



Brazos G Regional Water Planning Group

Thursday, July 27, 2023

10:00 AM

BRAZOS RIVER AUTHORITY

4600 COBBS DR. WACO, TX 76710



1. Call Meeting to Order

2. Invocation

3. Notice of Meeting

4. Attendance and Announcements

5. Public Input - Public questions and comments on agenda items or water planning issues (limited to 5 minutes each)



6. Report and possible discussion from Texas Water Development Board (TWDB) staff



6. Presentation from Jake Hollingsworth, GCWA, on Brazos River Alluvium

The Brazos Alluvium Aquifer

July 27, 2023

PRESENTER:

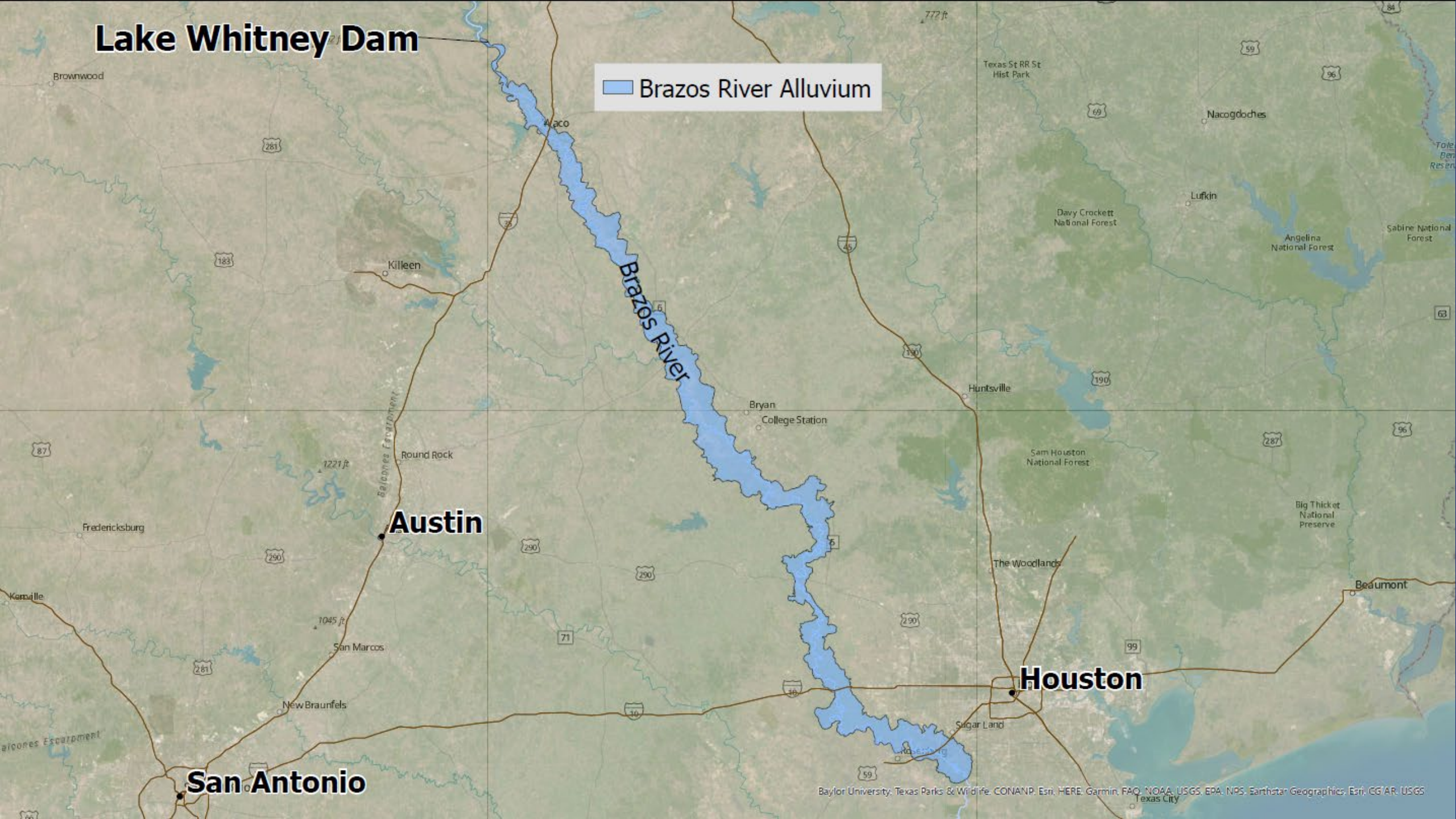
Jake Hollingsworth

Gulf Coast Water Authority

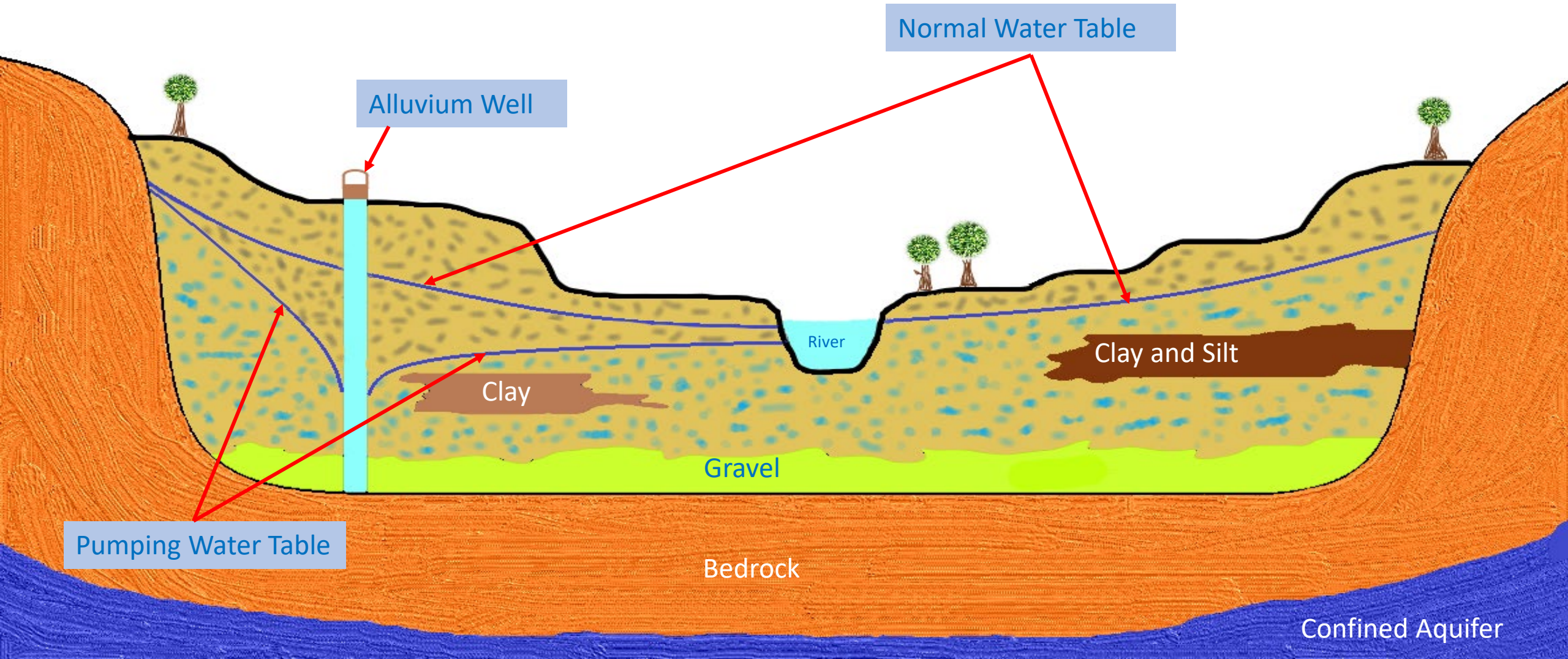
Assistant General Manager

Lake Whitney Dam

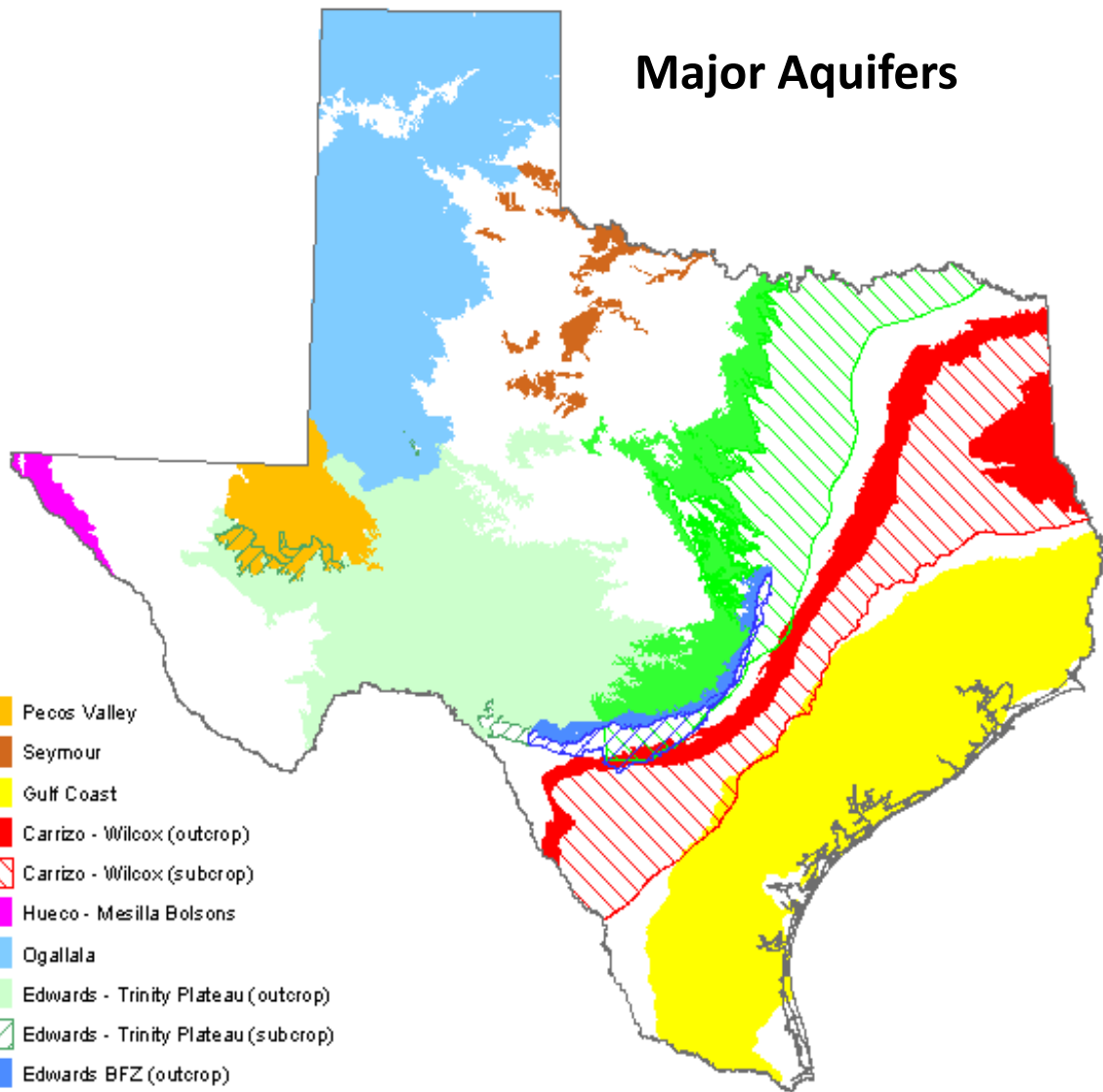
■ Brazos River Alluvium



Brazos Alluvium

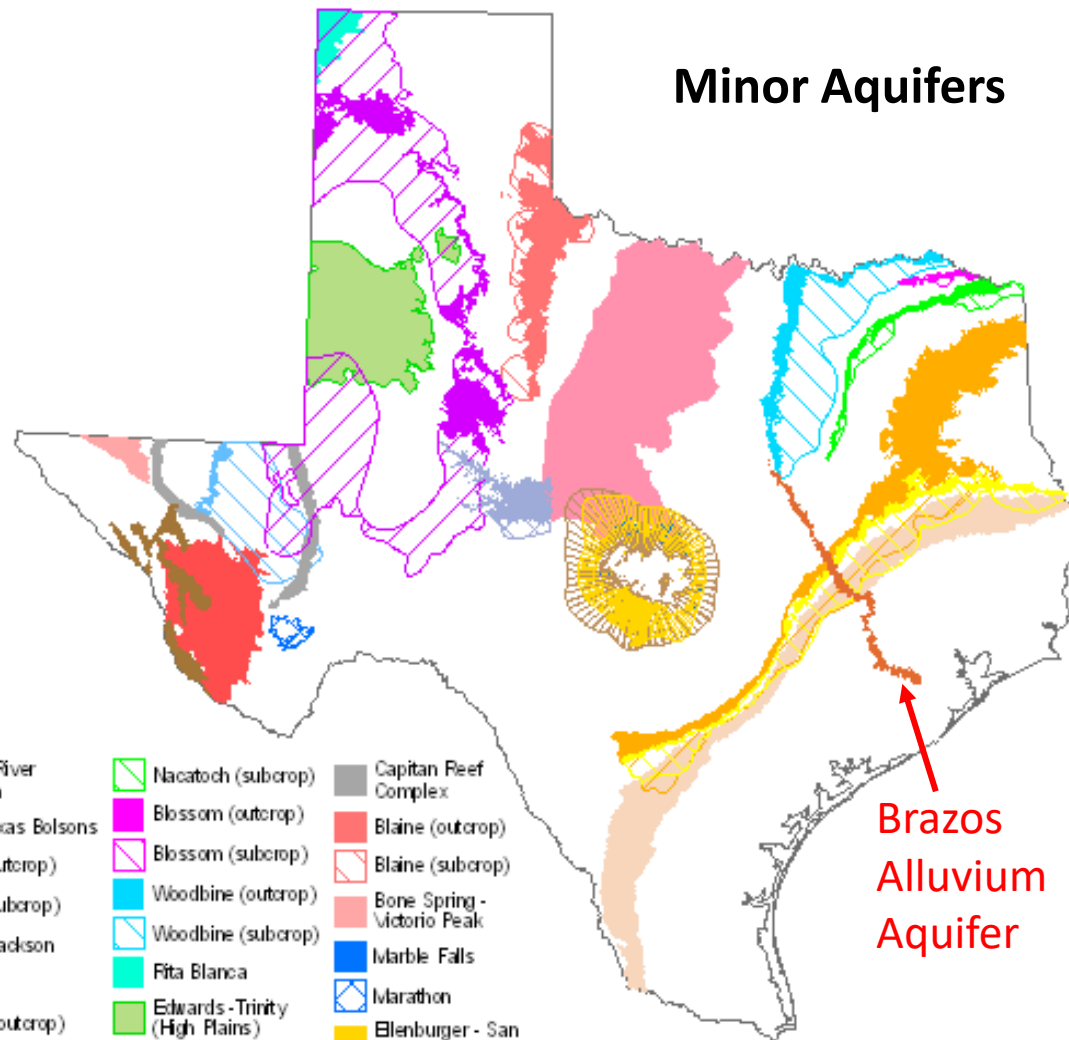


Major Aquifers



- Pecos Valley
- Seymour
- Gulf Coast
- Carrizo - Wilcox (outcrop)
- Carrizo - Wilcox (subcrop)
- Hueco - Mesilla Bolsons
- Ogallala
- Edwards - Trinity Plateau (outcrop)
- Edwards - Trinity Plateau (subcrop)
- Edwards BFZ (outcrop)
- Edwards BFZ (subcrop)
- Trinity (outcrop)
- Trinity (subcrop)

Minor Aquifers

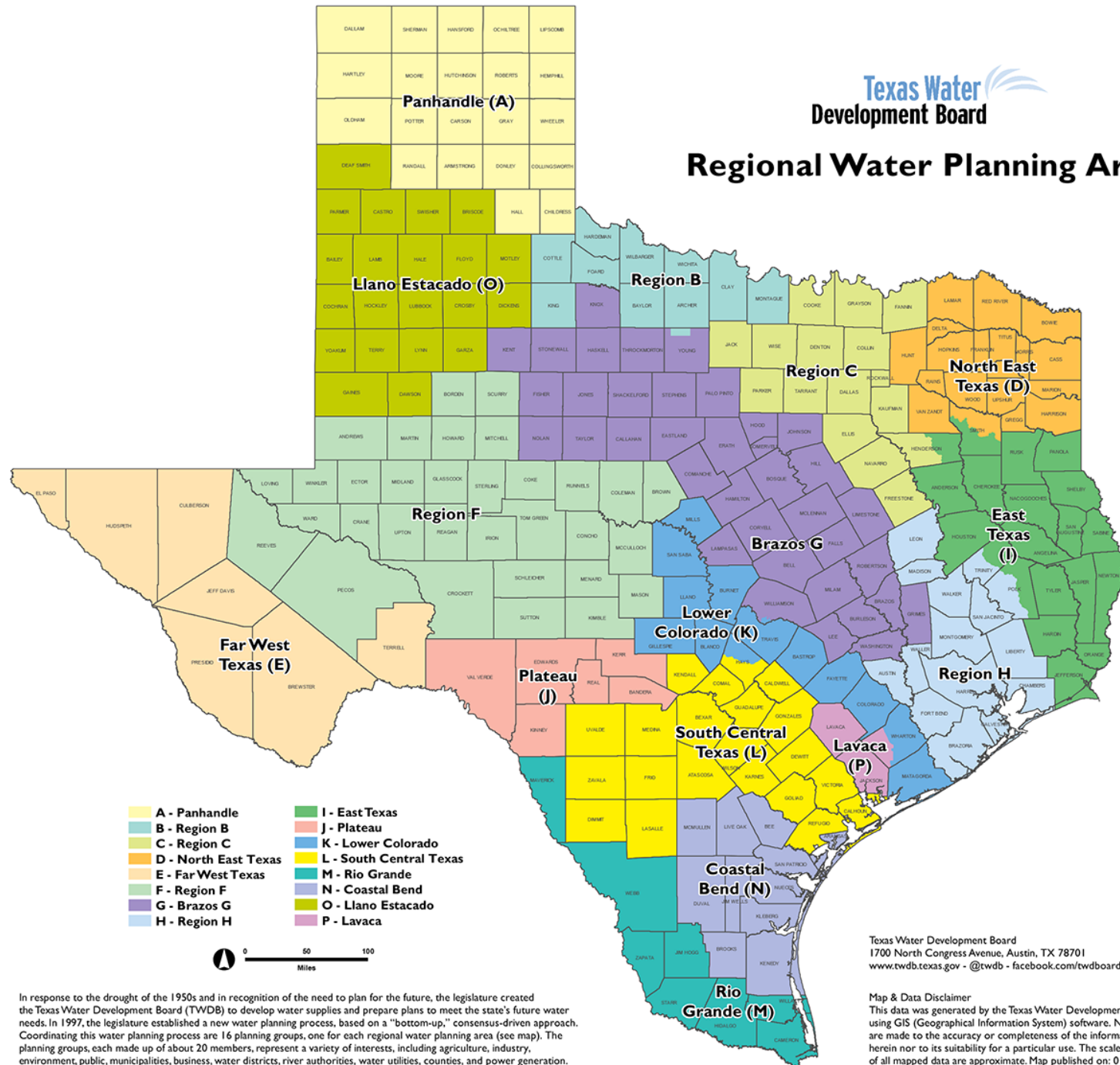


- | | | |
|--|---|---|
| Brazos River Alluvium | Nacatoch (subcrop) | Capitan Reef Complex |
| West Texas Bolsons | Blossom (outcrop) | Blaine (outcrop) |
| Lipan (outcrop) | Blossom (subcrop) | Blaine (subcrop) |
| Lipan (subcrop) | Woodbine (outcrop) | Bone Spring - Victoria Peak |
| Yegua Jackson | Woodbine (subcrop) | Marble Falls |
| Igneous | Rita Blanca | Marathon |
| Sparta (outcrop) | Edwards-Trinity (High Plains) | Elenburger - San Saba (outcrop) |
| Sparta (subcrop) | Dockum (outcrop) | Elenburger - San Saba (subcrop) |
| Queen City (outcrop) | Dockum (subcrop) | Hickory (outcrop) |
| Queen City (subcrop) | Rustler (outcrop) | Hickory (subcrop) |
| Nacatoch (outcrop) | Rustler (subcrop) | Cross Timbers |

Brazos Alluvium Aquifer

Regional Water Planning Areas

TWDB Regional Water Planning



In response to the drought of the 1950s and in recognition of the need to plan for the future, the legislature created the Texas Water Development Board (TWDB) to develop water supplies and prepare plans to meet the state's future water needs. In 1997, the legislature established a new water planning process, based on a "bottom-up," consensus-driven approach. Coordinating this water planning process are 16 planning groups, one for each regional water planning area (see map). The planning groups, each made up of about 20 members, represent a variety of interests, including agriculture, industry, environment, public, municipalities, business, water districts, river authorities, water utilities, counties, and power generation.

