

Region H Water Planning Group  
Public Hearing for  
2011 Initially Prepared Plan

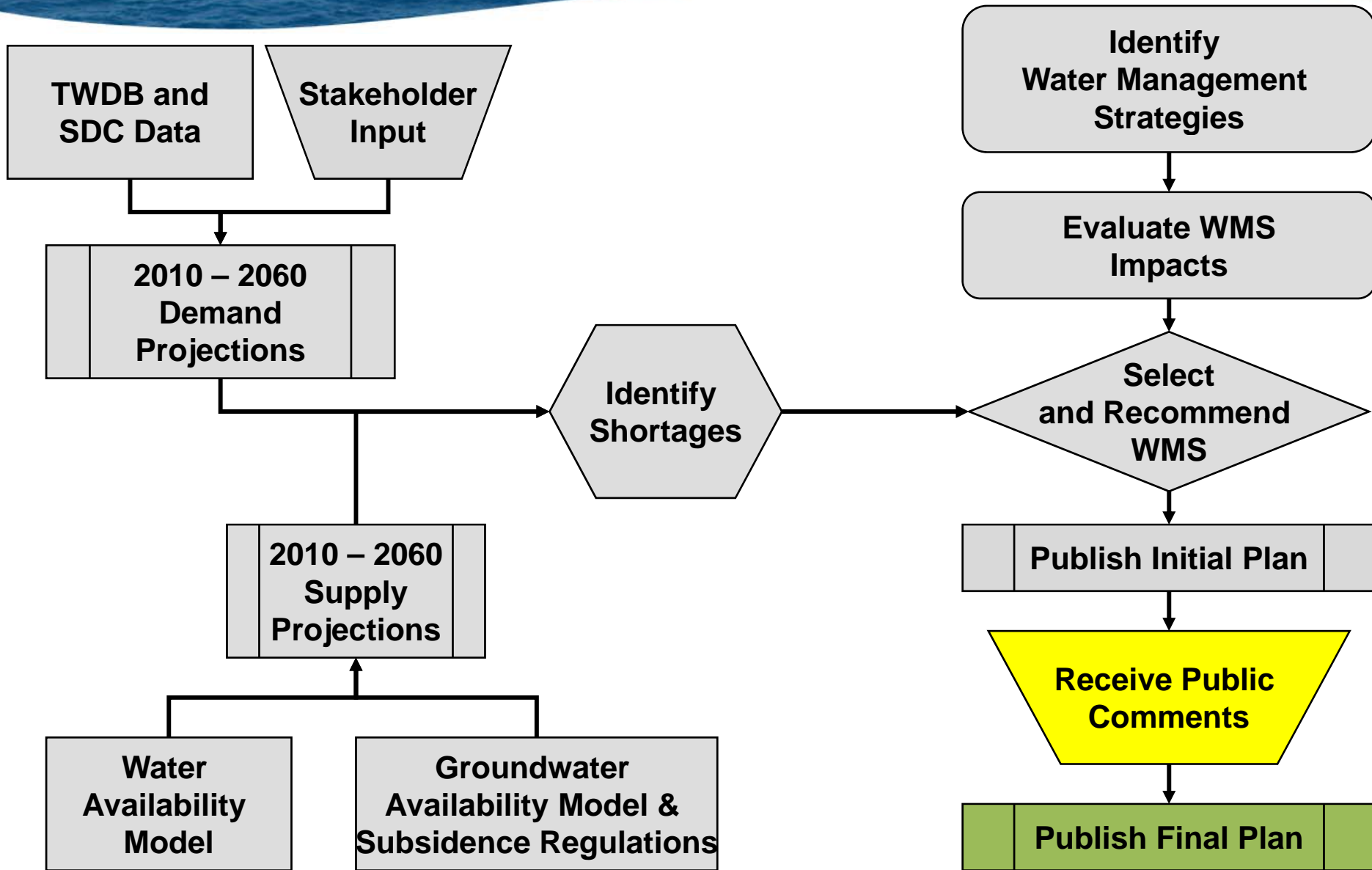
April 1, 2010

Truman Kimbro Center, Madisonville

# Regional Water Plan Overview

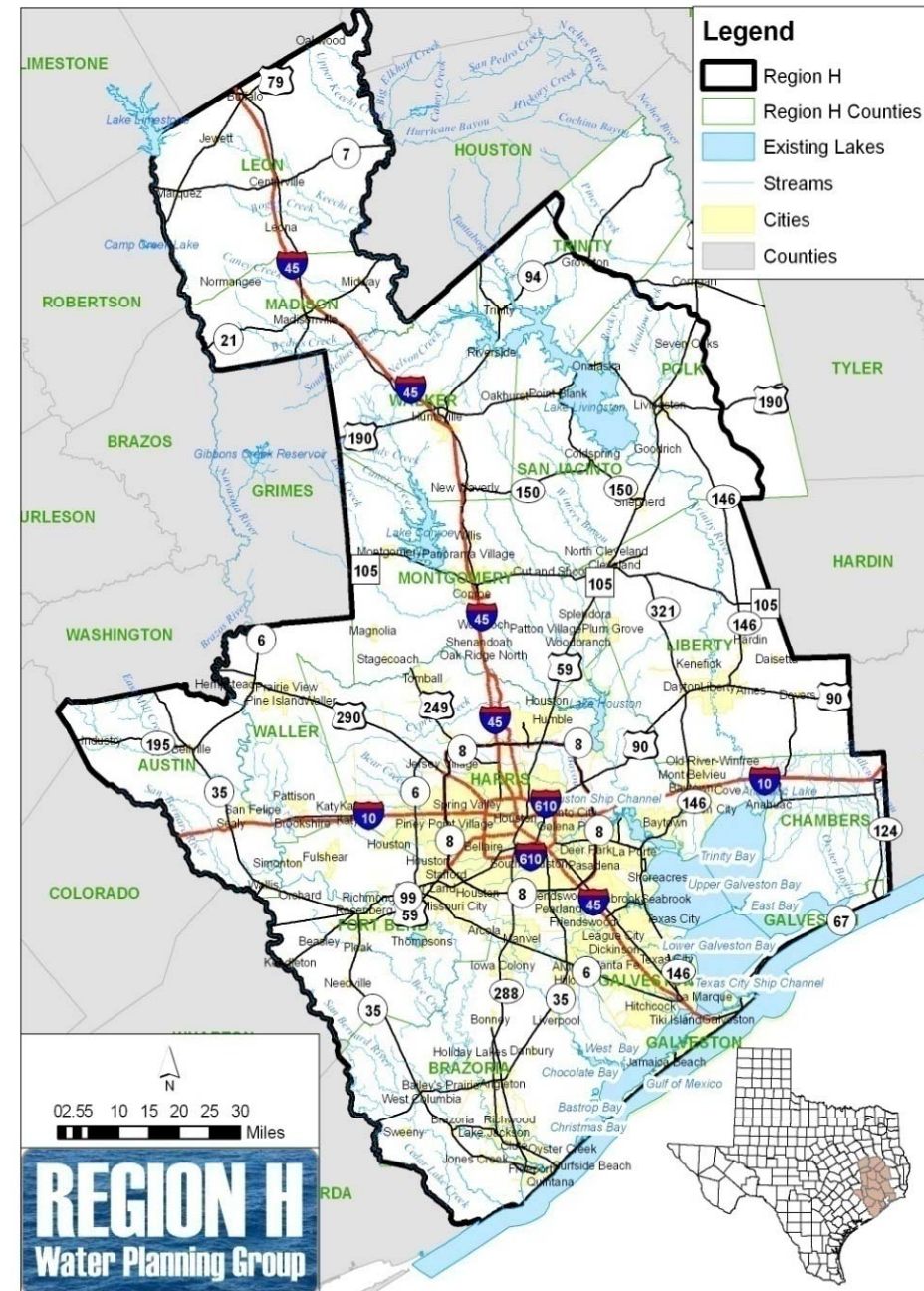
- Region H Overview
- Population and Water Demand Projections
- Water Supply Estimates
- Water Management Strategies
- Protection of Water Resources
- Unique Stream Segments & Reservoirs
- Administrative, Regulatory and Legislative Recommendations
- Infrastructure Financing Survey and Recommendations
- Special Studies

