURES & APPLIANCES

Plumbing Fixture or Water-Using Appliance	Households NOT USING Water-Efficient Fixtures		Households THAT DO USE Water-efficient Fixtures	
	Gal./ person/ per day	% of total daily use	Gal./ person/ per day	% of total daily use
Toilets	20.1	27.7%	9.6	19.3%
Clothes washers	15.1	20.8%	10.6	21.4%
Showers	12.6	17.3%	10.0	20.0%
Faucets	11.1	15.3%	10.9	21.9%
Leaks	10.0	13.8%	5.0	10.0%
Baths	1.2	1.7%	1.2	2.4%
Dishwashers	1.0	1.4%	1.0	2.0%
Other uses	1.5	2.1%	1.5	3.0%
TOTAL	72.6		49.8	