Texas Water Development Board
1700 North Congress Avenue, Austin, TX 78701
www.twdb.texas.gov - @twdb - facebook.com/twdbboard

Map & Data Disclaimer
This data was generated by the Texas Water Development Board using GIS (Geographical Information System) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate. Map published on: 01/01/2019



■ Brazos River Alluvium
○ Groundwater Wells Within Alluvium as Reported by TWDB - 2,116 Total

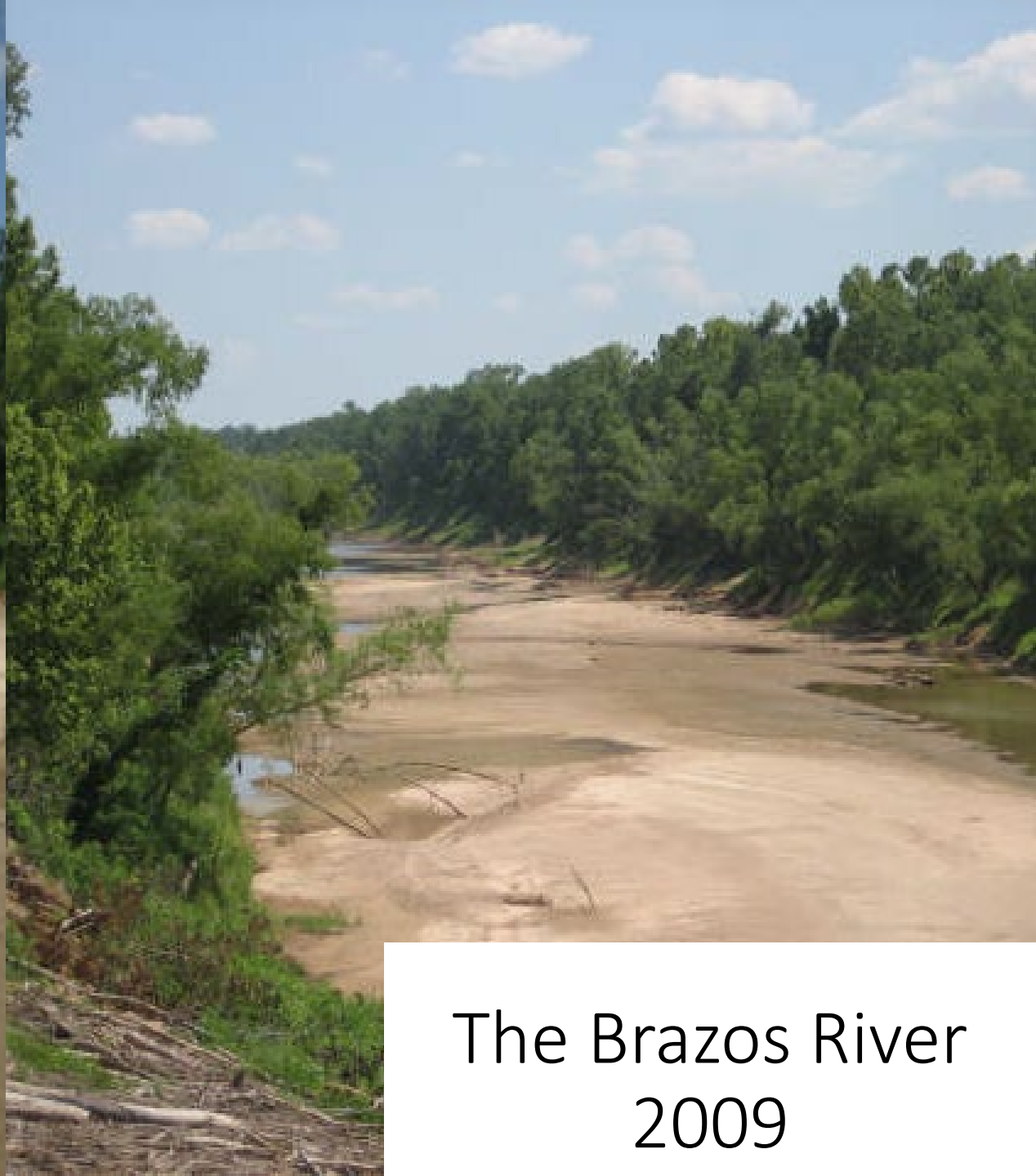
BRAZOS RIVER ALLUVIUM Bryan

Esri, NASA, NGA, USGS, FEMA, City of Bryan GIS, Texas Parks & Wildlife, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, METI/NASA, EPA, USDA

BRAZOS RIVER ALLUVIUM



The Brazos River
2020



The Brazos River
2009

Texas Triangle

BRAZOS RIVER ALLUVIUM

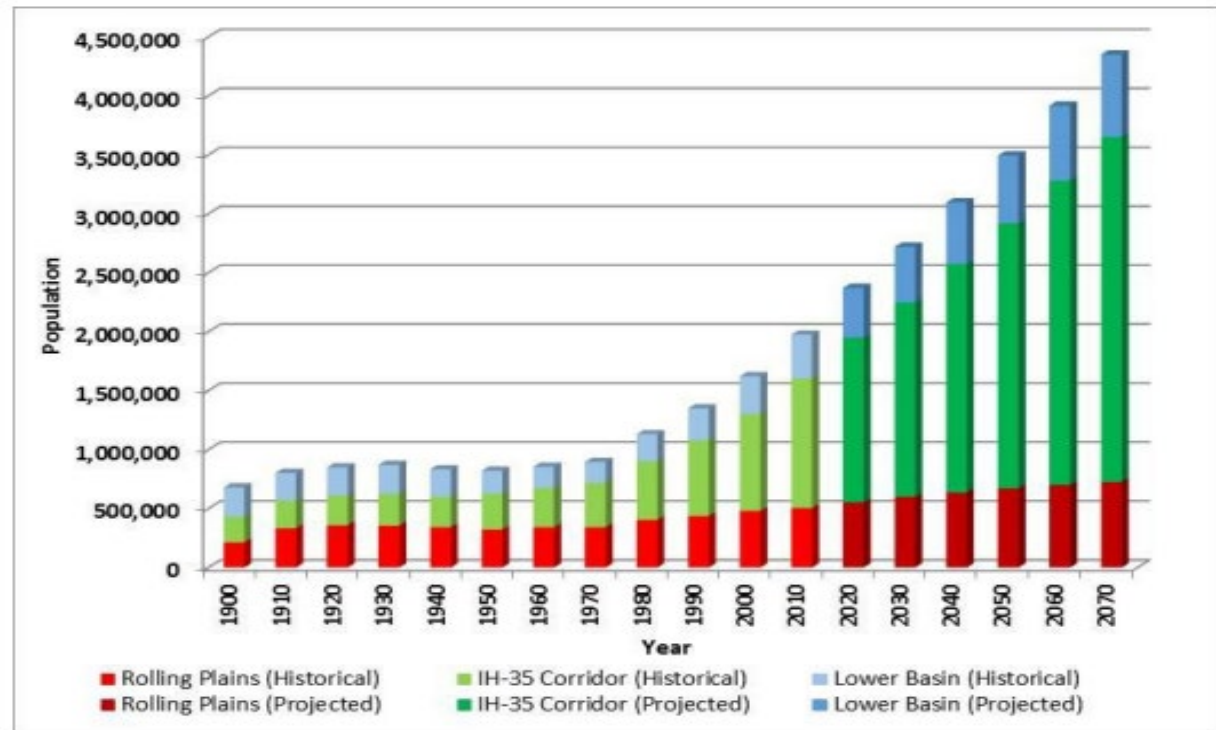
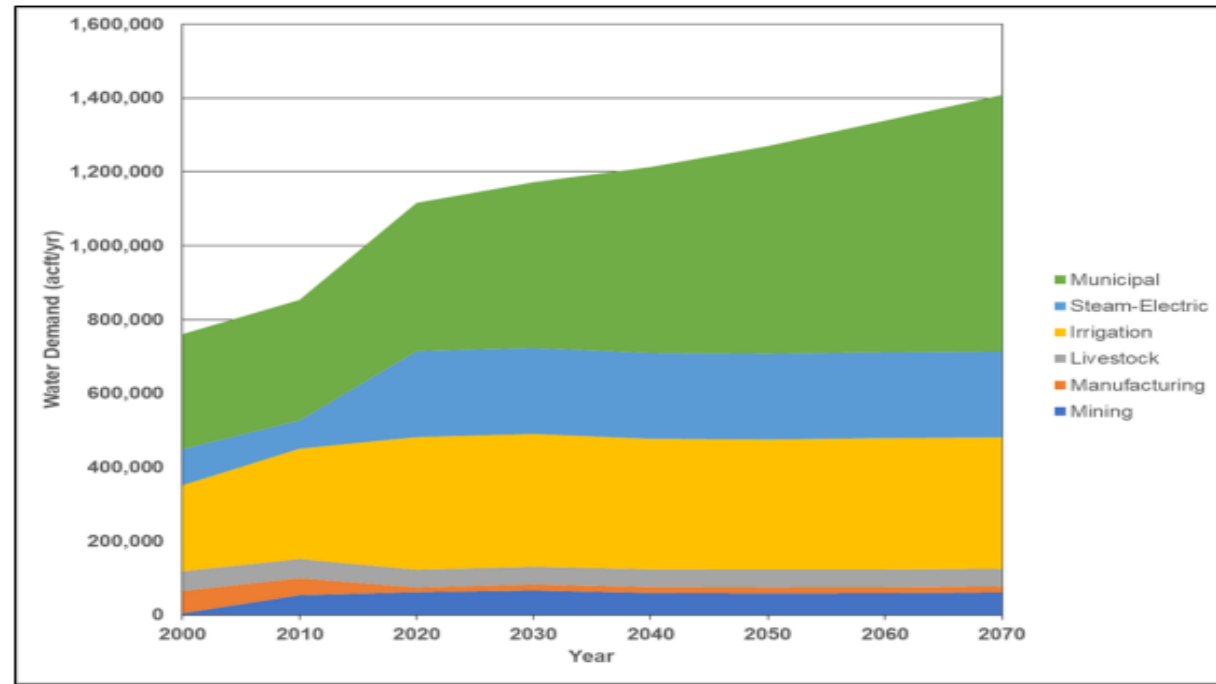


Region G Growth Stats

Total Use by Source	1980	2017
Groundwater	270,270	432,527
Surface Water	274,999	445,650
Region Total	545,269	878,177

Aquifer Use	1980	2017
Brazos Alluvium	29,426	133,065

Population	2020	2070
Region G	2,371,064	4,351,042



Data & Chart Source:
2021 Brazos G Regional Water Plan

2022 Modeled Available Groundwater – Brazos Alluvium

GAM Run 21-017 MAG: Modeled Available Groundwater for the Aquifers in Groundwater Management Area 12

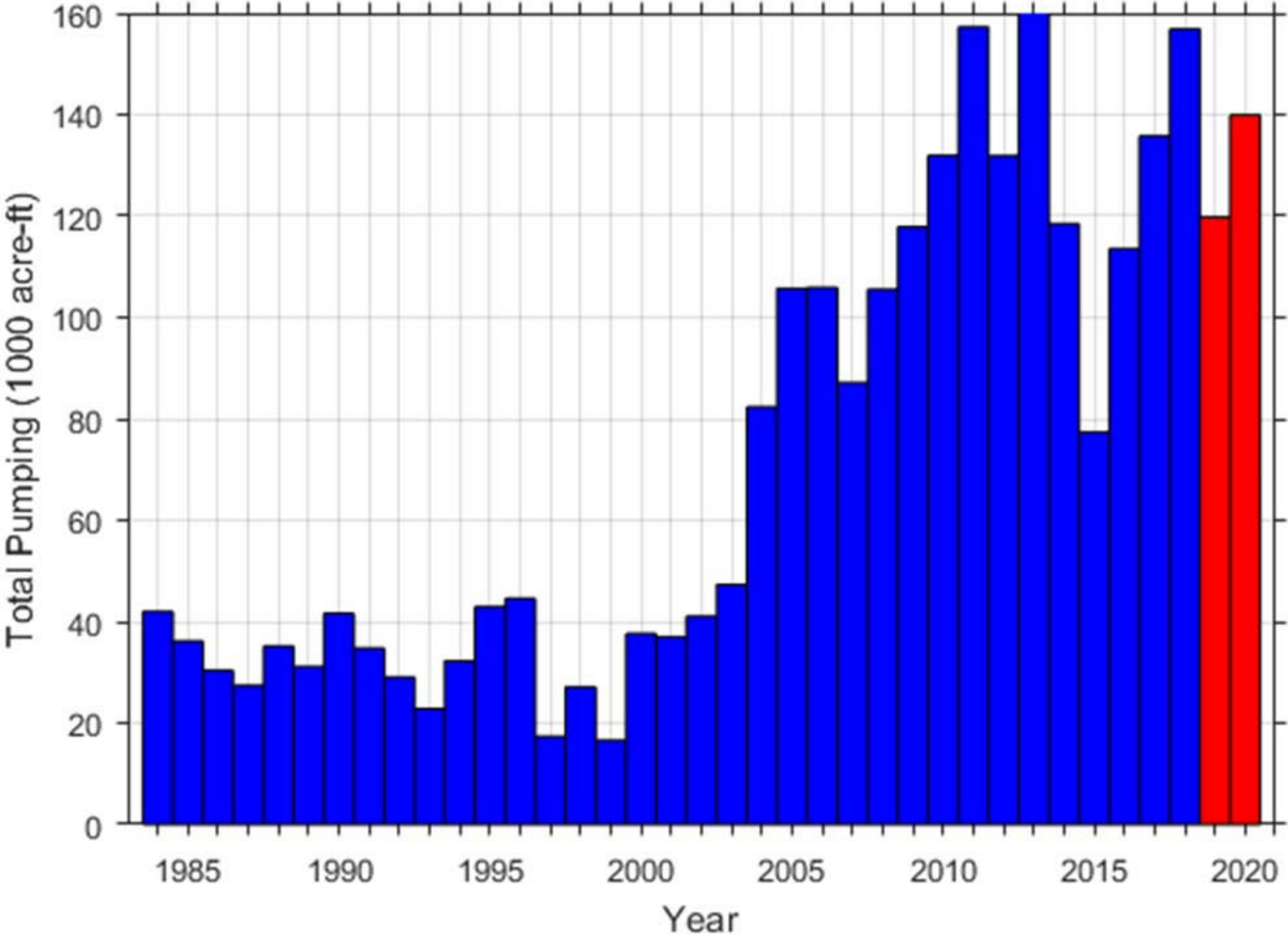
November 1, 2022

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TABLE 11 **MODELED AVAILABLE GROUNDWATER FOR BRAZOS RIVER ALLUVIUM AQUIFER IN GROUNDWATER MANAGEMENT AREA 12 SUMMARIZED BY COUNTY FOR EACH DECADE BETWEEN 2020 AND 2070. VALUES ARE IN ACRE-FEET PER YEAR. GCD = GROUNDWATER CONSERVATION DISTRICT.**

GCD	County	Aquifer	2020	2030	2040	2050	2060	2070
Brazos Valley GCD	Brazos	Brazos River Alluvium	77,816	76,978	76,393	76,195	76,100	76,039
	Robertson	Brazos River Alluvium	55,907	55,424	55,157	54,839	54,723	54,618
Post Oak Savannah GCD	Burleson	Brazos River Alluvium	32,222	32,207	32,207	32,206	32,206	32,206
	Milam	Brazos River Alluvium	31,412	31,375	31,366	31,362	31,359	31,358
Total			197,357	195,984	195,123	194,602	194,388	194,221