# Regional Water Planning Process



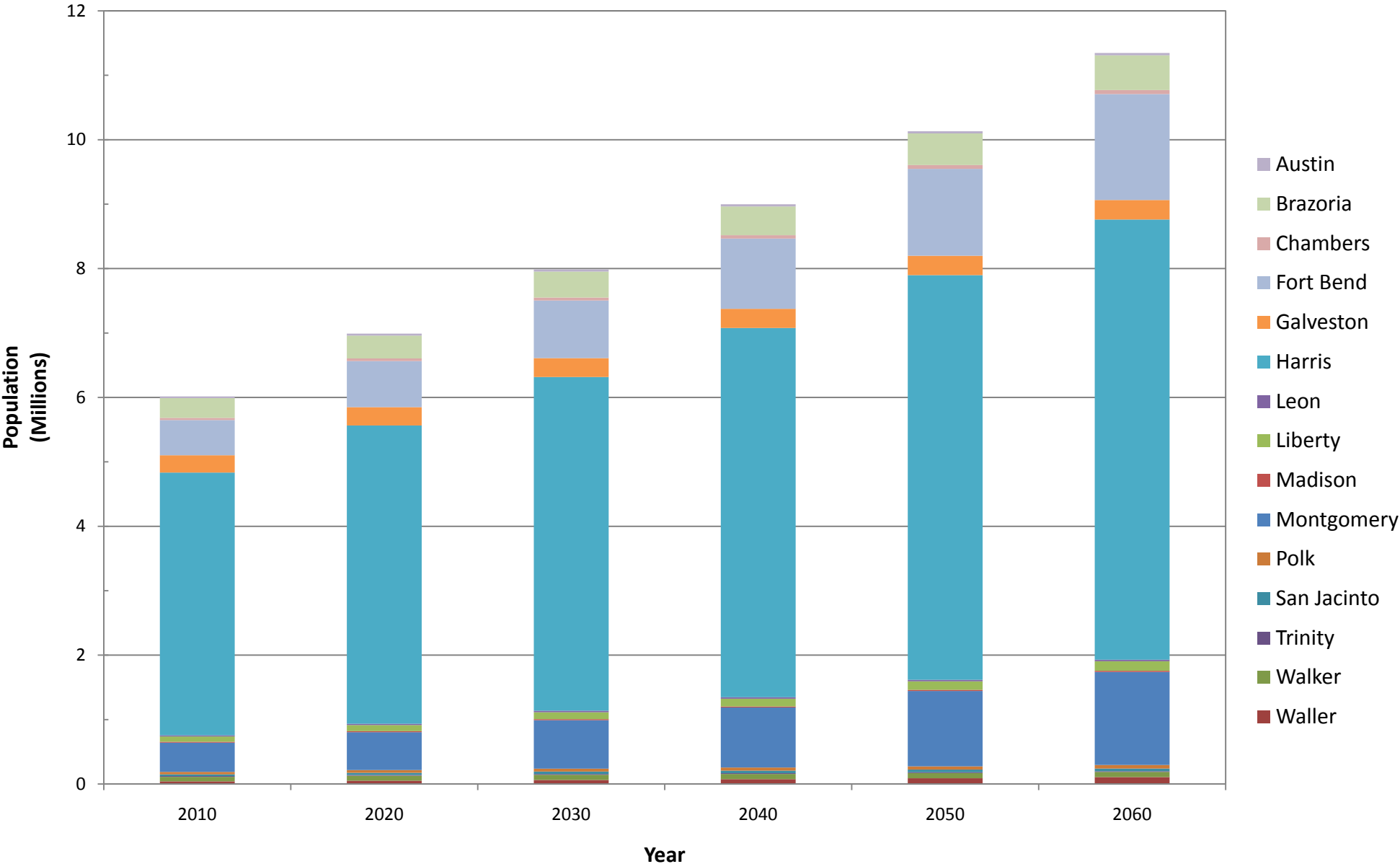
# Regional Water Planning

- 16 Planning Regions
- Region H
  - 15 Counties
  - 3 River Basins
  - 4 Coastal Basins
  - 2 Major Aquifers
  - 4 Minor Aquifers
- 50-year water plan (2010-2060), updated every 5 years
  - Previous Plans: 2001 and 2006
- State Water Plan published one year after final regional plans



- Revision to values in the 2006 Regional Water Plan
- Updated population and associated demand with data from various sources:
  - State Data Center
  - Texas Water Development Board
  - Individual communities and water authorities
- Approved by Region H in public meetings
  - May and July, 2009
- Approved by Texas Water Development Board in October, 2009

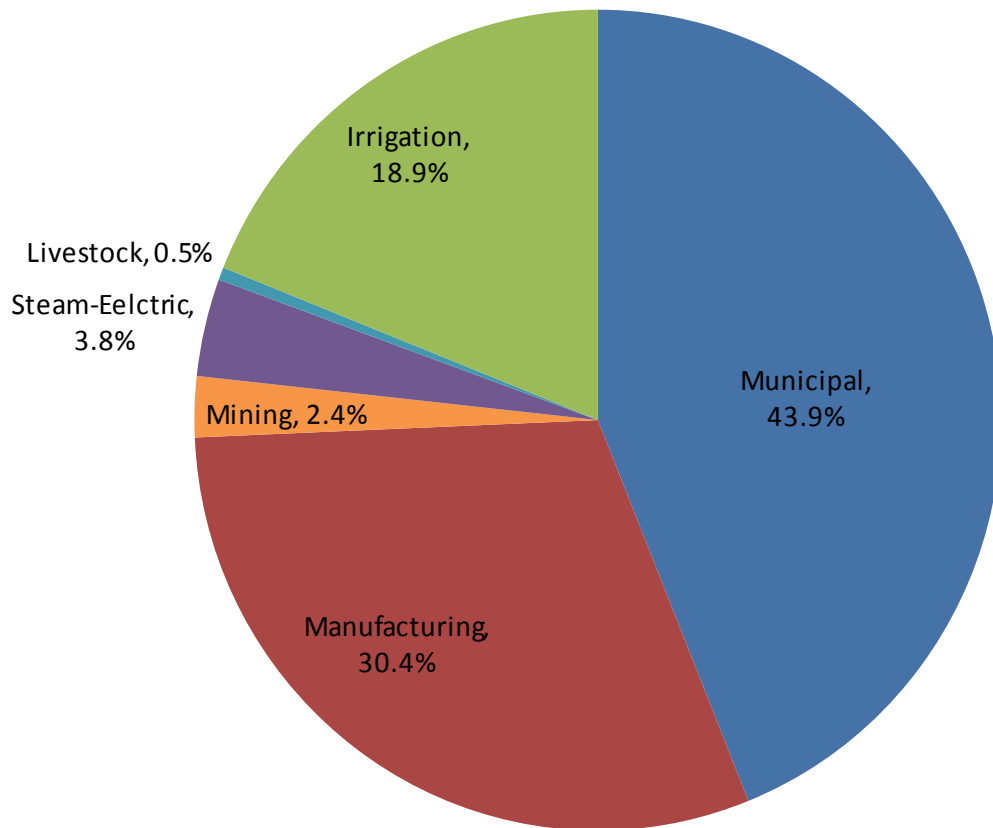
# Population Growth



# Demand Comparison – 2010 and 2060

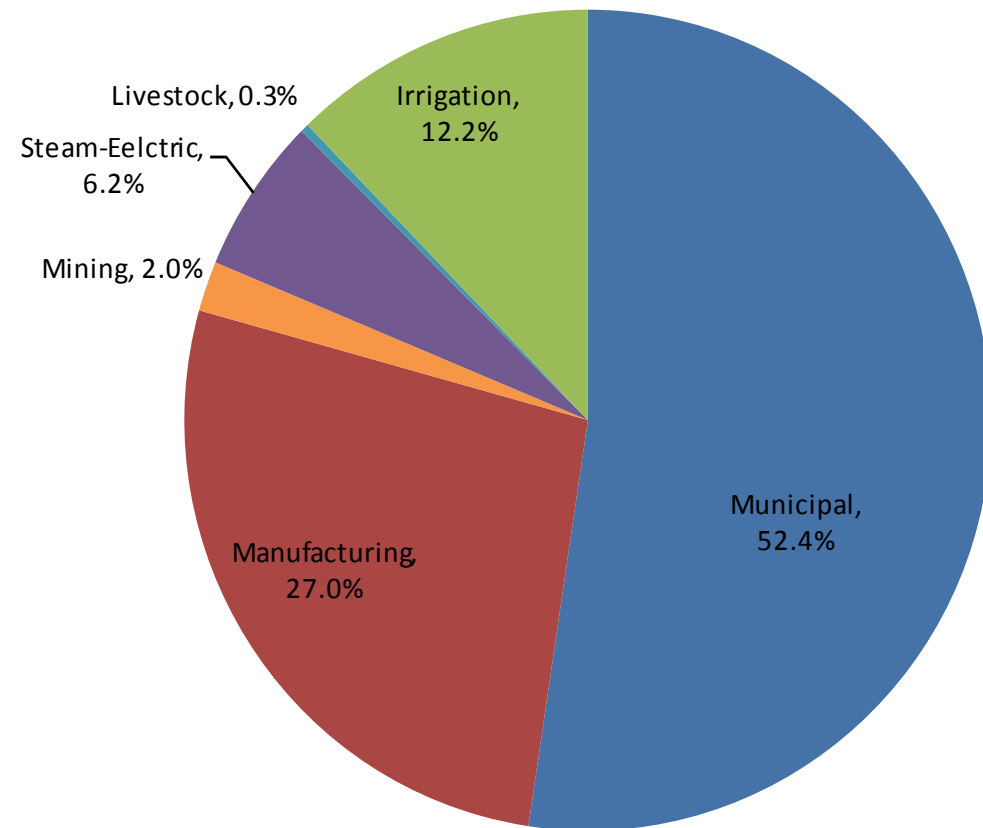
## Year 2010 Demand

Total Demand of 2.38 Mil. Ac-Ft/Yr