Total Alluvium Pumping by Year





Brazos River

STEINBECK BEND

BRAZOS RIVER ALLUVIUM

Waco

Riesel

Hewitt

Robinson

NOTICE OF OPEN MEETING

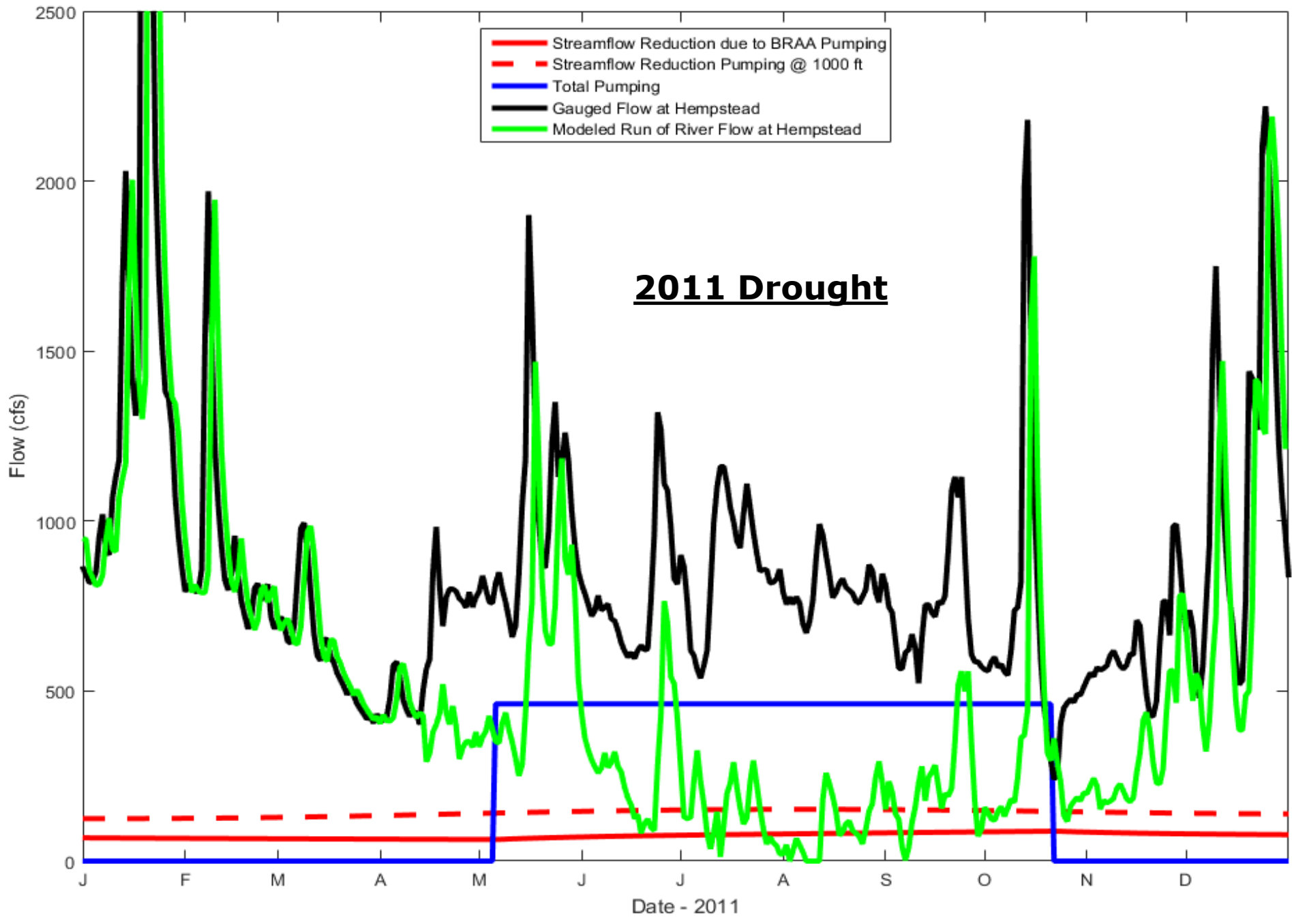
BRAZOS G REGIONAL WATER PLANNING GROUP

Virtual Meeting

10:00 a.m. – October 28, 2020

AGENDA

1. CALL MEETING TO ORDER
2. INVOCATION
3. NOTICE OF MEETING
4. ATTENDANCE AND ANNOUNCEMENTS
5. PUBLIC INPUT - Public questions and comments on agenda items or water planning issues
(limited to 5 minutes each)
6. PROGRAM
 - 6.1. Report and possible discussion on report from Texas Water Development Board (TWDB) staff.
 - 6.2. Discussion and possible action to support a Waiver of Consistency for the City of Riesel Arsenic Reduction Project.
 - 6.3. Discussion and possible action to consider requests from various entities to participate in Flood Infrastructure Fund Category 1 Watershed Studies.
 - 6.4. Discussion and possible action adopting the final 2021 Brazos G Regional Water Plan, pending textual changes necessary to address comments received and authorizing BRA and HDR to submit the final plan to TWDB when ready, but no later than November 5, 2020.
 - 6.5. Report and possible discussion on updates from other regional water planning groups (Regions B, C, F, H, K, L & O).
 - 6.6. Report and possible discussion on Groundwater Management Area (GMA) activities.



2011 Drought

Flow (cfs)

Date - 2011

- Streamflow Reduction due to BRAA Pumping
- Streamflow Reduction Pumping @ 1000 ft
- Total Pumping
- Gauged Flow at Hempstead
- Modeled Run of River Flow at Hempstead



Rio Grande at Low Flow Conditions in El Paso

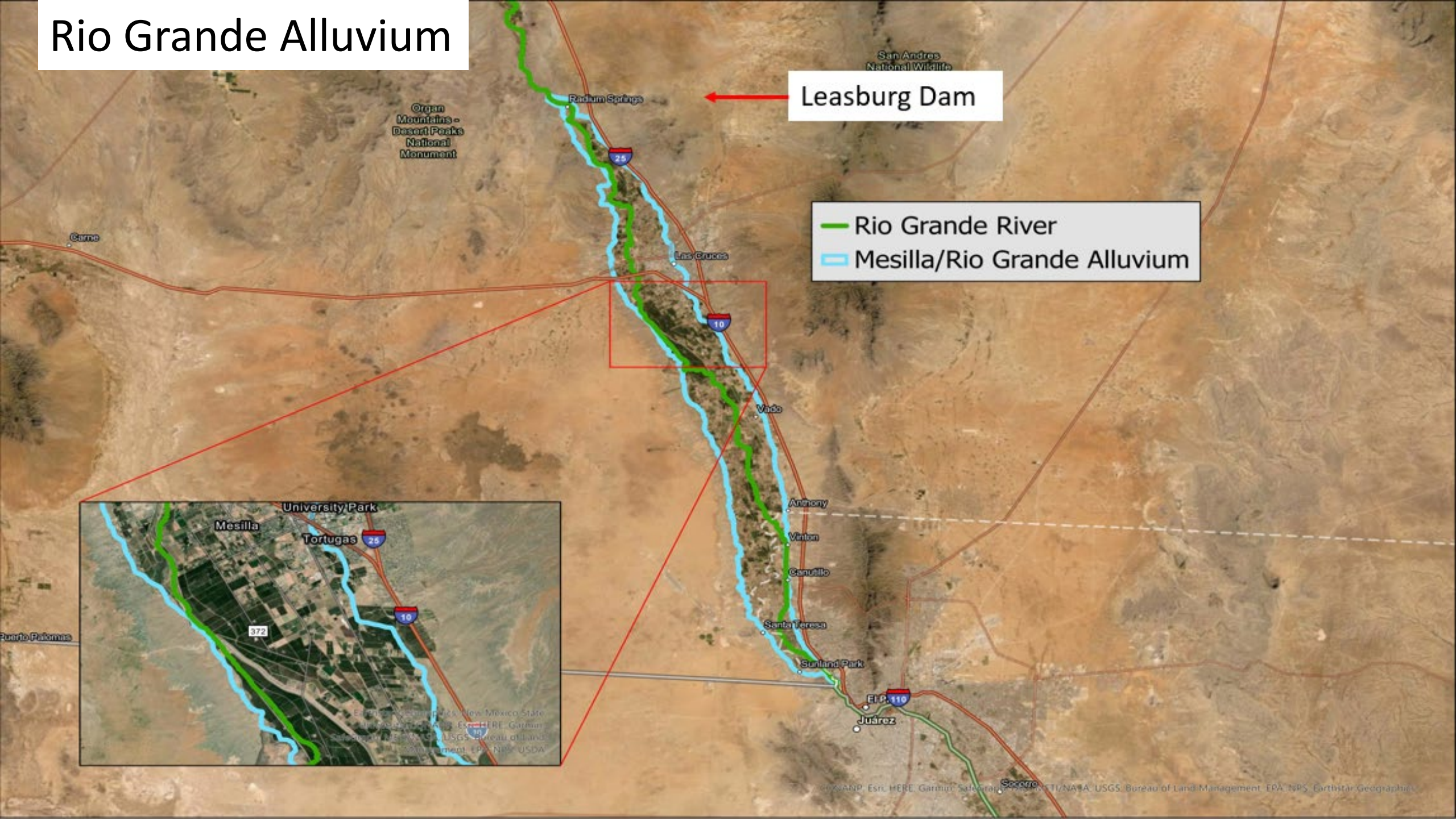


The Brazos River 2009

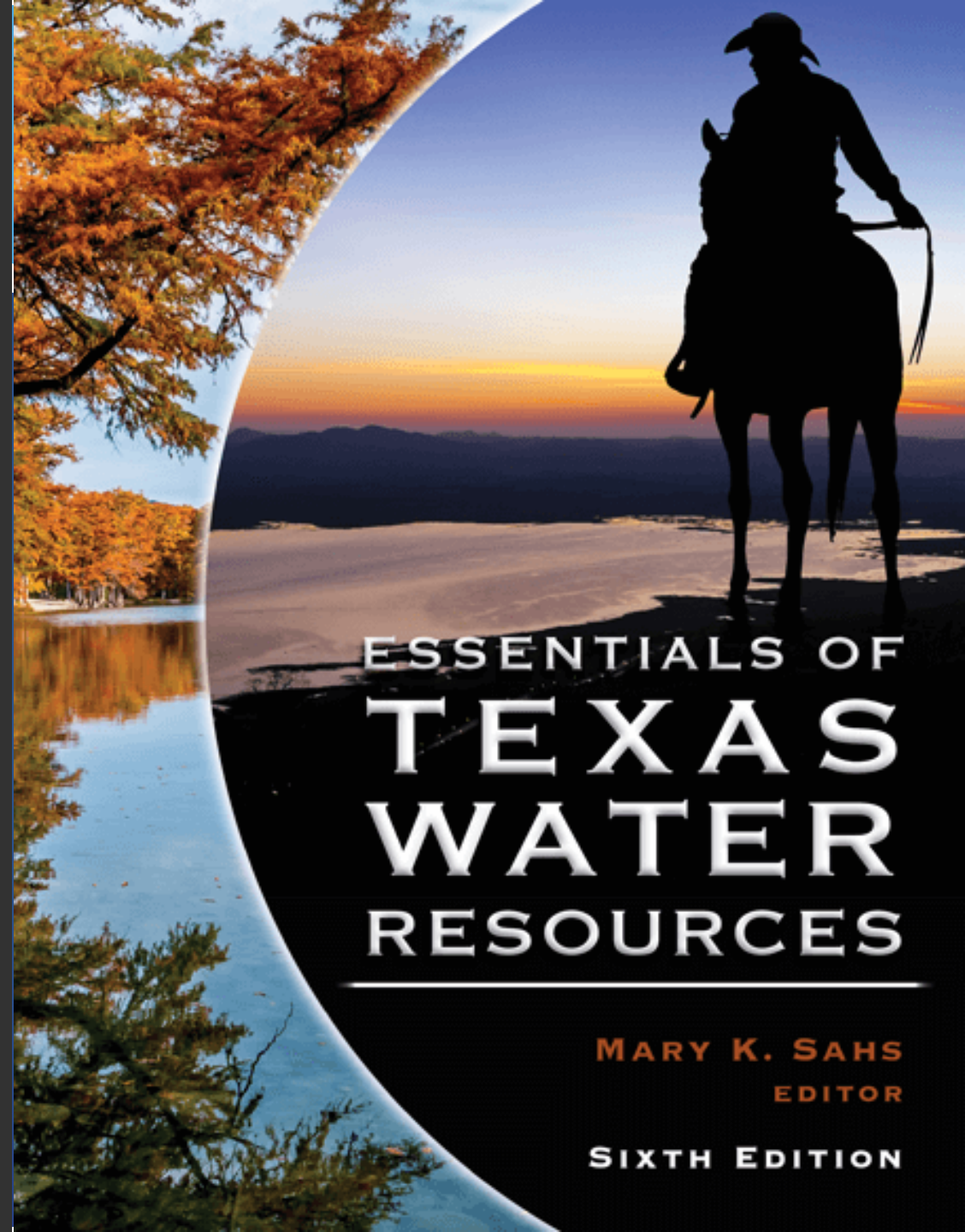
Rio Grande Alluvium

Leasburg Dam

Rio Grande River
Mesilla/Rio Grande Alluvium



Conjunctive
Management
of
Surface Water
and Groundwater
Resources



ESSENTIALS OF
TEXAS
WATER
RESOURCES

MARY K. SAHS
EDITOR

SIXTH EDITION

Considerations

- Create a Region G Brazos Alluvium Committee to partner with the Region H Brazos Alluvium Committee
- Minimize water management strategies supplied by the Brazos Alluvium Aquifer
- Partner with Region H and other stakeholders in supporting legislation to fund studies and monitoring efforts by TWDB and others to advance the state of the science on the alluvium.
- Support:
 - ❖ Allens Creek
 - ❖ Desalination
 - ❖ Reuse
 - ❖ Conservation

The Brazos Alluvium Aquifer

July 27, 2023

PRESENTER:

Jake Hollingsworth

Gulf Coast Water Authority

Assistant General Manager



8. Report, discussion, and possible action on report from Technical Consultant – Carollo

8.1. Summary of Proposed Revisions to Draft Municipal Population and Demand Projection

8.2. Regional Water Planning Update

Brazos G Water Planning

Item 8

Technical Consultant Presentation



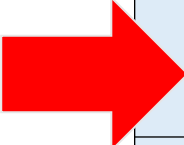
WACO, TX JULY 27, 2023

2026 Planning Budget Progress

Task #	Task	Contract Amount	Expended to Date	% Complete
1	Planning Area Description	\$30,418	\$0	0%
2A	Non-Municipal Water Demand Projections	\$57,806	\$28,944.45	50%
2B	Population and Municipal Water Demand Projections	\$80,330	\$39,796.32	50%
3	Water Supply Analyses	n/a	n/a	0%
4A	Identification of Water Needs	n/a	n/a	0%
4B	Identification of Potentially Feasible WMSs and WMS Projects	n/a	n/a	0%
4C	Prepare and Submit Technical Memorandum	n/a	n/a	0%
5A	Evaluation and Recommendation of WMSs and WMS Projects	n/a	n/a	0%
5B	Water Conservation Recommendations	n/a	n/a	0%
6	Impacts of Regional Water Plan	n/a	n/a	0%
7	Drought Response, Activities & Recommendations	n/a	n/a	0%
8	Recommendations Regarding Unique Stream Segments and/or Reservoir Sites and Legislative & Regional Policy Issues	\$13,415	\$0	0%
9	...	n/a	n/a	0%
10	Public Participation and Plan Adoption	\$88,204	\$66,320.70	75%
11	Implementation and Comparison to the Previous Regional Water Plan	n/a	n/a	0%
12	...	n/a	n/a	0%
	TOTAL	\$270,173	\$135,061.47	50%

2026 Plan Schedule Detail

Date	Scheduled Events/Tasks
Jan 2022	TWDB releases initial Draft Non-Municipal data for Livestock, Manufacturing, and Steam-Electric Power Generation for review
Sept 2022	TWDB releases remaining Draft Non-Municipal data for Irrigation and Mining for review
Jan 2023	TWDB release of Draft Municipal Population and Demand Projections
Mar 2023	Brazos G Meeting –revisions to non-municipal demand projections
May 2023	Brazos G Meeting – Initial discussion on Infeasible Strategies, consideration of actions regarding City of Liberty Hill requests for Consistency Waiver.
July 2023	Brazos G Meeting – Consideration of action to approve submittal of municipal revisions.
July-Aug 2023	Review Draft Projections and finalize adjustments with TWDB staff (Municipal: Aug 11)
Oct 2023	TWDB Board adopts projections



Today's Discussion

Item 8.1

- Summary of Requested Revisions to Draft 2026 Municipal Population and Water Demand Projections

Item 8.2

- **Seeking action** for approval of consultant to coordinate with the Administrator and Chair to submit recommended revision requests to TWDB, allowing for adjustments in coordination with TWDB staff

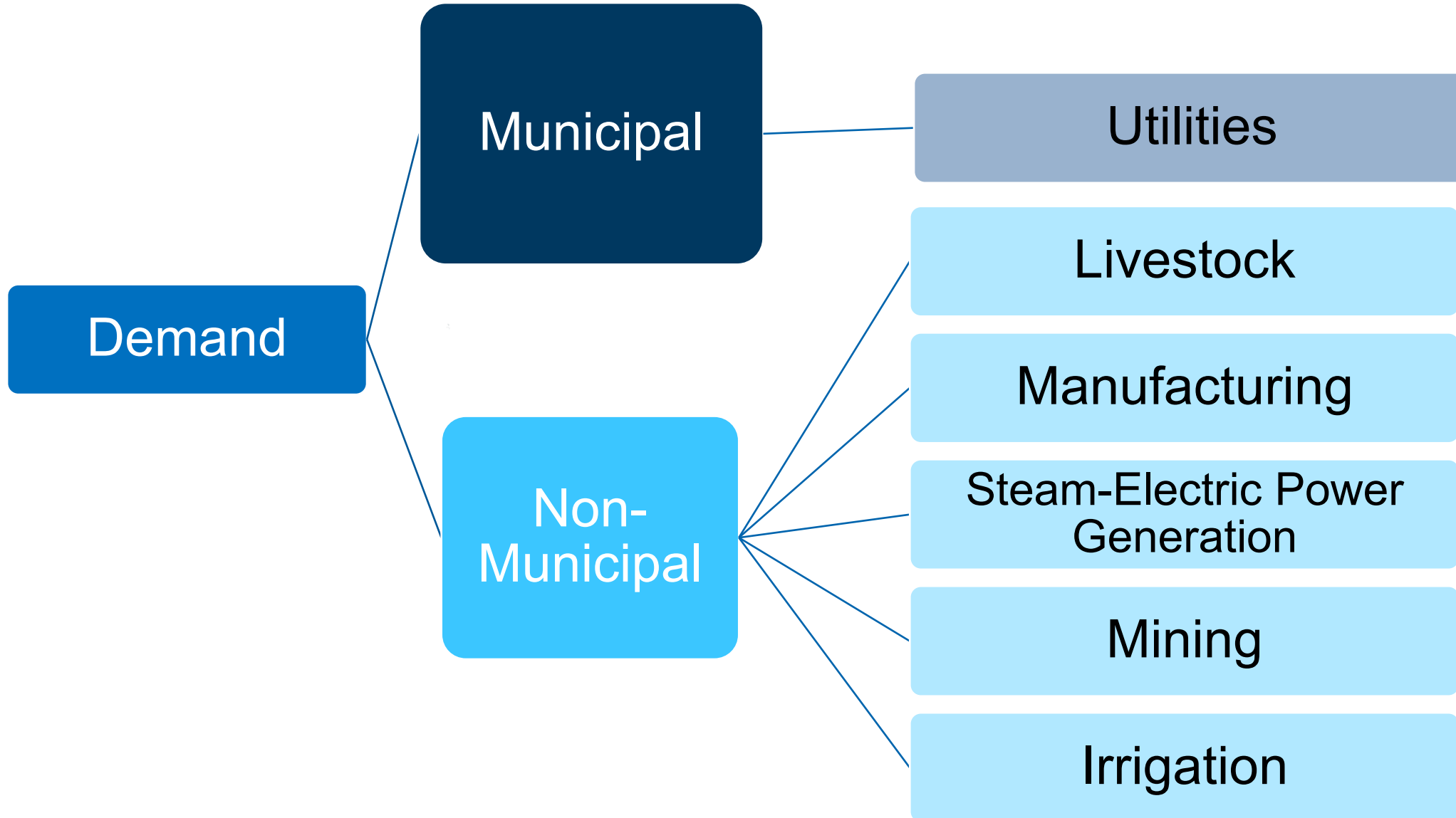
Item 8.1

Summary of Requested Revisions to Draft 2026 Municipal Population and Water Demand Projections

Water Demand Projections

Draft 2026 Municipal Population and

Projections of Future Water Demands



01

Summary of Municipal Projection Methodology

Population Projections by County

2026 Plan now includes 2020 census

Based on Texas Demographic Center's (TDC's) county-level projections

Two migration scenarios (2010-2020):

- Full 1.0-migration
- Half 0.5-migration

Population Projections – TWDB Methodology

Difference this planning cycle:

- **If a county's population is projected by TDC to decline, then the TWDB's county population projections will also decline.**

TWDB draft projections

- Extended 2070-2080 both scenarios

2026 Planning Period

- 2030 - 2080

Population Projections by WUG

Sub-allocate to WUGs

- GIS mapping of WUG boundaries and census block data

RWPG has the option to request revisions (by county) to use the 0.5-migration scenario

Ongoing coordination with RWPG and TWDB

Municipal Demand Projections Rely on Baseline GPCD and *Revised* Projected Plumbing Code Savings

$$\left(\text{Baseline GPCD} - \frac{\text{PC Savings}}{\text{Decade}} \right) \times \frac{\text{Population}}{\text{Decade}} = \frac{\text{Projected Demand}}{\text{Decade}}$$

- Draft Baseline GPCD
 - » Based on 2021 Plan
 - » Reduced to account for passive savings between historical and projected (2030)
 - » Revised estimates provided by TWDB in May and have been incorporated
- Water sources: groundwater + surface water
 - » Water Use Survey

Criteria for Adjustments

TWDB's First Amended General Guidelines

- “Exhibit C”

Section 2.2

- Specific Criteria
- Data Requirements

Texas Administrative Code

- Ch. 357 – Regional Water Planning
- Ch. 358 – State Water Planning Guidelines

A moment on criteria and data requirements

Evidence

Criteria for:

- Region
- County
- Population
(permanent residential)
- Demand

Summary of Supporting Documentation

- Plans
- WUS pop. estimates.
- Information on recent
development
- Service area

Regional Level

Criteria

- A possible Census undercount took place in a county located within the region and action is currently being pursued to request a U.S. Census Bureau correction.
- The most recent population growth rate (2015-2020) for the whole region is significantly different than the draft regional projections.

Data

- Documentation of an action requesting the U.S. Census Bureau correct an undercount of population with a county located in the region.
- Historical regional-total population estimates from the Texas Demographic Center or the U.S. Census Bureau.
- Other data and evidence that the RWPG believes provides a reasonable basis for justifying changes to the net total regional-level population projection.

Population

Criteria

2. The 2010 or 2020 permanent population-served estimate by a municipal WUG is significantly different than the 2010 or 2020 baseline population estimate used in the draft projections.
3. The population growth rate for a municipal WUG over the most recent years (2015-2020) is substantially different than the growth rate between 2010 and 2020 in the draft projections.
4. Identification of growth limitations or potential build-out conditions for a WUG that would result in an expected maximum population that is different than the draft projections.
6. Plans for new residential development in the near future that has not been counted in the draft projections.

Data

2. Updates or corrections to a WUG's group quarter population or the location of institutional facilities.
4. Documentation from an official of a city or utility that describes the conditions expected to limit population growth and estimates the maximum expected population for a utility and the potential timeframe for buildout.
6. Documentation demonstrating near-term growth, expansion, or new construction such as platting of new subdivisions, annexation agreements, building permits or impact fee reports.
7. Documentation of potential future growth, such as utility master plans, capital improvement plans, land use and zoning plans, maps of vacant lands with number of dwelling units per acre or number of households and average household size.
8. Other data and evidence that the RWPG believes provides a reasonable basis for justifying changes to an individual WUG-level population projection.

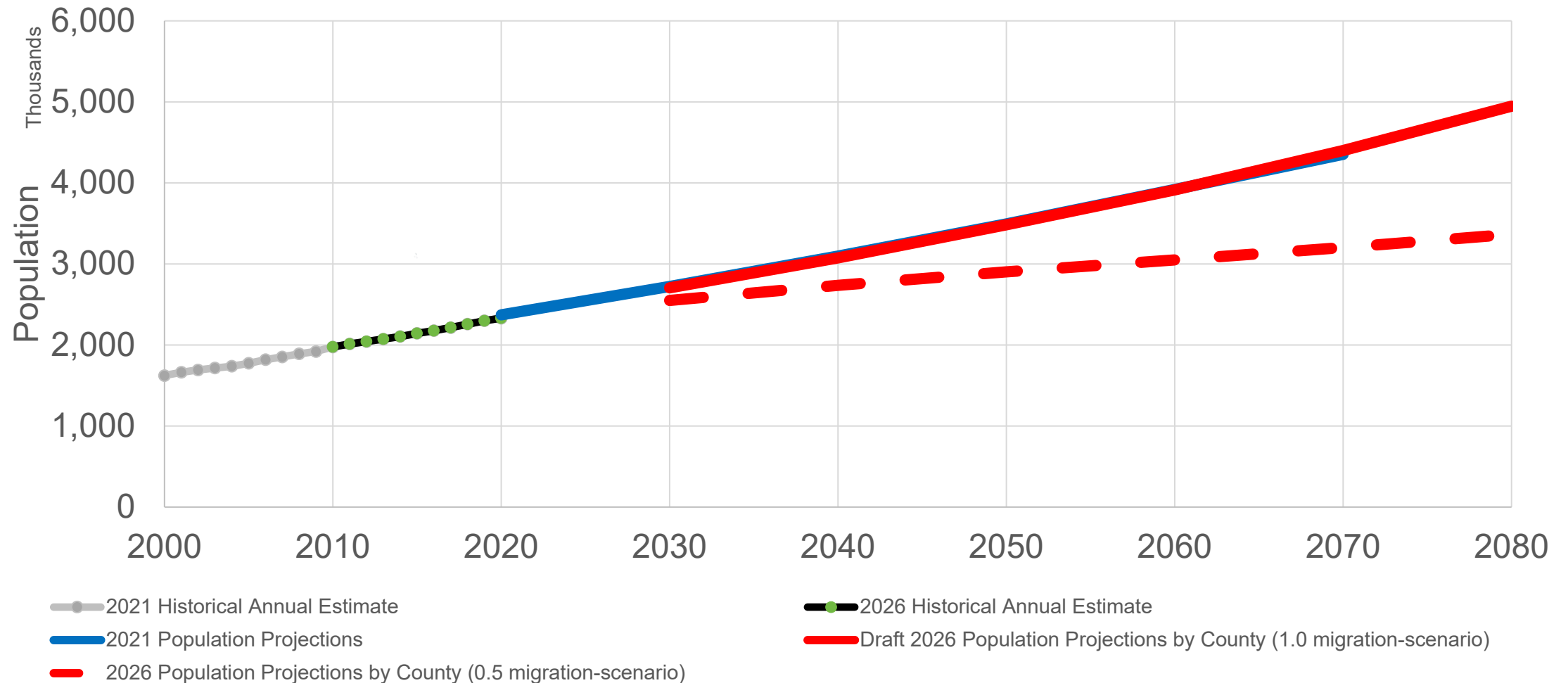
Demand

- GPCD
 - Regions may make a request to use a WUG's GPCD value from a different base dry-year within the most recent five years (2015-2019) as the basis for the demand projections of that WUG.
 - Must provide sufficient evidence that alternative is
 - more representative of demands expected under dry-year conditions or
 - Draft GPCD fails to adequately reflect water efficiency and conservation savings that have already been implemented.
- Evidence from a more recent year
- Evidence of errors
- Trends indicating increases in recent years, and evidence that trends will continue to rise in short-term future due to commercial development.
- Evidence relating to water efficiency and conservation savings.
- Documentation

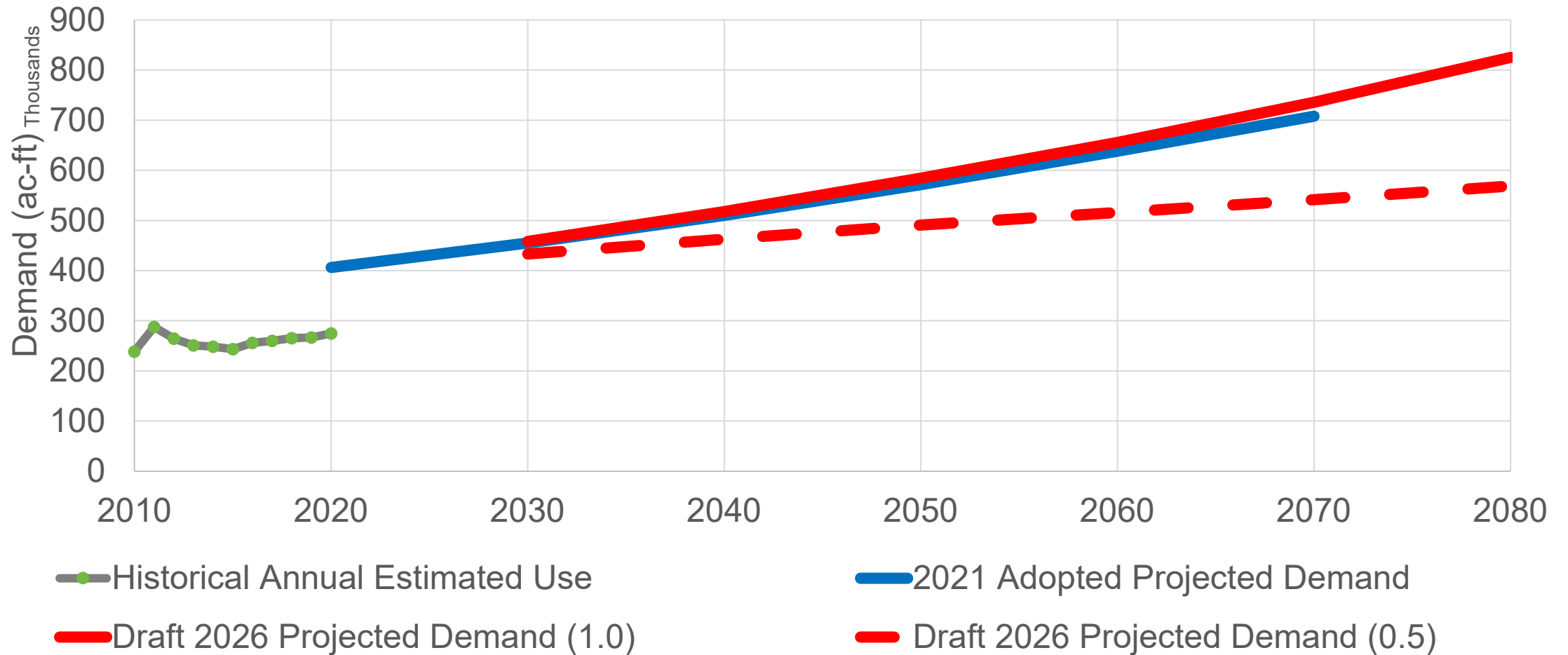
02

Recommended
Region-Wide
Population Revision
Requests

Comparison of 2021 to Draft 2026 Population Projections



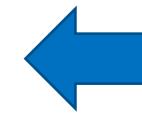
Comparison of 2021 to Draft 2026 Municipal Demand Projections



Summary

Population

- 1.0-Migration Scenario
- 0.5-Migration scenario



By County

Demographic Undercount Adjustment

- 5.0% Hispanic population demographic undercount
- 3.3% Black population demographic undercount



By County

WUG-specific Requests

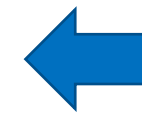
- Available plans, studies
- Historic data from TWDB
- Historic data from WUGs and WUS
- Information on new/recent infrastructure
- Recent information/Data
- WUG projections



**Requesting
WUGs**

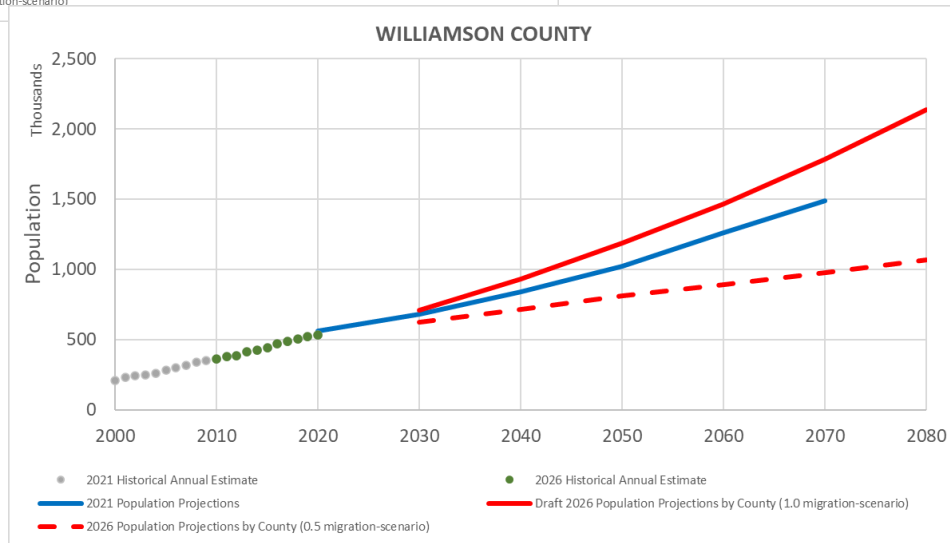
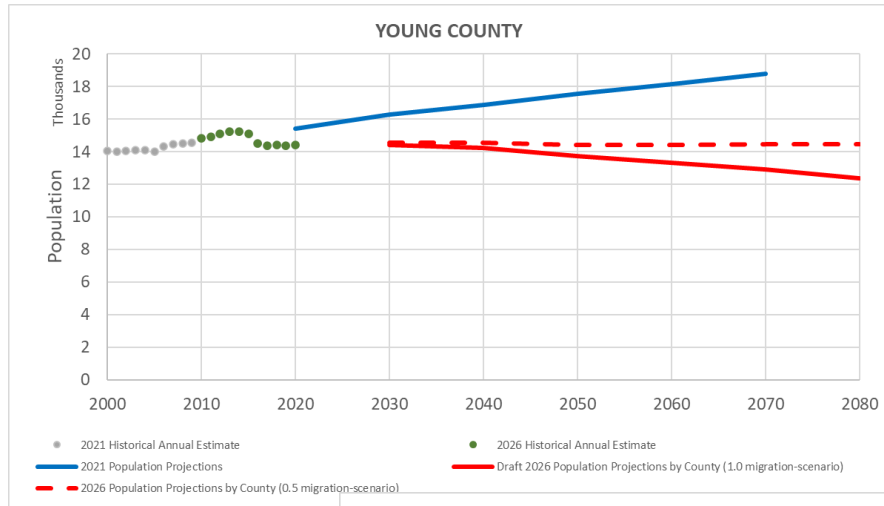
GPCD

- Remove passive savings assumption from baseline GPCD
- Evaluate maximum “dry-year” GPCD and trends
- Continue use of TWDB’s assumed passive savings for decadal projections unless there’s a WUG-specific request



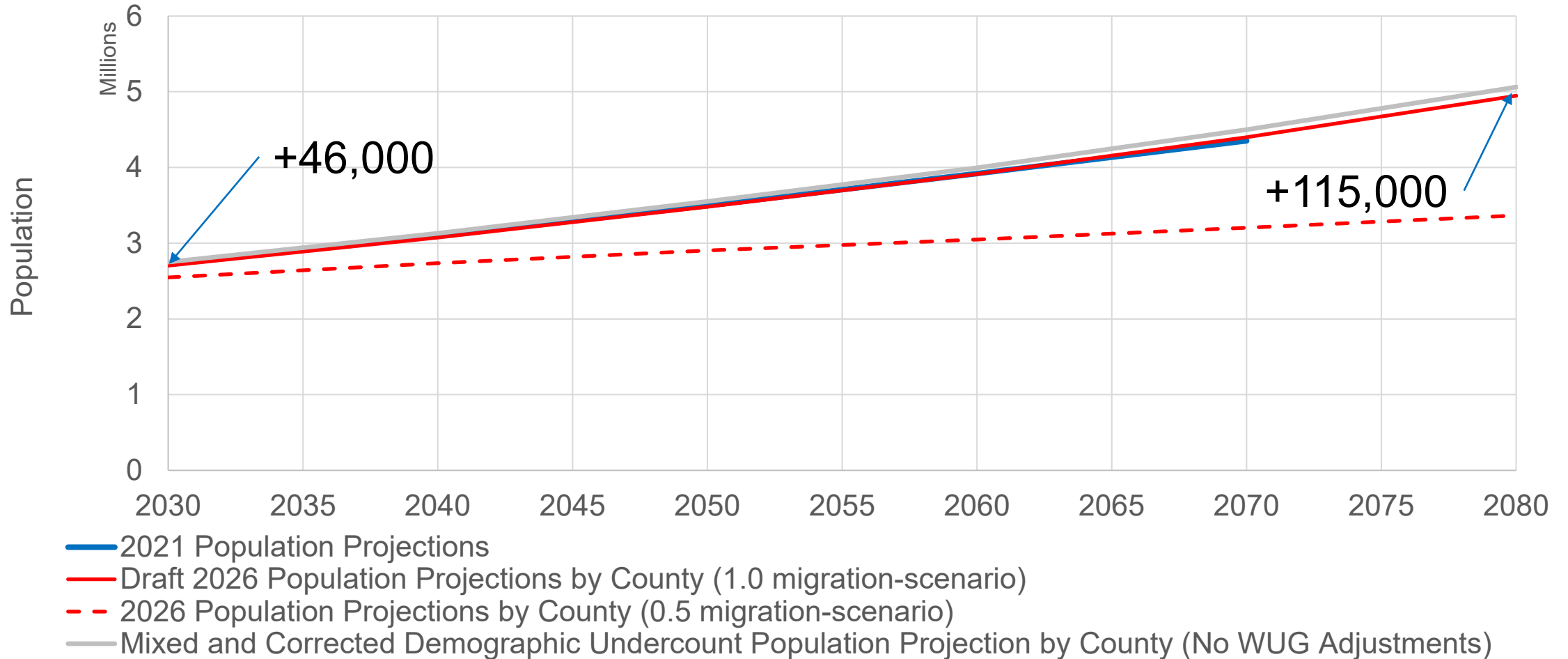
By WUG

County by County Population Comparison of Migration Scenarios



County	Requested Scenario	County	Requested Scenario
BELL	1	KNOX	0.5
BOSQUE	1	LAMPASAS	1
BRAZOS	1	LEE	1
BURLESON	1	LIMESTONE	0.5
CALLAHAN	1	MCCLENNAN	1
COMANCHE	0.5	MILAM	0.5
CORYELL	0.5	NOLAN	0.5
EASTLAND	0.5	PALO PINTO	1
ERATH	1	ROBERTSON	0.5
FALLS	0.5	SHACKELFORD	0.5
FISHER	0.5	SOMERVELL	1
GRIMES	1	STEPHENS	0.5
HAMILTON	1	STONEWALL	0.5
HASKELL	0.5	TAYLOR	1
HILL	1	THROCKMORTON	0.5
HOOD	1	WASHINGTON	1
JOHNSON	1	WILLIAMSON	1
JONES	0.5	YOUNG	0.5
KENT	1		

Comparison of Population Projections to Mixed Migration Scenarios





Recommendation

- **Request mixing of differing migration rates at county level (as identified in previous table)**
 - More conservative estimation of population
 - 1.0-migration scenario
 - Accommodates near-term growth for more rapidly growing counties
 - 0.5-scenario
 - Avoids over-estimation of long-term decreases in population
 - Recommended by TDC for long-term planning
 - Utilizes data from TDC and TWDB
 - Meets Section 2.2.1.3, Item 6 Data Requirement
 - “Other data and evidence that the RWPG believes provides a reasonable basis for justifying changes to the net total county-level population projection.”