## Year 2060 Demand

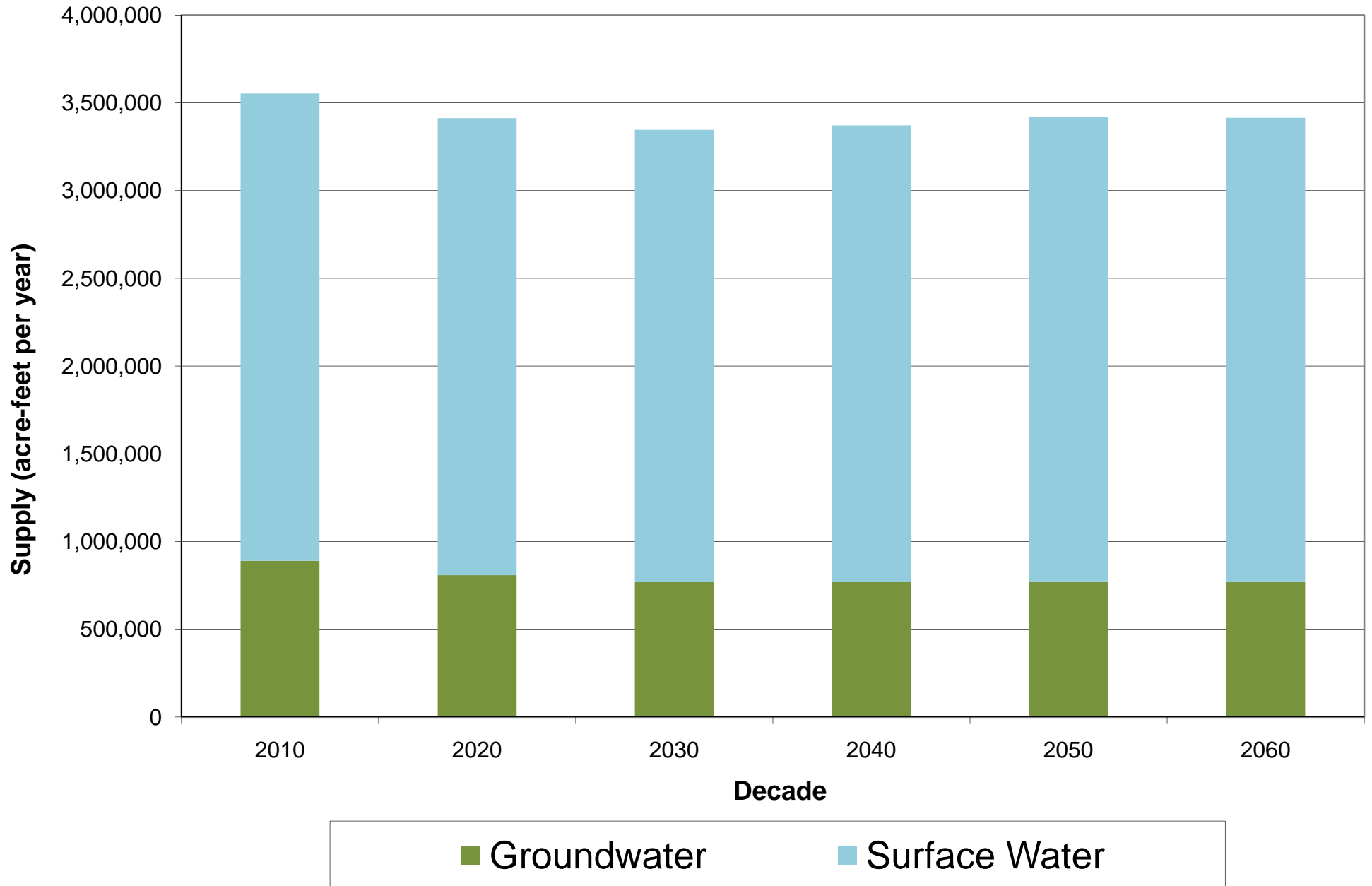
Total Demand of 3.53 Mil. Ac-Ft/Yr



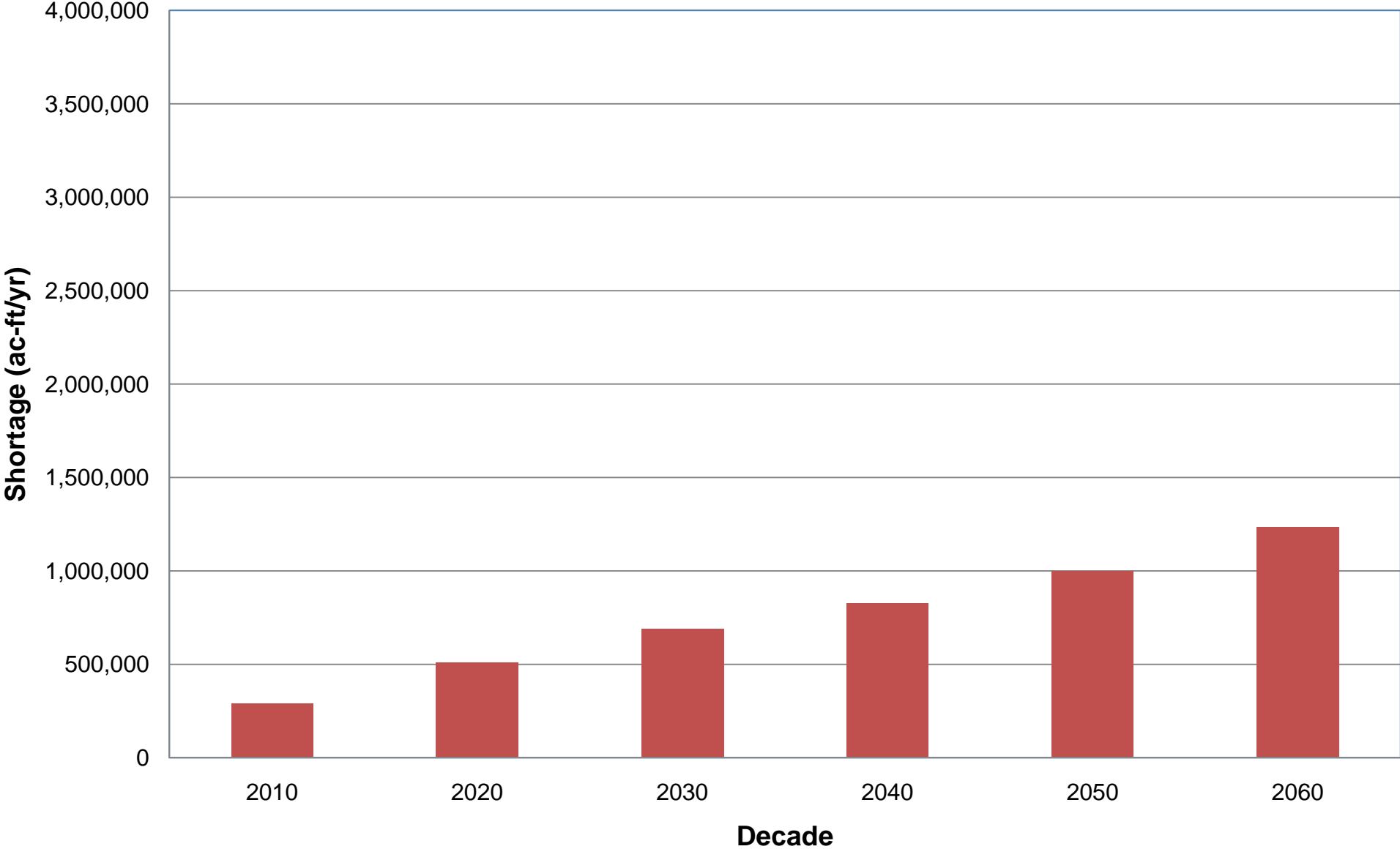
- **Supplies determined by**
  - Surface Water Availability Model (drought of record)
  - Groundwater Availability Model or local regulations
- **Total Existing Supplies**
  - 3,561,017 acre-feet per year
  - 75% surface water
  - 25% groundwater
- **2060 Available Supplies**
  - 3,415,860 acre-feet per year
  - Groundwater use reduced by regulation
  - Reservoir storage reduced by sedimentation