Demographic Undercount

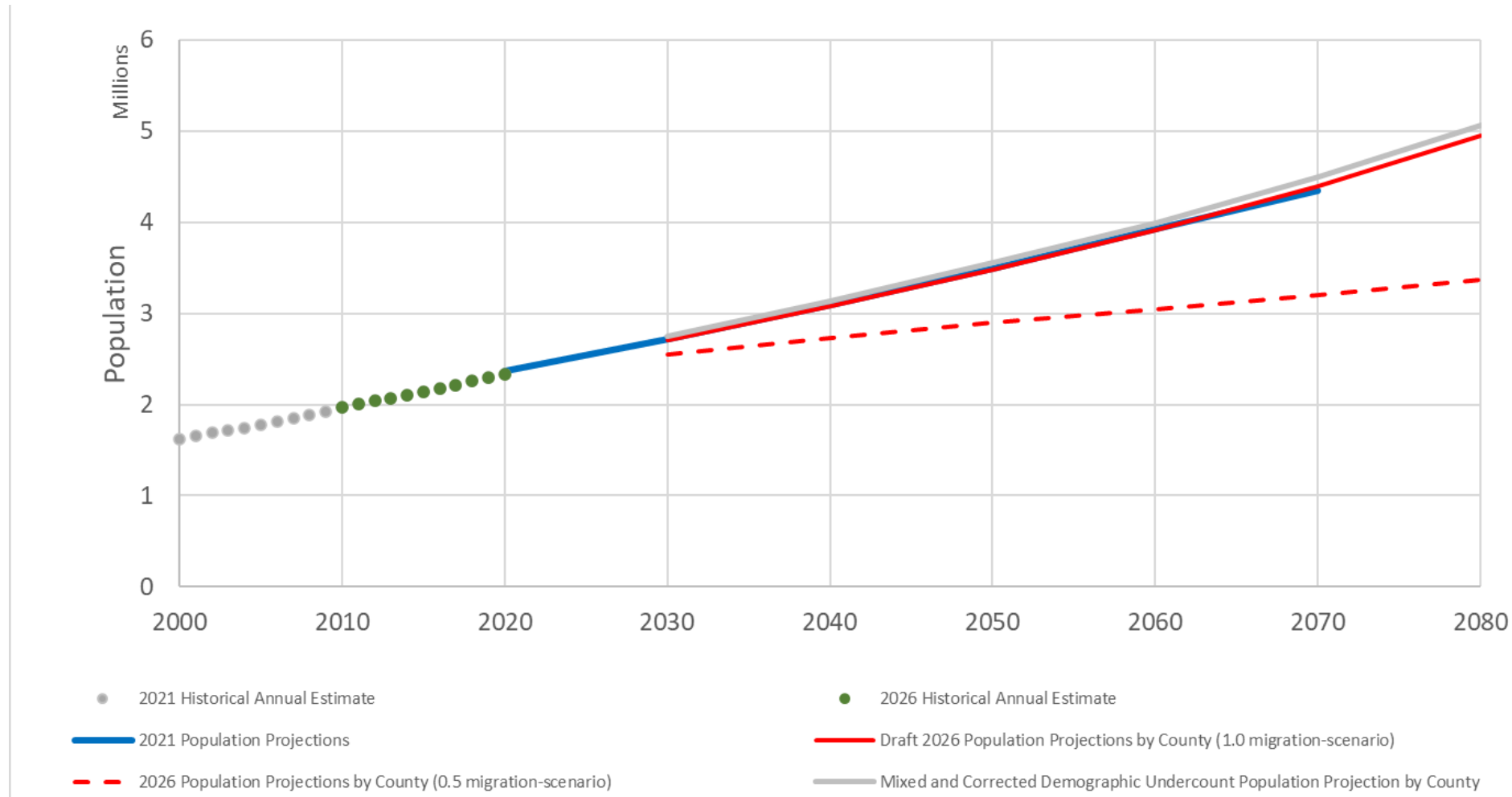
- U.S. Census Bureau (USCB) followed the 2020 Census with a Demographic Analysis, including estimated under- and overcount rates.
 - Texas estimated undercount of -1.92%.
- Pew Research Center identified census errors and similar under- and overcount rates.
 - Hispanic undercount of -5.0%
 - Black undercount of -3.3%

- USCB published demographic data for 2022, compiled by county.

County	Hispanic Population %	Black Population %
BELL	26.8%	24.8%
BOSQUE	20.4%	2.5%
BRAZOS	26.8%	11.4%
BURLESON	22.5%	11.3%
CALLAHAN	11.9%	2.2%
COMANCHE	29.9%	1.5%
CORYELL	20.3%	17.7%
EASTLAND	18.0%	2.4%
ERATH	22.2%	2.2%
FALLS	26.1%	23.2%
FISHER	29.9%	4.5%
GRIMES	25.2%	14.0%
HAMILTON	15.0%	1.3%
HASKELL	28.6%	5.7%
HILL	22.7%	6.5%
HOOD	13.8%	1.6%
JOHNSON	25.1%	5.7%
JONES	28.7%	13.3%

County	Hispanic Population %	Black Population %
KENT	20.9%	1.2%
KNOX	34.9%	6.3%
LAMPASAS	20.8%	4.7%
LEE	25.6%	9.9%
LIMESTONE	23.5%	17.0%
MCLENNAN	27.6%	14.9%
MILAM	27.4%	9.2%
NOLAN	40.1%	5.5%
PALO PINTO	21.0%	2.7%
ROBERTSON	22.9%	19.4%
SHACKELFORD	12.9%	2.6%
SOMERVELL	17.9%	1.2%
STEPHENS	25.9%	3.6%
STONEWALL	20.4%	3.6%
TAYLOR	26.0%	8.6%
THROCKMORTON	13.5%	1.1%
WASHINGTON	17.9%	16.6%
WILLIAMSON	25.3%	7.9%
YOUNG	20.5%	1.8%

Comparison of 1.0, 0.5, Mixed migration, and Mixed migration w/adjustment for demographic undercount



03

Summary of Recommended WUG-specific Requests

WUG-Specific Requests

Surveys and Engagement

48 WUGs with requests

Total of 53 requests

- Includes 5 County-Other

Phone

Documentation

Available information

- Historical WUS
- Plans
- WUG-provided analyses

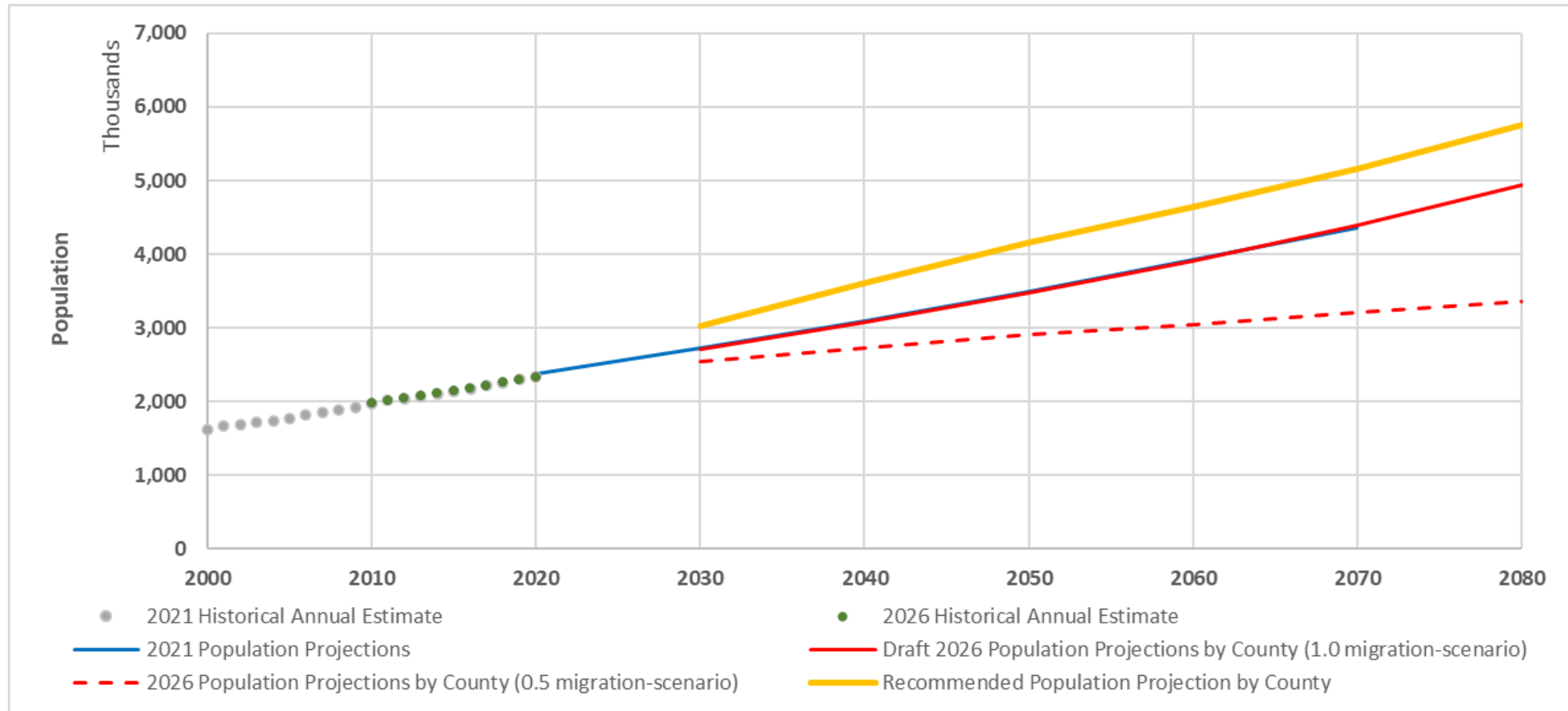
Brazos G analyses

Rapid growth

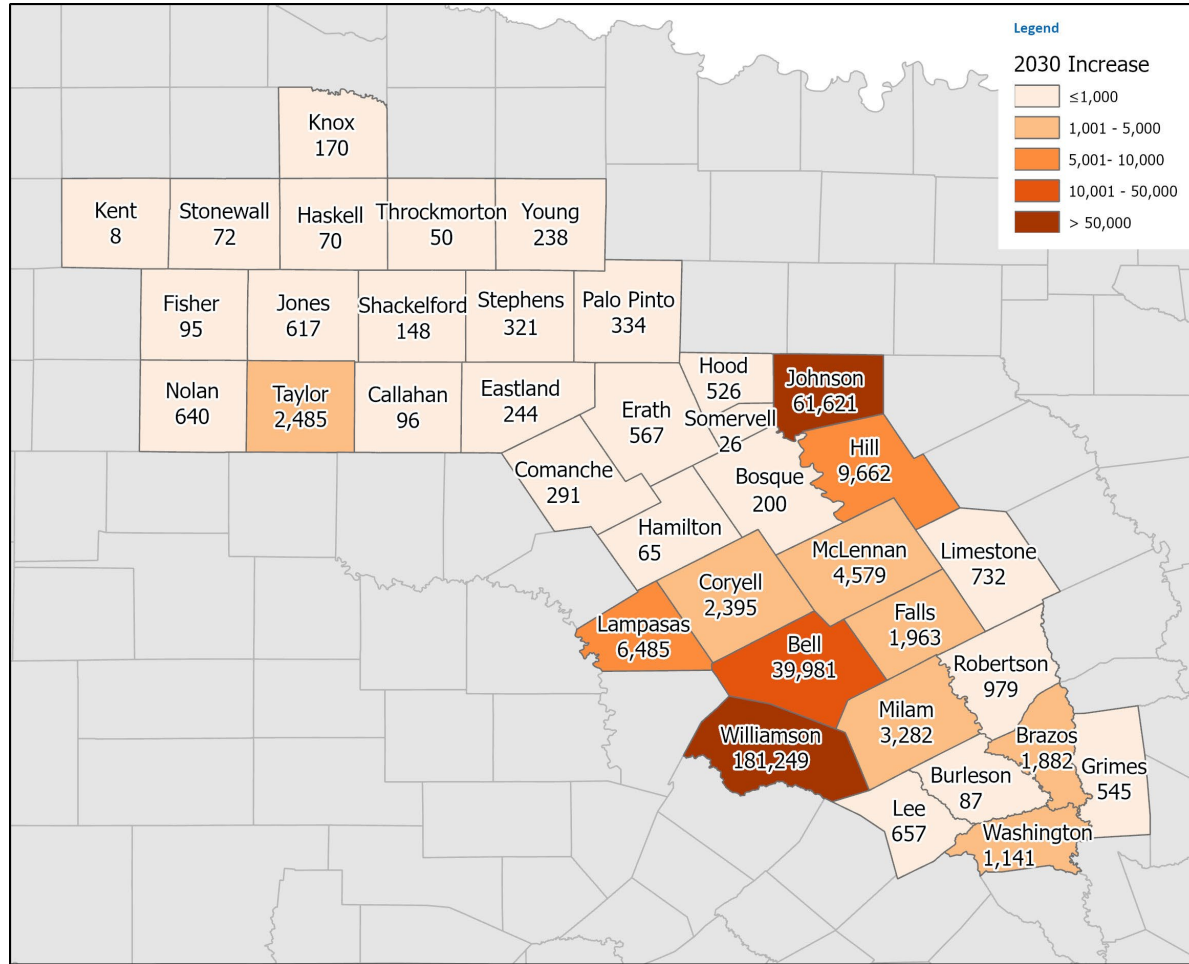
- Recent data
- Near/Long-term Trends

Recommended overall WUG-specific changes

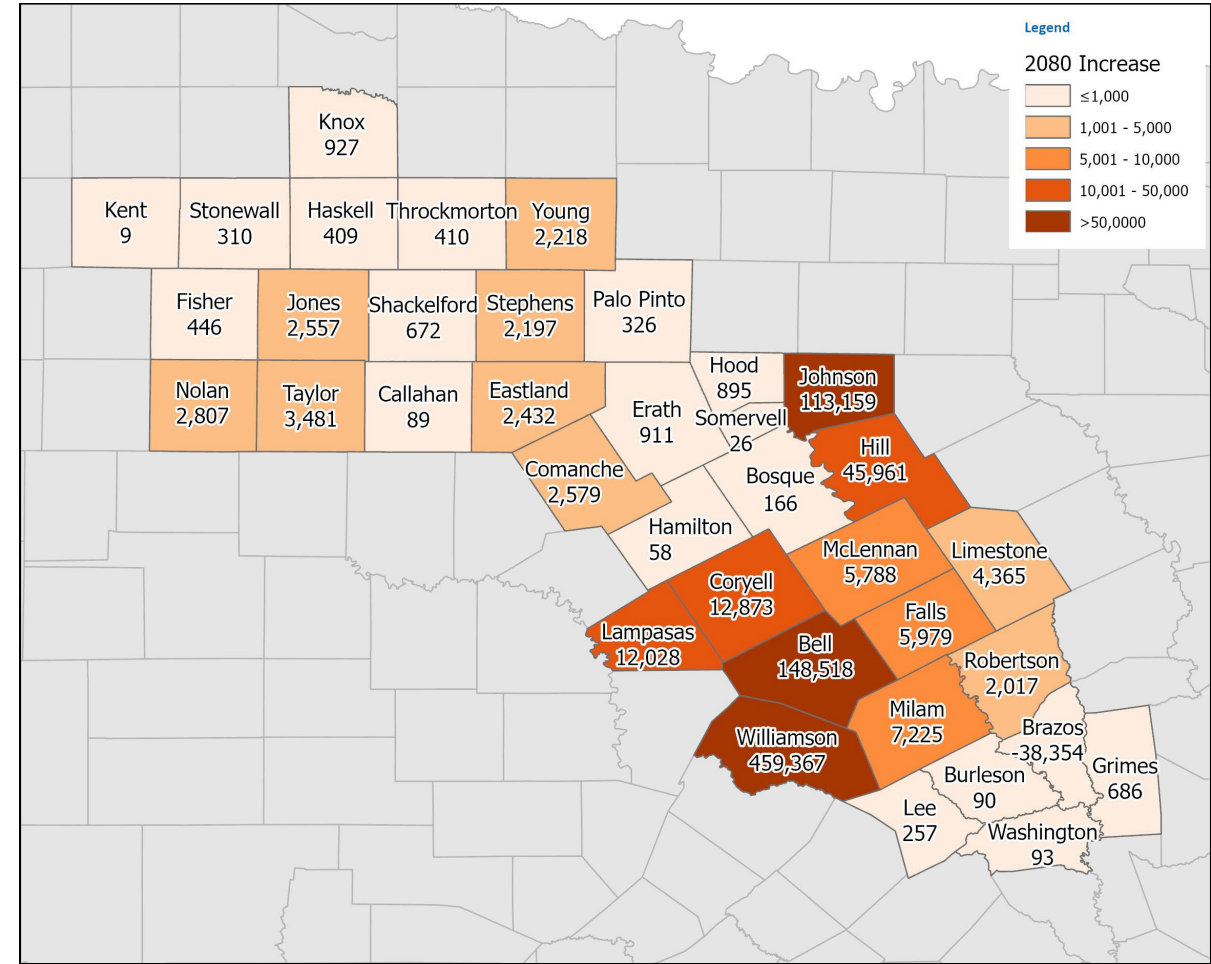
Time series Chart



Which counties are driving the largest changes in projected populations? (By magnitude)

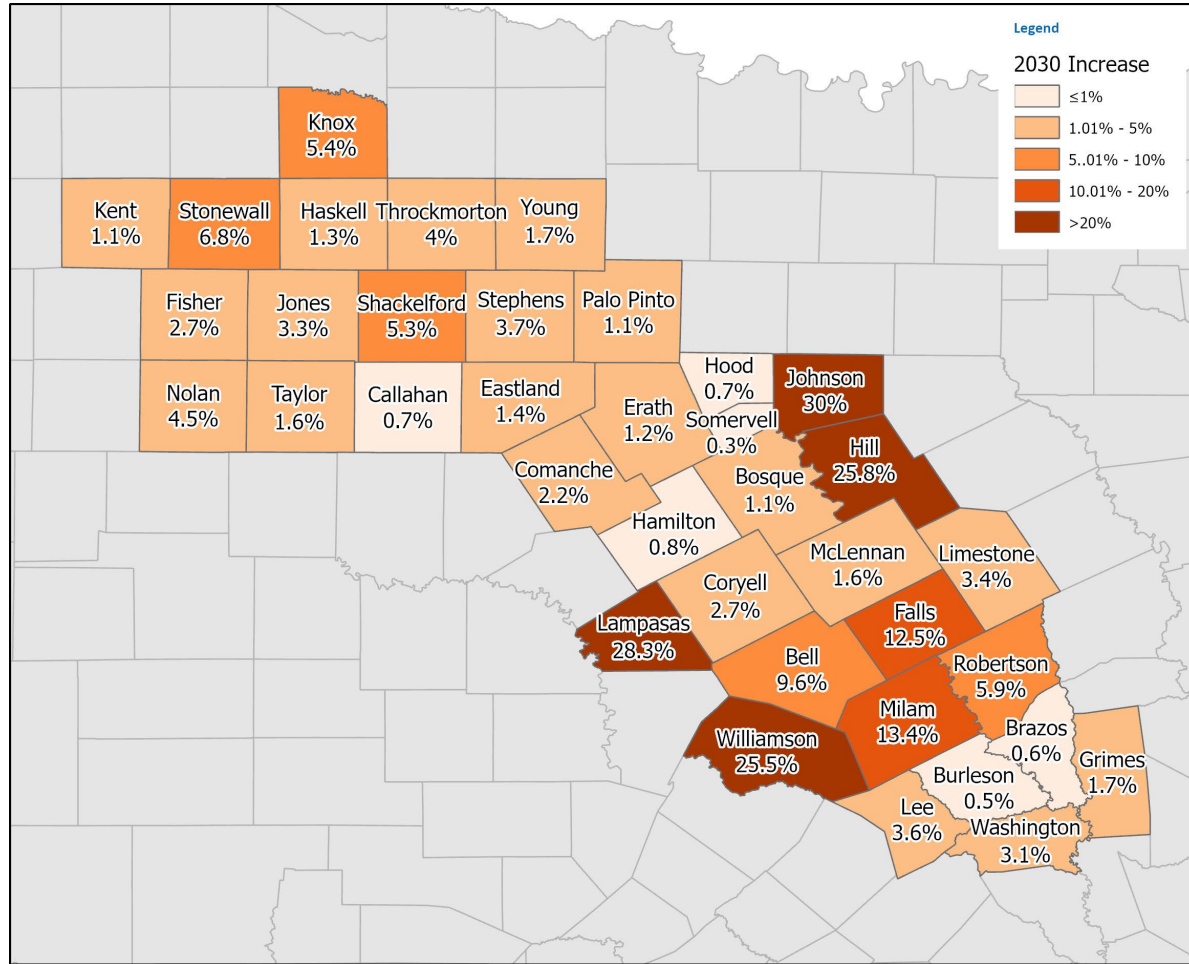


2030

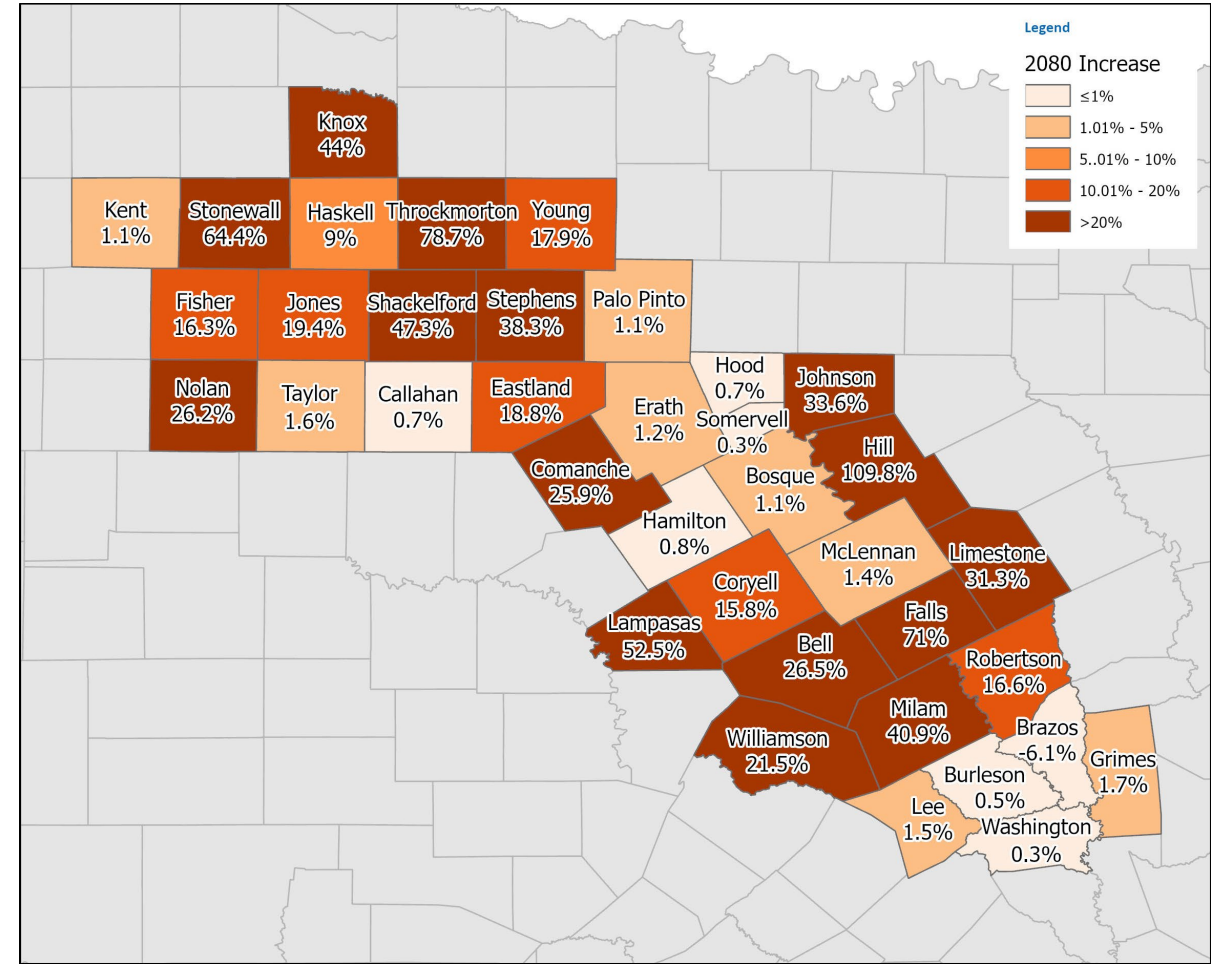


2080

Percentage of Relative Change from Draft 2026 Population Projections per County



2030



2080

Summary of Counties with Greatest Requested Changes from Draft 2026 Population Projections

Williamson

- 2030: 181,249
- 2080: 459,367

Johnson

- 2030: 61,621
- 2080: 113,159

Bell

- 2030: 39,981
- 2080: 148,518

Hill

- 2030: 9,662
- 2080: 45,961

Lampasas

- 2030: 6,485
- 2080: 12,028

Williamson:

- 2030: 25.5%
- 2080: 21.5%

Johnson

- 2030: 30%
- 2080: 33.6%

Bell

- 2030: 9.6%
- 2080: 26.5%

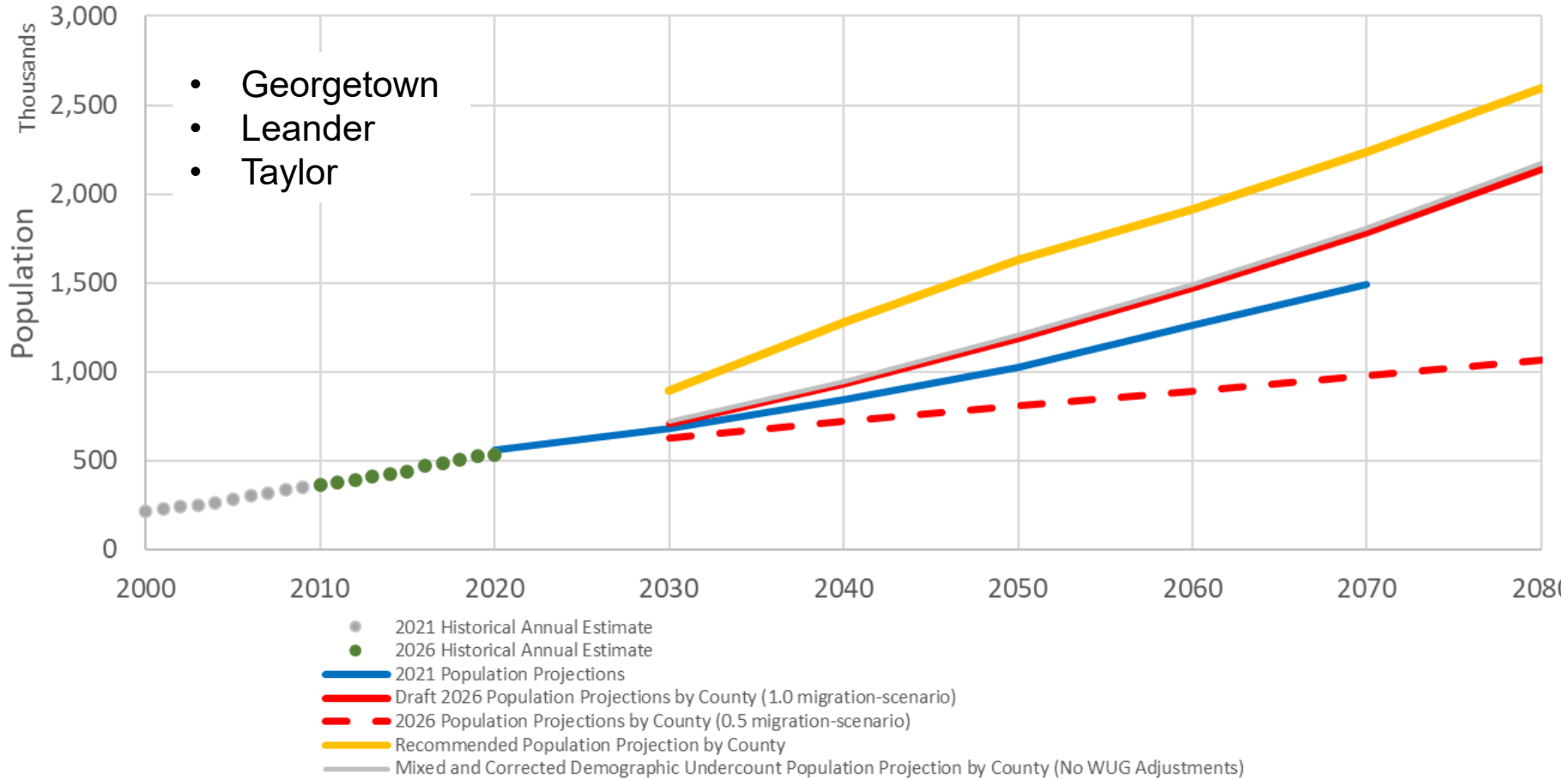
Hill

- 2030: 25.8%
- 2080: 110%

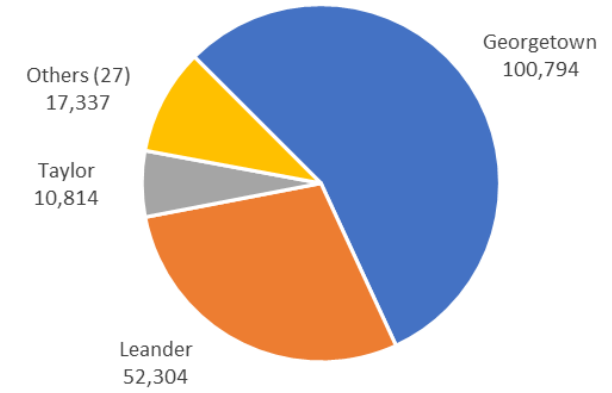
Lampasas

- 2030: 28.3%
- 2080: 52.5%

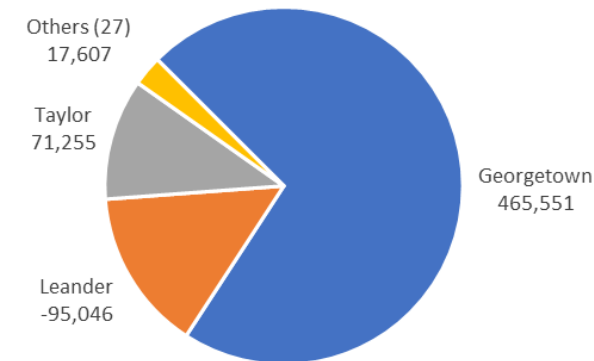
WILLIAMSON COUNTY



Composition of Difference in 2030



Composition of Difference in 2080



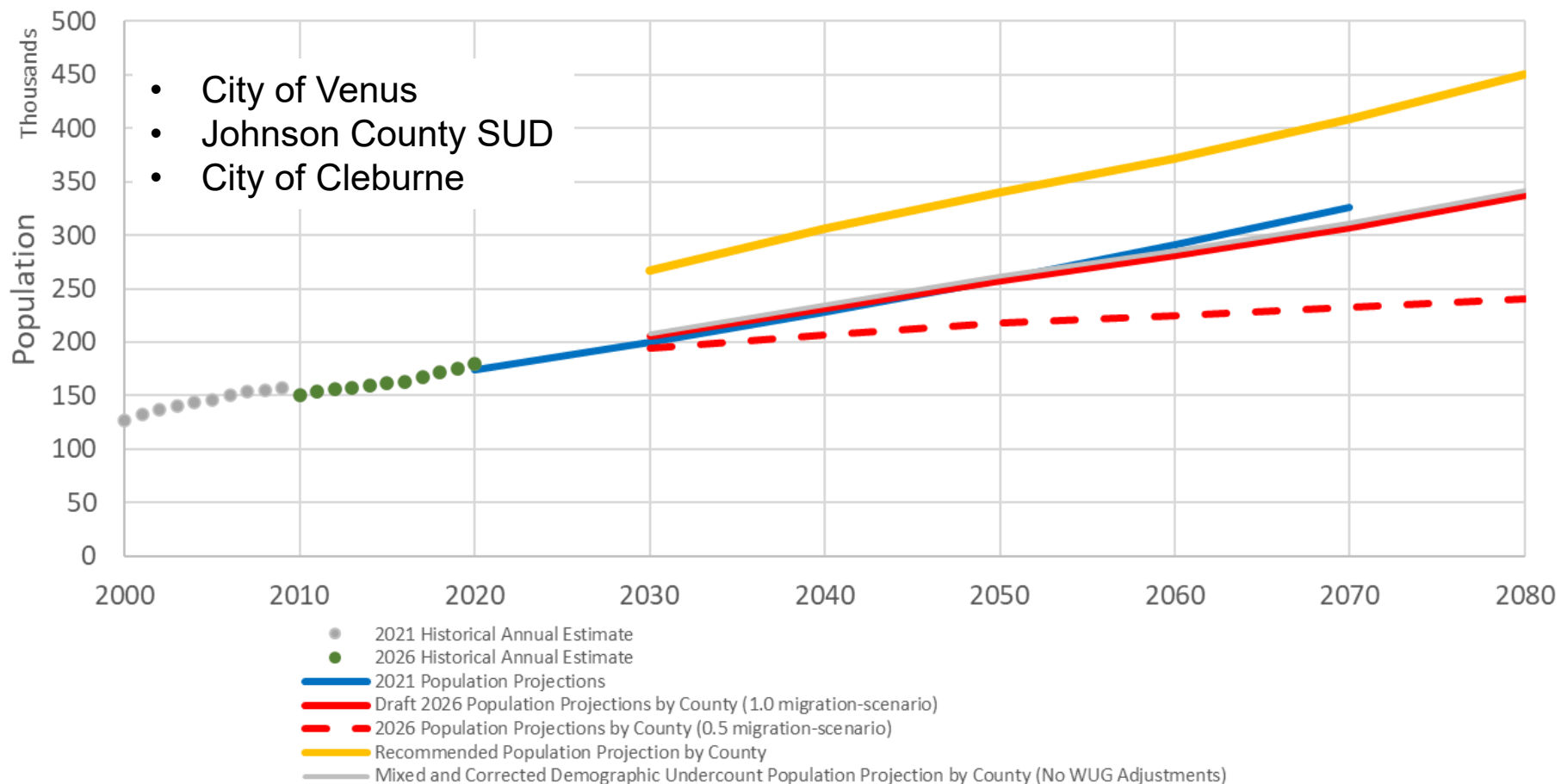
Williamson County WUG-Specific Requests

County	WUG	Information Provided	Brazos G RWPG Request
Williamson	Brushy Creek MUD	Estimated of 2020 pop. based on consultant study of operational boundary. Concern 2018-22 demands already exceed Draft 2030-2080 projections. Expects build-out by 2030. Provided 2018-22 pop., gpcd, and use.	Draft has CAGR of 0.74%. Apply that CAGR to WUG's est. 2020 pop. of 18,314 to determine 2030, then maintain for 2040 – 2080. Draft splits (Williamson Co. G and K). WUG's max GPCD of 185 as baseline..
	City of Georgetown	Workbook with City's updated projections compared to City's June 2022 Water System Master Plan and May 2023 Integrated Water Resources Plan. City updated in April 2023 to account for lower growth in 2025-2027 due to economic downturn.	Pop. based on City's request, split based on Draft 2026 county splits for Williamson, Bell, and Burnet (K) counties. GPCD based on City's request for 173 in 2030 to 155 by 2080.
	City of Leander	Data on population estimates, per capita usage and water demand projections for the period 2015-2042 from City's 2020 Comprehensive Plan. Projections of slowly declining growth rates GPCD request of constant 124 GPCD. Draft 2026 CAGR of 4.7%, down to 1.97%. TWDB's 2010-2020 data CAGR of 7.92%. City CAGR of 7.55 down to 2.39% by 2040 and 0.5% after.	Use Draft 2026 splits (Williamson and Travis K). Use 2030 and 2040 pops. Calculated to be consistent with City's Plan. Use 0.5% CAGR for 2050 – 2080 consistent with City's Plan post-'40. Results in increase to 2030-40 and decrease for 2060-80.
	City of Round Rock	Draft 2023 Water Master Plan representing City's CCN. Constant 139 GPCD over 2030 – 2080. Assumed build-out by 2080.. Analysis backed out splits and portions of WUGs in CCN to develop Round Rock WUG projection that when added together equates to City's request.	Based on City's request, county splits consistent with Draft for Williamson (G) and Travis (K) Counties. GPCDs for Round Rock and WUGs in CCN consistent with City's request constant at 139.

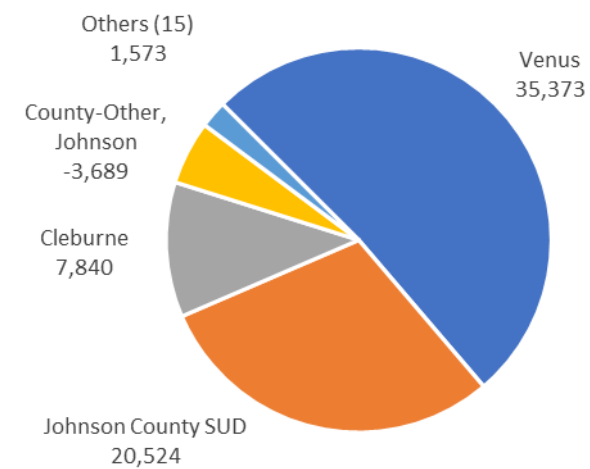
Williamson County WUG-Specific Requests

County	WUG	Information Provided	Brazos G RWPG Request
Williamson	City of Taylor	Request for pop, GPCD, and demands consistent with Mar. '23 Updated Envision Taylor Comprehensive Plan. Projections extrapolated to 2080 at 3% rate	Based on City's request.
	Jarrell Schwertner (CRU)	Current 2023 meter count, pop 3/meter of 7,731. 1,680 new meters per current contracts, projected pop. Increase of 5,040 by 2030. Analysis evaluated WUS data to determine 2023 pop. For City of Jarrell, then incorporate WSC's request into the combined CRU.	Incorporate near-term request for 2030, utilize Draft 2026 splits and growth rates for 2040 – 2080. Draft county CAGR splits (Bell & Williamson).