# Existing and Projected Water Supplies



# Projected Supply Deficit



# Selected Management Strategies

- **Conservation Strategies**
  - Industrial
  - Irrigation
  - Municipal
- **Contractual Strategies**
  - Contracts to water users (WUGs)
  - Contracts among water providers (WWPs)
- **Groundwater Strategies**
  - Expanded Use of Groundwater
  - Interim Groundwater Use
  - New Groundwater Wells for Livestock

# Selected Management Strategies

- Groundwater Reduction Plans
  - City of Houston
  - North Harris County Regional Water Authority
  - Others
- Reservoir Strategies
  - Allen's Creek Reservoir
  - Gulf Coast Water Authority Off-Channel Reservoir
  - Millican Reservoir
- Permit Strategies
  - Brazos River Authority System Operations
  - Houston Bayous Permit

- Reuse Strategies
  - Houston Indirect Wastewater Reuse
  - Wastewater Reclamation for Industry
  - Wastewater Reclamation for Municipal Irrigation
  - Others
  
- Infrastructure Strategies
  - Luce Bayou Transfer
  - COH, NHCRWA, WHCRWA, CHCRWA, and NFBWA Transmission and Distribution Systems
  - CLCND West Chambers County System
  - Others

# Selected Management Strategies

- Other Strategies
  - Brazoria County Interruptible Supplies
  - Brazos Saltwater Barrier

# Major Water Management Strategies

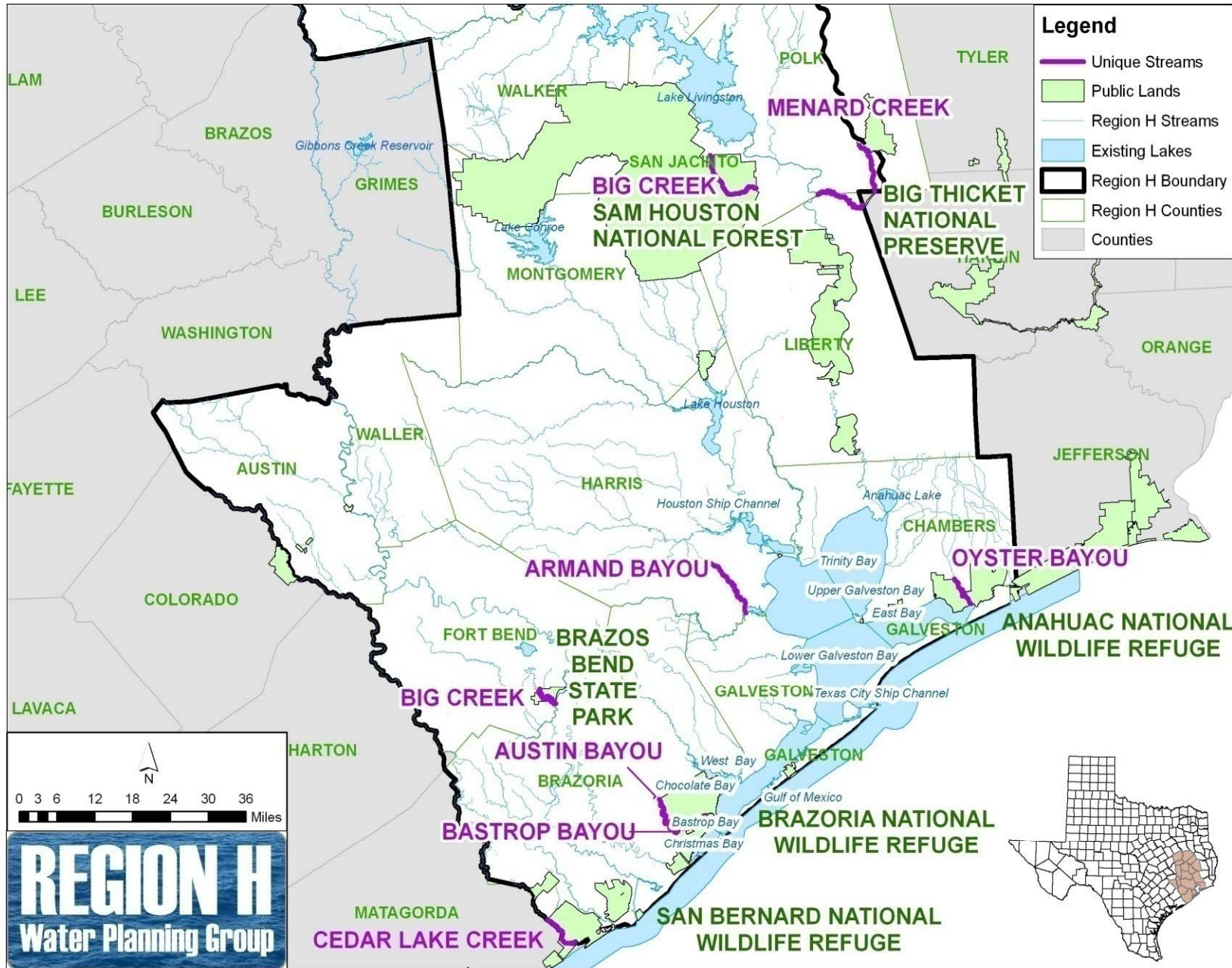
Major WMS	Sponsor	Selected Strategy	Projected Start Decade	2010	2020	2030	2040	2050	2060
				Total Allocated (ac-ft/yr)					
<b>Reservoirs</b>									
Allens Creek Reservoir	BRA / Houston	Y	2020	-	76,441	93,688	97,954	99,580	99,650
GCWA Off-Channel Reservoir	GCWA	Y	2030	-	-	39,500	39,500	39,500	39,500
Millican Reservoir (Panther Creek Dam)	BRA	Y	2040	-	-	-	11,627	58,351	120,994
<b>Contractual Strategies</b>									
TRA to Houston Contract	TRA / Houston	Y	2030	-	-	116,738	123,524	123,524	123,524
TRA to SJRA contract	TRA / SJRA	Y	2040	-	-	-	7,935	39,096	76,476
<b>Reclamation/Reuse</b>									
Houston Indirect Wastewater Reuse	Houston	Y	2040	-	-	-	66,420	114,679	128,801
NHCRWA Indirect Wastewater Reuse	NHCRWA	Y	2040	-	-	-	7,300	16,300	16,300
Wastewater Reclamation for Industry	Houston, Manufacturing	Y	2060	-	-	-	-	-	67,200
<b>Permit Strategies / Other</b>									
Brazoria Interruptible Supplies for Irrigation	GCWA	Y	2010	104,977	86,759	64,000	64,000	64,000	64,000
BRA System Operations Permit	BRA	Y	2020	-	6,621	18,870	25,350	25,350	25,350
Interim Strategies	NA	Y	2010	45,512	-	-	-	-	-
<b>Total</b>				<b>150,489</b>	<b>169,821</b>	<b>332,796</b>	<b>443,610</b>	<b>580,380</b>	<b>761,795</b>