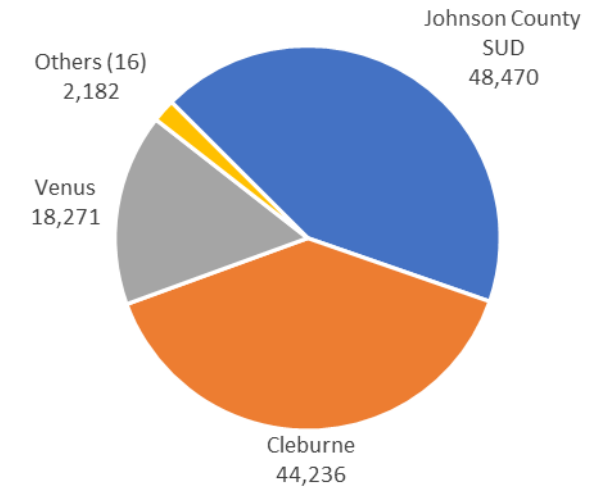
JOHNSON COUNTY



Composition of Difference in 2030

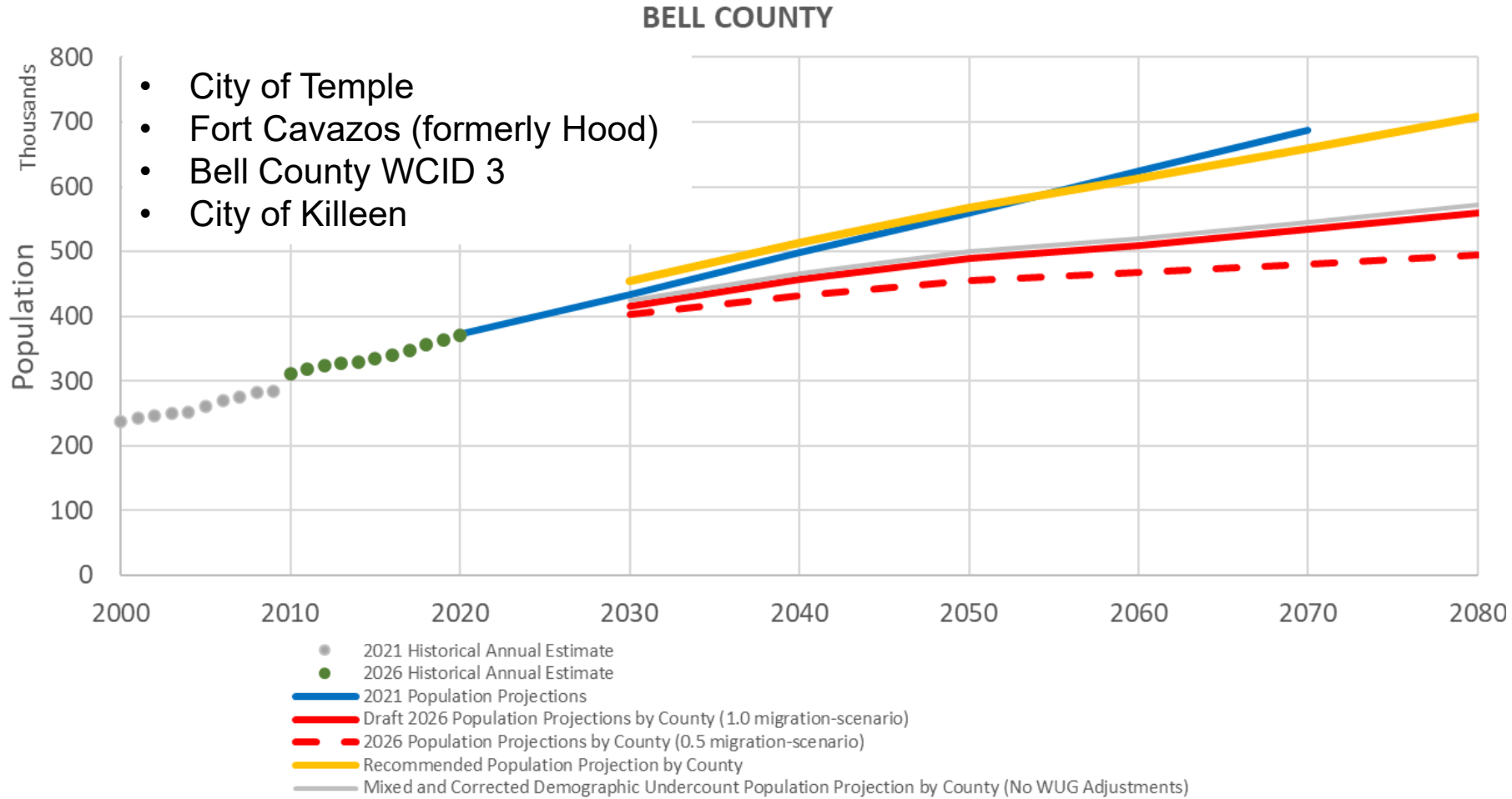


Composition of Difference in 2080

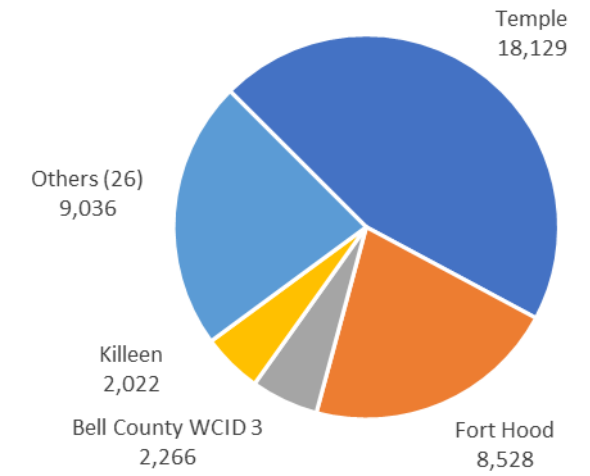


Johnson County WUG-Specific Requests

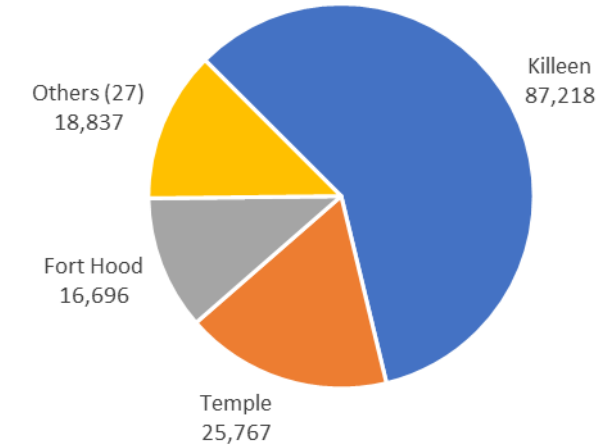
County	WUG	Information Provided	Brazos G RWPG Request
Johnson	City of Cleburne	2020 Draft population significantly lower than 2020 census. Water Supply and Integrated Reuse Plan.	1.5% annual growth rate from 2022 baseline of 31,999 consistent with City's Water Supply and Reuse Integration Plan.
	City of Venus	Three new MUDs in development for an estimated 17,600 additional connections.	Incorporate expected near-term development using factor of 2 persons per connection from 2020 baseline of 2,589. CAGR from Draft projections for 2040-2080.
	County-Other, Johnson		
	Johnson County SUD	2022 Water Master Plan and historical water connections and average water use for the period 2011-2022.	3.7% annual growth rate from 2022 baseline of 51,340 apply 4.4% CAGR for 2030, 2.4% CAGR for 2040, and CAGR from Draft projection for 2050-2080.



Composition of Difference in 2030



Composition of Difference in 2080

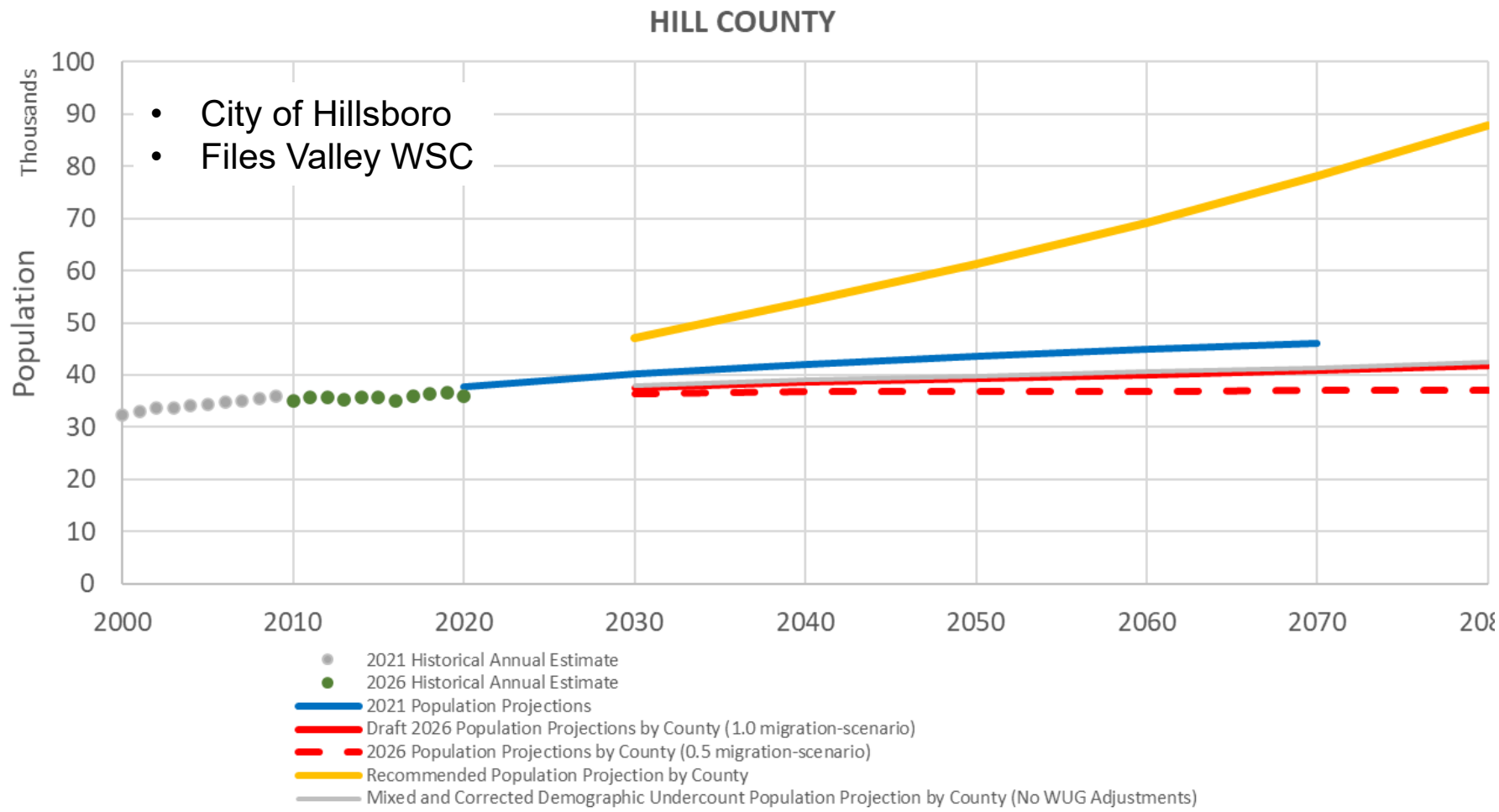


Bell County WUG-Specific Requests

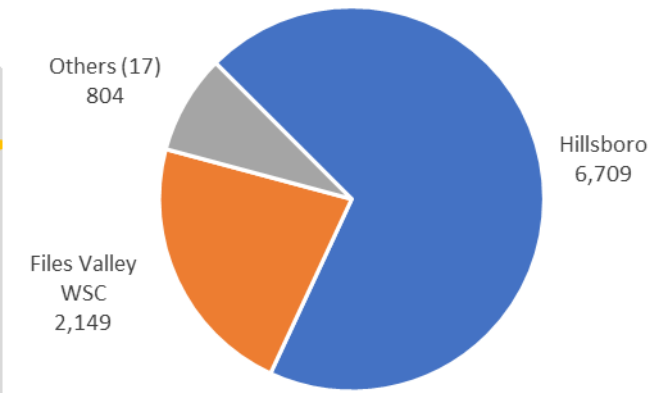
County	WUG	Information Provided	Brazos G RWPG Request
Bell	Bell County WCID 1	Data on population based on connections and historical water sales	WUG has very small retail customer population and they are not accepting new customers. Per capita usage updated based on actual values.
	Bell County WCID 3	Data on historical water sales from 2011-2022 as well as estimated water sales through 2030	WUG's reported 2020 population data is greater than draft. WUG's number of current connections and an estimated people per connection provided a 2023 population. Near term growth rates based on WUG's historical rates; longer term growth rates based on draft.
	City of Georgetown	Data on population estimates, per capita usage and water demand projections for the period 2023-2080.	Request is consistent with the City's Water System Master Plan and Integrated Water Resources Plan.
	City of Killeen	Data on population estimates	Request based on WUG-provided population estimates.
	City of Morgans Point Resort	Data on recent water connection sales and trends	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
	City of Temple	Data on demographics from 2019 and projected population	Request consistent with <i>City of Temple Population Analysis</i> , Spring 2019, with WUG-provided adjustment factors.

Bell County WUG-Specific Requests (cont.)

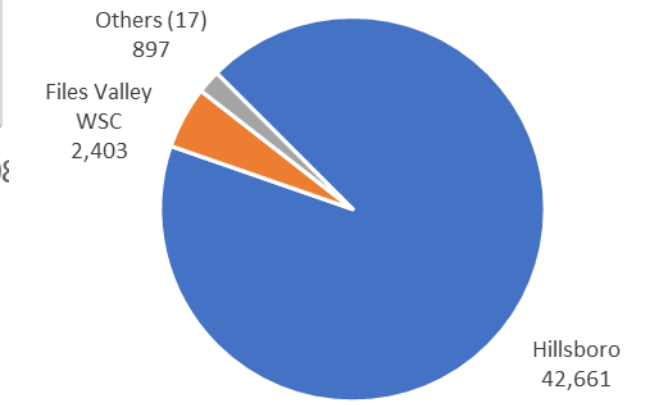
County	WUG	Information Provided	Brazos G RWPG Request
Bell	City of Troy	Data on recent water connections and trends.	Request based on living unit equivalents provided by WUG and a conservative number of new connections per year based on actual data. Per capita use based on actual data.
	Elm Creek WSC	Data on current water connections and planned growth.	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
	Fort Cavazos (formerly Hood)	Data on historical population and estimated increases in population before 2030.	Request based on planned, additional on-base housing provided by the Heart of Texas Defense Alliance and Dept. of Public Works.
	Jarrell Schwertner CRU	Data regarding current number of connections and current development contracts.	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
	Kempner WSC	Data on population estimates, number of connections, and 2021 WUS.	Request based on WUG's number of current connections, WUG-estimated population, and draft growth rates.
	The Grove WSC	Data on recent water connection sales and trends.	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.