- **Water Conservation**
  - Recommended as the first strategy
  - Applied to meet projected shortages
- **Strategy Selection Process**
  - Yield and environmental impacts were considered with the unit cost of water
- **Existing Supplies**
  - Utilized prior to recommending new water supply projects
- **Reuse**
  - Included in Fort Bend, Harris County and Montgomery
  - Recommended in lieu of additional imports/reservoirs



- Eight stream segments were selected in 2006 and adopted by Texas Legislature:
  - Armand Bayou
  - Austin Bayou
  - Bastrop Bayou
  - Big Creek (Fort Bend)
  - Big Creek (San Jacinto)
  - Cedar Lake Creek
  - Menard Creek
  - Oyster Bayou
- 2011 Regional Water Plan retains the designations for these sites

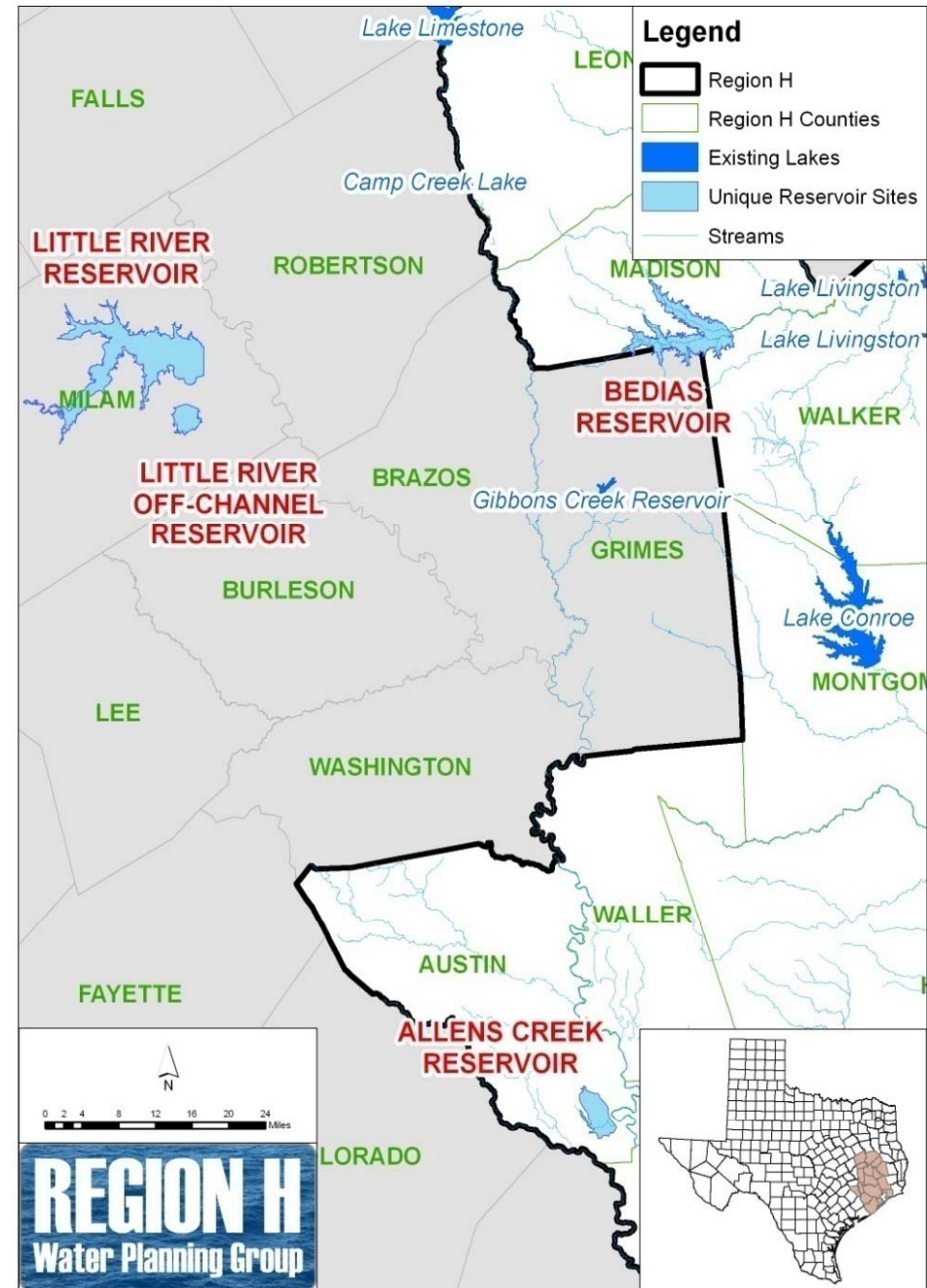
# Unique Stream Segments



- 2011 Regional Water Plan includes five Unique Reservoir Sites
  - Four already designated
    - Allens Creek Reservoir – *2011 Selected Strategy*
    - Little River Reservoir
    - Little River Off-Channel Reservoir
    - Bendas Reservoir
  - One recommended for designation
    - Millican Reservoir – *2011 Selected Strategy*

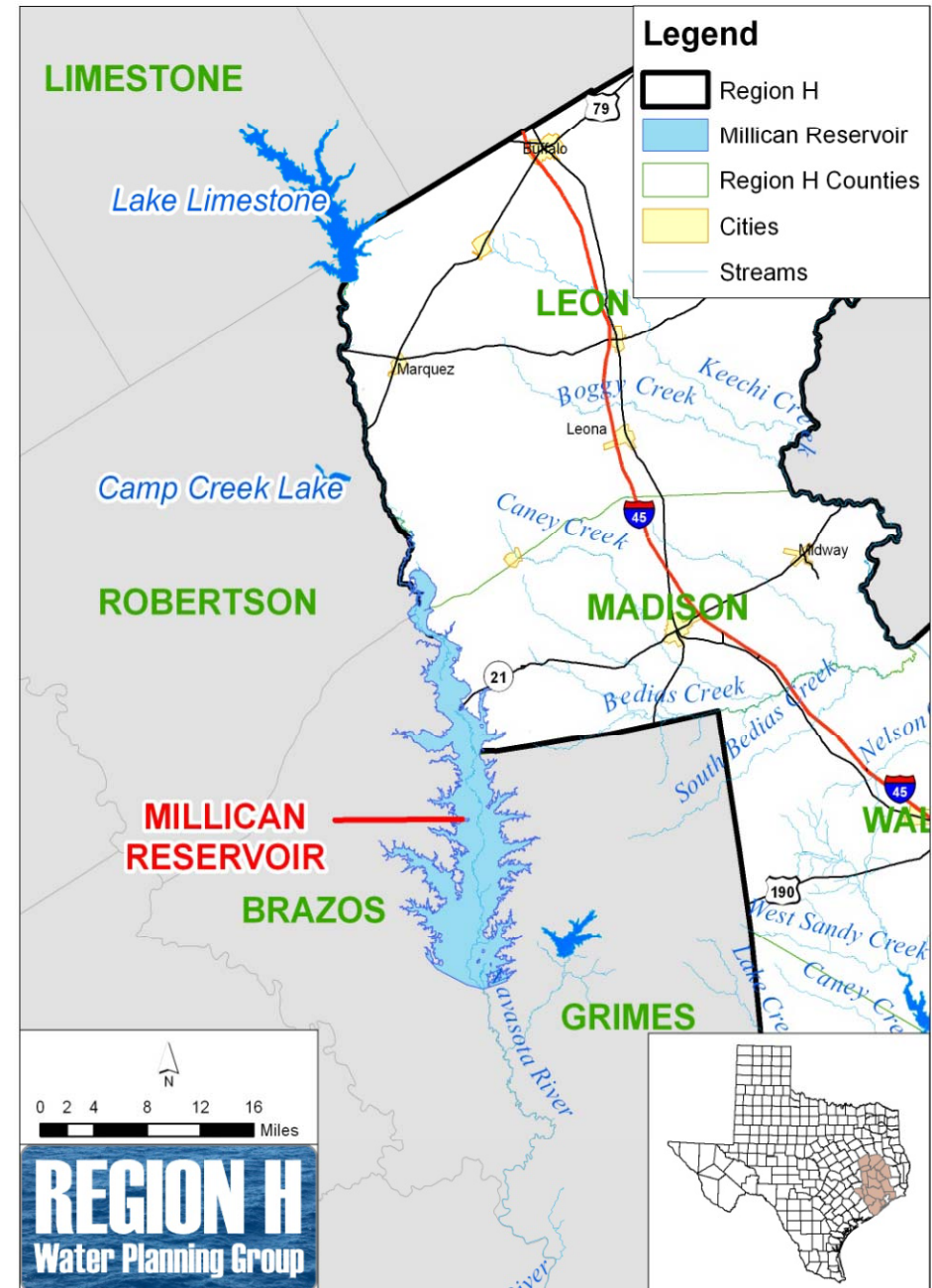
## Designated Sites

- Allens Creek Reservoir
  - Strategy in 2001, 2006, and **2011** RWPs
  - Austin County
- Little River Reservoir
  - Strategy in 2001 RWP
  - Milam County
- Little River Off-Channel
  - Strategy in 2006 RWP
  - Milam County
- Bedias Reservoir
  - Strategy in 2001 RWP
  - Grimes, Madison, and Walker Counties



## Millican Reservoir

- Not yet designated by Texas Legislature
- Recommended in 2011 Region H Plan
- Location:
  - Primarily Brazos, Grimes, and Madison Counties
  - Located on Navasota River
- Yield: 194,500 afy
- Capital Cost:
  - \$1,159,907,000



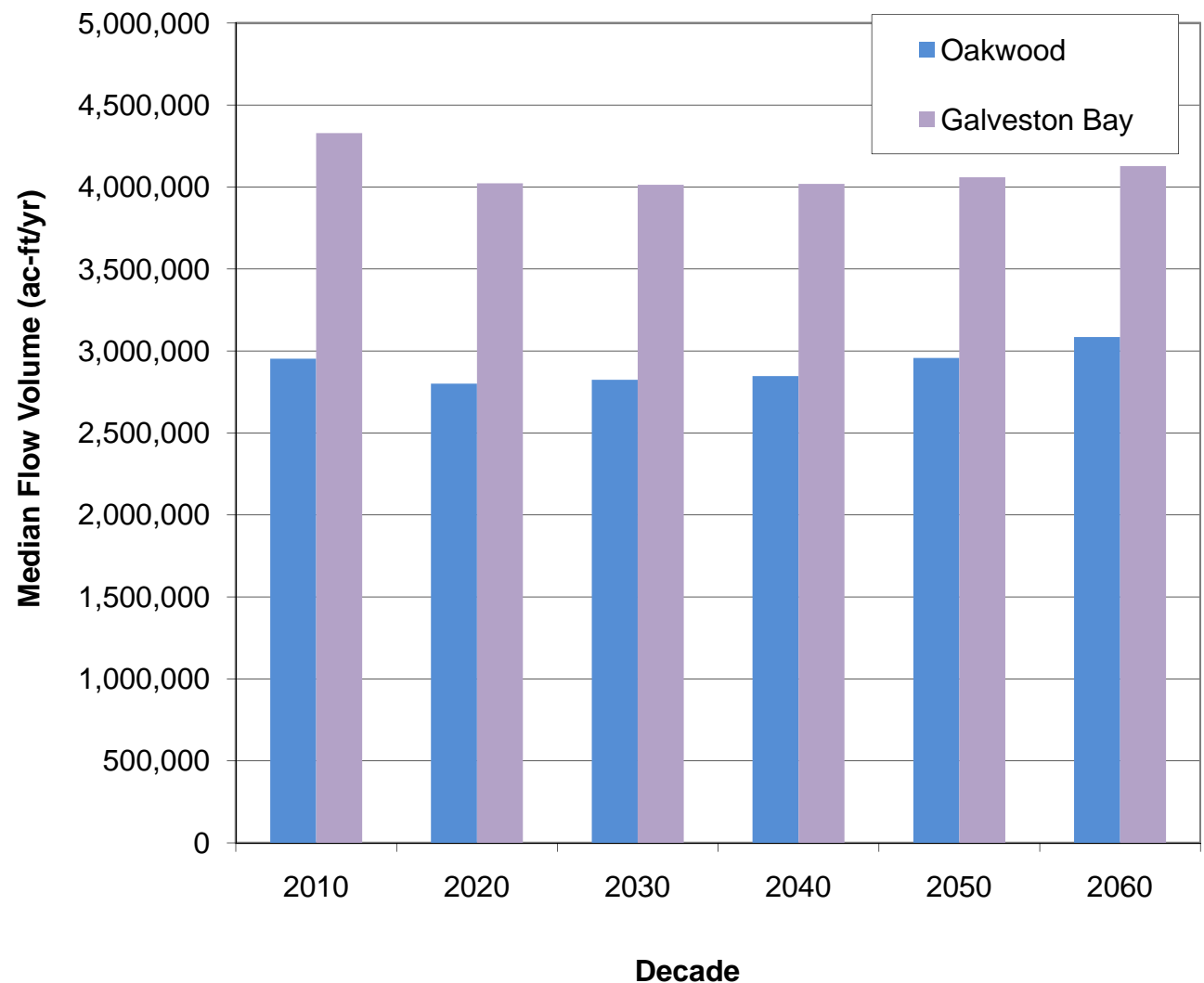
- Retained 15 Recommendations from 2006 Plan
  - 3 Administrative and Regulatory Recommendations
  - 12 Legislative Recommendations
- One New Legislative Recommendation
  - *Direct the State Demographer's Office to explore the potential changes in population distribution made possible by rapid advancements in information technology.*

## Infrastructure Funding Requirements

- Capital Costs for the 2011 Region H Water Plan
  - Estimated at \$12.9 Billion (2008 Dollars)
- Water Infrastructure Financing (WIF) Survey
  - 2011 Survey will utilize TWDB Web based tool
  - Objectives:
    - Determine number of entities with finance needs
    - Identify infrastructure costs that cannot be financed locally
    - Summarize each WIF project and location in Plan

## Impacts of 2006 Strategies to Galveston Bay

- Modeled Impacts Over Time (2010 – 2060)
- Considered Upstream Impacts
- Near-term reductions in flow offset by higher return flows in long-term
- Mitigate increased water usage in later decades





## Water Conservation

### – Conservation Survey

- Included municipal, industrial and commercial conservation
- Additional conservation plans obtained from TWDB

### – Conservation Management Strategies

- No change to Irrigation conservation strategies from 2006 RWP
- WUG specific strategies where applicable
- 3-tiered municipal strategy based on WUG size for other municipal WUGs
- Conservation used to address over 200 WUG shortages

# Public Comment on the IPP

- **IPP Available:**
  - *<http://www.regionhwater.org>*
  - *County Clerk's Office in each county*
  - *Depository library in each county*
  
- **Public Hearings**
  - Tuesday, March 30<sup>th</sup> @ 6:30 PM – Houston
    - Houston-Galveston Area Council
  
  - Thursday April 1<sup>st</sup> @ 6:30 PM– Madisonville
    - **Truman Kimbro Convention Center**
  
  - Wednesday, April 7<sup>th</sup> @ 10:00 AM – Conroe
    - **Lone Star Convention and Expo Center**

# Public Comment on the IPP

- Taking comments through:
  - *5:00 PM June 8, 2010*
- Please submit comments to:
  - Hon. Mark Evans  
Chair, Region H Water Planning Group  
c/o San Jacinto River Authority  
P.O. Box 329  
Conroe, TX 77305-0329
  - J. Kevin Ward  
Executive Administrator  
Texas Water Development Board  
P.O. Box 13231  
Austin, TX 78711-3231

# *Questions and Comments*