Composition of Difference in 2030

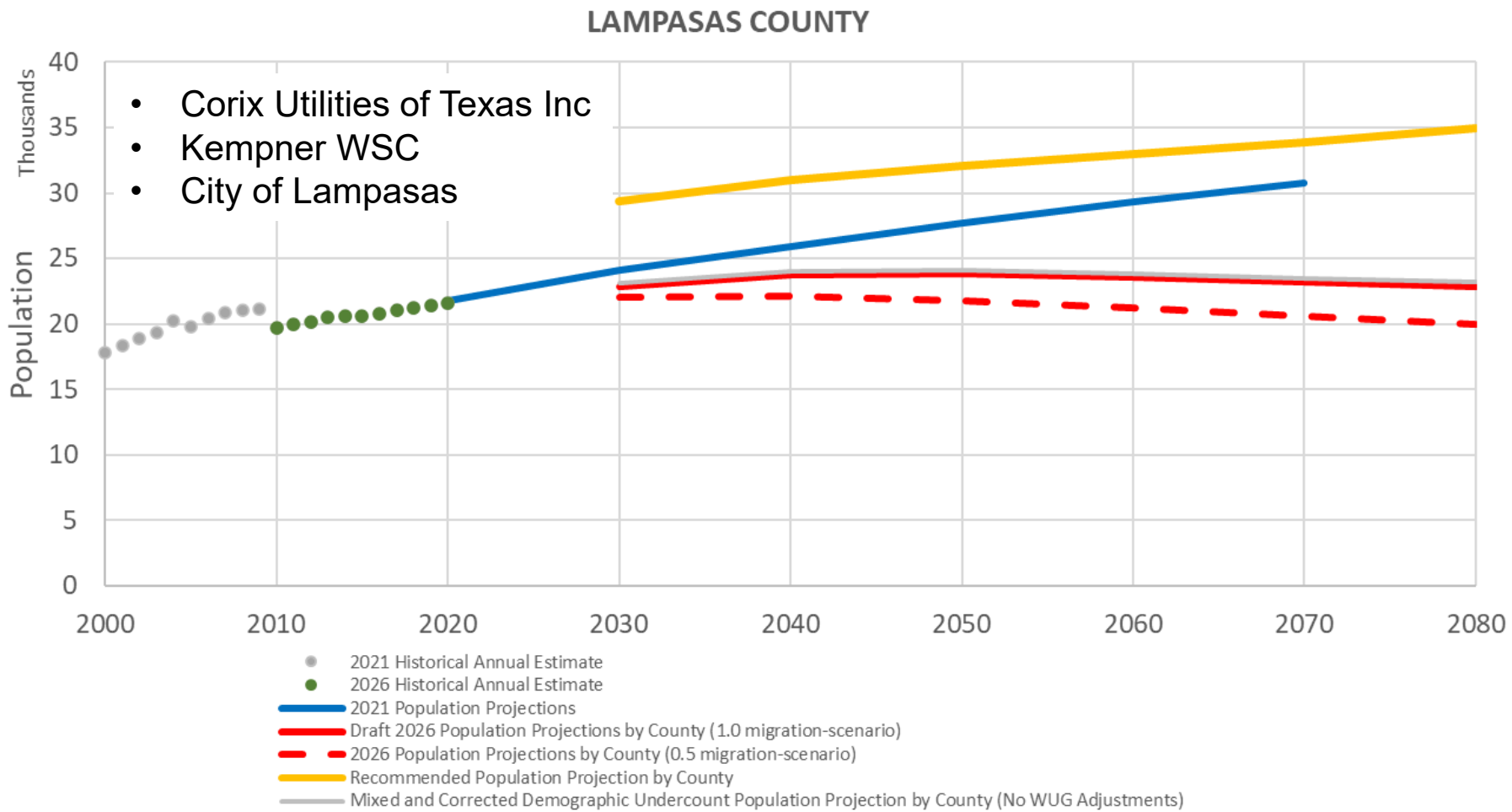


Composition of Difference in 2080

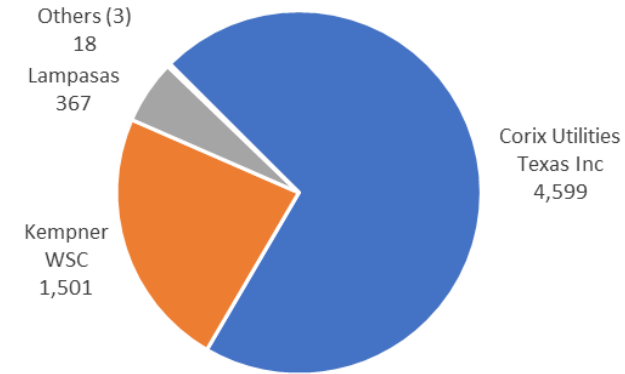


Hill County WUG-Specific Requests

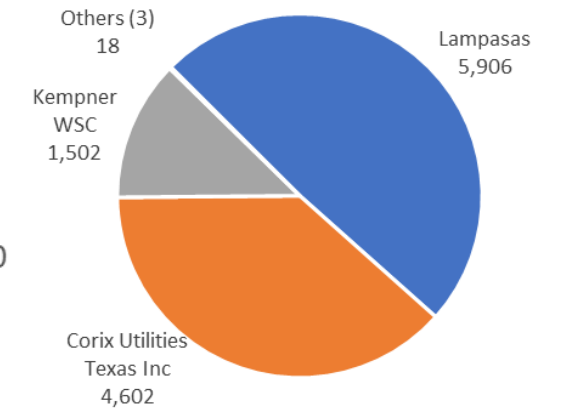
County	WUG	Information Provided	Brazos G RWPG Request
Hill	City of Hillsboro	<p>Analysis of Historical data and trends from 2010 – 2023 for water metering and new residential construction, and firm and conceptual development. Offered three projections (hist., firm, conceptual).</p> <p>Intends to engage U.S. Census Bureau for revision to Census. 7.3% increase to 2020 pop.</p> <p>Draft CAGR ~0.2%.</p> <p>City est. Hist. CAGR of 2.8% by 2030, close to 2.74% CAGR in '21-'22 single family residence rate. Firm CAGR is 6.6%, Conceptual CAGR is 7.6% by 2030. Beyond 2030, CAGRs est. decline to 2% by 2080.</p>	Based on City's firm development projection.
	Files Valley WSC	<p>Comments from Hilco Electric Coop, water mgmt. for FVWSC, and Aquilla WSD.</p> <p>Data on historic metering from 2013-2022, CCN map.</p> <p>Draft 2030 is 583 lower than 2020 Census pop of 3,077 in TWDB data..From metering, 10-yr CAGR of 4.4%, 5-yr CAGR 7%. '21-'22 CAGR of 18%. TWDB Hist. data 10-yr CAGR of 2.2%. Use proportions from '21 Plan for split and growth rates between Hill (G) and Ellis (C) Counties, which have Ellis County split increasing by 5% per year until 50% of WUG pop. by 2080.</p>	<p>Based on 4.4% CAGR for 2030, then Draft CAGRs for 2040 – 2080. Assume proportional rates from 2021 Plan.</p> <p>Consistent w/demands in recent consistency waiver request.</p>
	Gholson WSC	Data on connections served, estimated population, water produced, water sold, and estimated growth projections.	Request based on WUG's number of current connections, estimated number of new connections per year, an estimated people per connection, and draft annual growth rates.



Composition of Difference in 2030



Composition of Difference in 2080



Lamparas County WUG-Specific Requests

County	WUG	Information Provided	Brazos G RWPG Request
Lamparas	City of Lamparas	<p>Data on existing system and service area, historical population ('17-'21), and projected growth (2022-31).</p> <p>Residential portion of meter growth approx. 2% growth rate, WUG requests 1 % rate for consistency with '21 Plan.</p> <p>Draft rates start at 0.5% then decrease over time to -0.14% by 2080.</p> <p>WUG reports additional room and supply to support growth.</p>	2030 based on WUG's requested growth rate and estimated pop of 8,600, then 1% growth rate of 1% from 2040 – 2080.
	Corix Utilities	Data on 2030 population estimates and projections for individual water systems managed in multiple counties.	2030 based on WUG population projection for each system by county, then utilize CAGR from Draft 2026 projections for 2040-2080.
	Kempner WSC	<p>WUG already serves pop. greater (by 14.3%) than Draft 2030 projection.</p> <p>Meter connections, existing est. pop., and '21 WUS.</p> <p>'21 est. pop. of 20,055.</p>	Based on revised '21 est. pop of 20,055 and decadal growth rates used for Draft projections.

Other WUG-Specific Requests

County	WUG	Information Provided	Brazos G RWPG Request
Brazos	City of Bryan	Data on population projection from City's 2021 Water Master Plan.	Request based on projections reported from the City's 2021 Water Master Plan. Continue 2060-70 CAGR to est. 2080.
Burleson	City of Caldwell	Data on historical population from 1880-2022 and population estimates	Request based on WUG's provided population estimate with utilization of the annual growth rate from the draft 2026 population projection
	City of Snook	Plats for three subdivisions indicating housing units, reported use and increases in connections, and recent historical population (2020-2022)	Request based on WUG's draft annual growth rate from the 2026 population projection
	County-Other, Burleson		Revised to adjust for other increases.
Coryell	Elm Creek WSC	Data on current water connections and planned growth	
	Fort Cavazos (formerly Hood)	Data on historical population and estimated increases in population before 2030	Request based on the 2030 population estimate provided by the WUG
	Kempner WSC	Data on population estimates, number of connections, and 2021 WUS.	Request based on WUG's provided data for the 2030 projected population, then decadal growth rates from TWDB used for 2040-2080 projection
	The Grove WSC	Data on recent water connection sales and trends	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.

Other WUG-Specific Requests

County	WUG	Information Provided	Brazos G RWPG Request
Falls	City of Bruceville-Eddy	Data on current water use and water demand	Request based on historical data provided by TWDB and observed 5-year and 10-year annual growth rates
	Levi WSC	Data on current water connections served and current application backlog	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
Lee	City of Lexington	Current water conservation plan including population from 2020 census	Request based on revised 2020 population estimate and City's water conservation plan
	County-Other, Lee		Revised to counter other increases.
McLennan	Axtell WSC	Data on water sales and trends.	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
	Chalk Bluff WSC	Data on current number of connections and historical trends.	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
	City of Bruceville-Eddy	Data on current water use and number of connections.	Request based on WUG's reported population served and associated near- and long-term annual growth rates.
	City of Hewitt	Data on growth constraints.	WUG stated that the remaining undeveloped area will be developed by 2030 and no growth beyond that.
	City of McGregor	Data on near-term growth.	Request based on WUG's number of current connections, as well as planned developments and industrial growth, coupled with draft annual growth rates.

Other WUG-Specific Requests

County	WUG	Information Provided	Brazos G RWPG Request
McLennan	City of Moody	Data on water connection sales and trends.	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
	City of Riesel	Data on historical growth rates from 2002 to 2023 and value for people per connection.	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
	City of Woodway	Data on growth constraints.	WUG stated that the remaining undeveloped area will be developed by 2030 and no growth beyond that.
	County-Other, McLennan	Revised to counter other increases.	Reduced to offset population increases within the County.
	East Crawford WSC	Data on current number of connections and growth constraints.	Request based on WUG's number of current connections, estimated number of new connections per year, current backlog, and an estimated people per connection.
	Elm Creek WSC	Data on current water connections and planned growth.	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
	EOL WSC	Data on current number of connections and historical growth.	Request based on WUG's number of current connections, estimated number of new connections per year, and an estimated people per connection.
	Gholson WSC	Data on connections served, estimated population, water produced, water sold, and estimated growth projections.	Request based on WUG's number of current connections, estimated number of new connections per year, an estimated people per connection, and draft annual growth rates.

Other WUG-Specific Requests

County	WUG	Information Provided	Brazos G RWPG Request
McLennan	Leroy Tours Gerald WSC	Preliminary engineering report to assess system deficiencies with respect to current and future system populations.	Request consistent with WUG-provided <i>USDA Water System Improvements Preliminary Engineering Report for the Leroy-Tours-Gerald Water Supply Corporation, August 2022.</i>
	Levi WSC	Data on current connections and near-term growth.	Request based on WUG's number of current connections, an estimated people per connection, and draft annual growth rates.
	Texas State Technical College	Data on growth trends.	Request based on actual housing data.
	Windsor Water	Data on current number of connections and recent growth trends.	Request based on WUG's number of current connections, an estimated people per connection, and the published 2021 Water Plan annual growth rates.
Milam	City of Rockdale	<p>Reported 2020 Census population, and new near-term development (660 home subdivision and other smaller projects, potential new industrial park.</p> <p>PWS boundary larger than Census place boundary. WUS 2010-20 evaluated, full-time residential est. (3/conn.) pop. greater than TWDB 2020 Census pop.</p> <p>Est. '21 pop. of 5,488, plus 1,980 from new home development = 7,428.</p>	Based on growth from '21 pop. Of 5,448 from WUS with 1,980 from new development by 2030. Use 0.07% CAGR from hist. 2010-20 estimates of full time residential pop. Served by City for 2040 – 2080.

Other WUG-Specific Requests

County	WUG	Information Provided	Brazos G RWPG Request
Milam	City of Thorndale	<p>Data regarding water connections and additional development.</p> <p>2017 Water Supply Study growth rate of 0.5% and projected 750 connections by 2040. City reports it will be at 750 connections by 2025 or few years after that. Identified demands needed to meet TCEQ 0.6 gpm per connection requirement.</p> <p>Analysis developed near term 3% and long-term 0.62 CAGR, vs. Draft -0.7%.</p>	<p>2030 based on '21 pop. Of 5,448 from WUS, with addition of 1,980 by 2030 based on recent development.</p> <p>2040 – 2080 based on 0.07% CAGR from rate over 2010-2020 period from WUS pop. Est.</p>
Robertson	City of Calvert	Estimated number of connections from planned area development.	Based on WUG's projection of future growth by incorporating near-term growth for 2030 population of 1,042 then utilize CAGR's of -0.25% for 2040, -0.33% for 2050, -0.42% for 2060, -0.47% for 2070, and -0.49% for 2080, consistent with CAGR for 0.5 migration scenario.
	County-Other, Robertson		Revised to counter other increases.
	Robertson County WSC	Data on population estimates from WUS	Based on WUG 2021 estimate of 3,421, then use CAGR's of -0.17% for 20340, -0.12% for 2040, -0.14% for 2050, -0.12% for 2060, -0.04% for 2070, and 0.07% for 2080, consistent with CAGR for 0.5 migration scenario.

Other WUG-Specific Requests

County	WUG	Information Provided	Brazos G RWPG Request
Somervell	County-Other, Somervell		Reduced to adjust other increases into area.
	Somervell County Water District	Data on meter connections, water use, and a Service Area Map and Water Distribution System Study.	Based on revised service area provided by the WUG.
Washington	Corix Utilities	Data on population estimates and projections	2030 based on WUG population projection for each system by county, then utilize CAGR from Draft 2026 projections for 2040-2080.
	County-Other, Washington		Revised to adjust other increases.

03

Recommended
Per Capita Use
Requests

Municipal Demand Projections: GPCD

Gallons per Capita Daily

Guidance on Municipal Demands

- Exhibit C
 - Municipal water demand projections will be based upon dry-year demand conditions.
- TAC §358.3(2)
 - The regional water plans and state water plan shall serve as water supply plans under drought of record conditions.

Baseline GPCD = dry-year demand conditions

TWDB provided data on municipal water use collected from WUS submitted by water providers

- Residential
- Can include (commercial, institutional, light industrial)
- E.g., restaurants, hotels, camps, transient populations' use included along with permanent residents

GPCD Evaluation

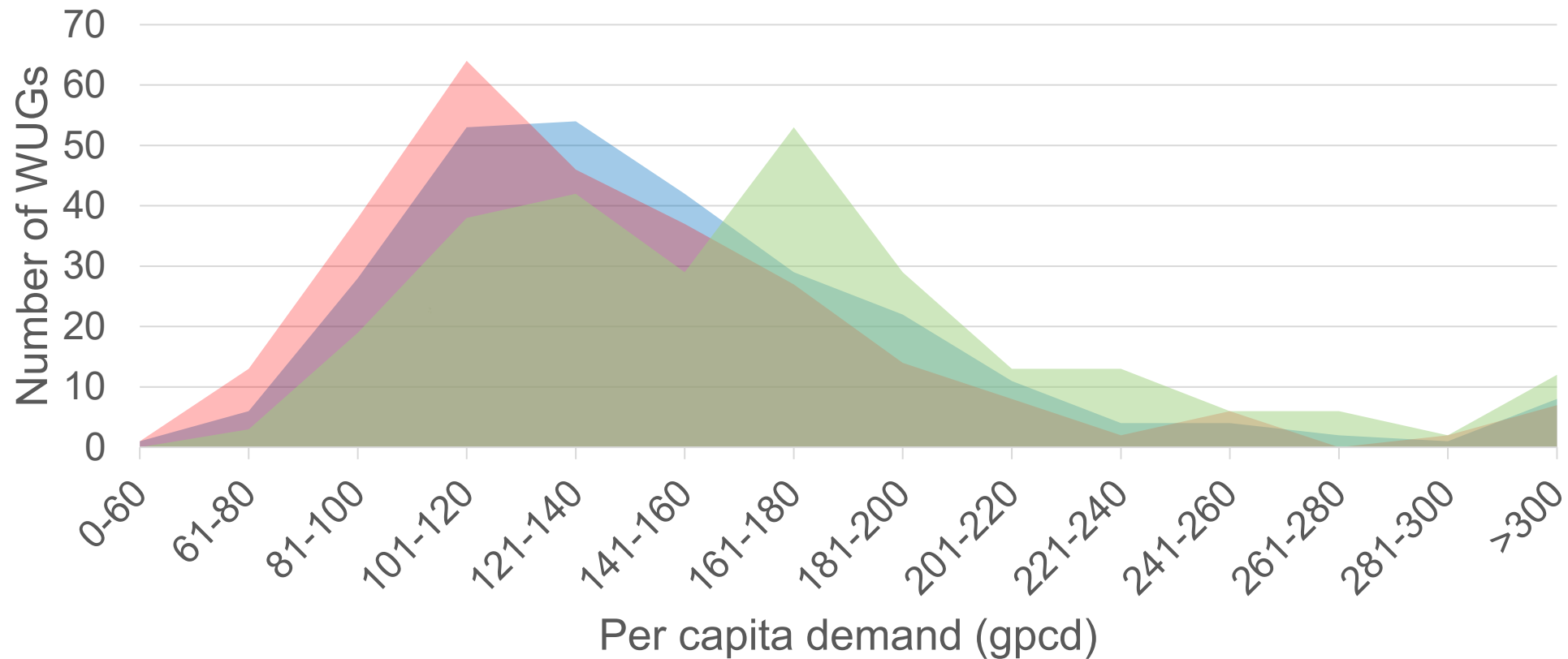
Reviewed reported population and usage provided by TWDB over 2010-2020.

Identified historic maximums

Evaluated trends in WUG GPCD

- Identified outliers
- Outreach
- Data review

Summary of requested GPCD adjustments.



- 2021 Region G Plan
- 2026 RWP (Returning WUGs)
- 2026 RWP Requested (Returning WUGs)



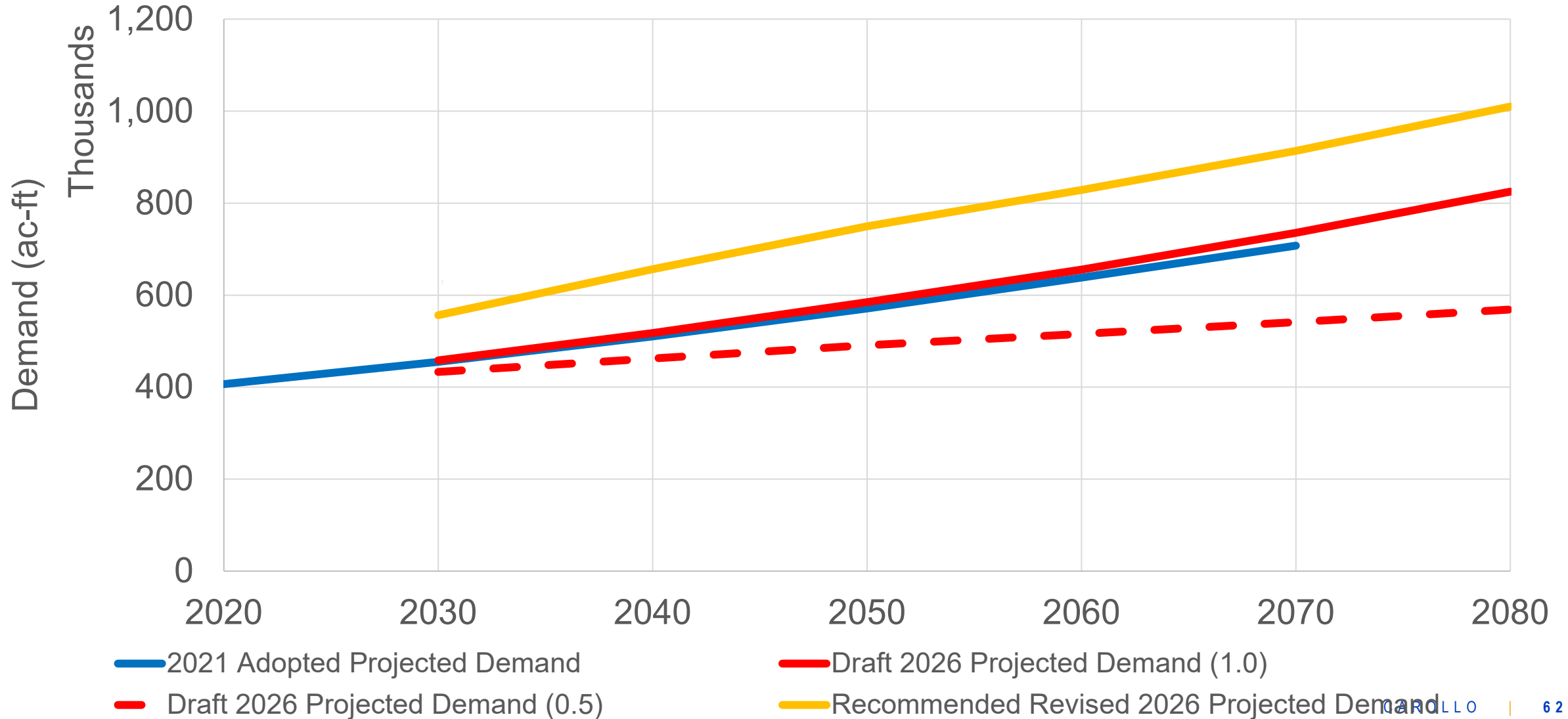
Recommendation

1. Use of the maximum historical GPCD over the 2010 – 2020 period.
 - Captures extreme drought conditions observed in the region in the early part of the decade.
 - Reflects higher per capita usage observed for those WUGs with increasing trends in the region.
 - Utilizes data from TWDB and reported by WUGs
 - Excepting WUG-specific requests
2. Removal of the subtraction of water efficiency savings due to more efficient plumbing fixtures and appliances from the baseline GPCD.
 - Representative of recorded observation per capita usage
 - Consistent with planning for dry-year conditions
 - Still uses assumed savings for decadal projections
 - Excepting WUG-specific requests

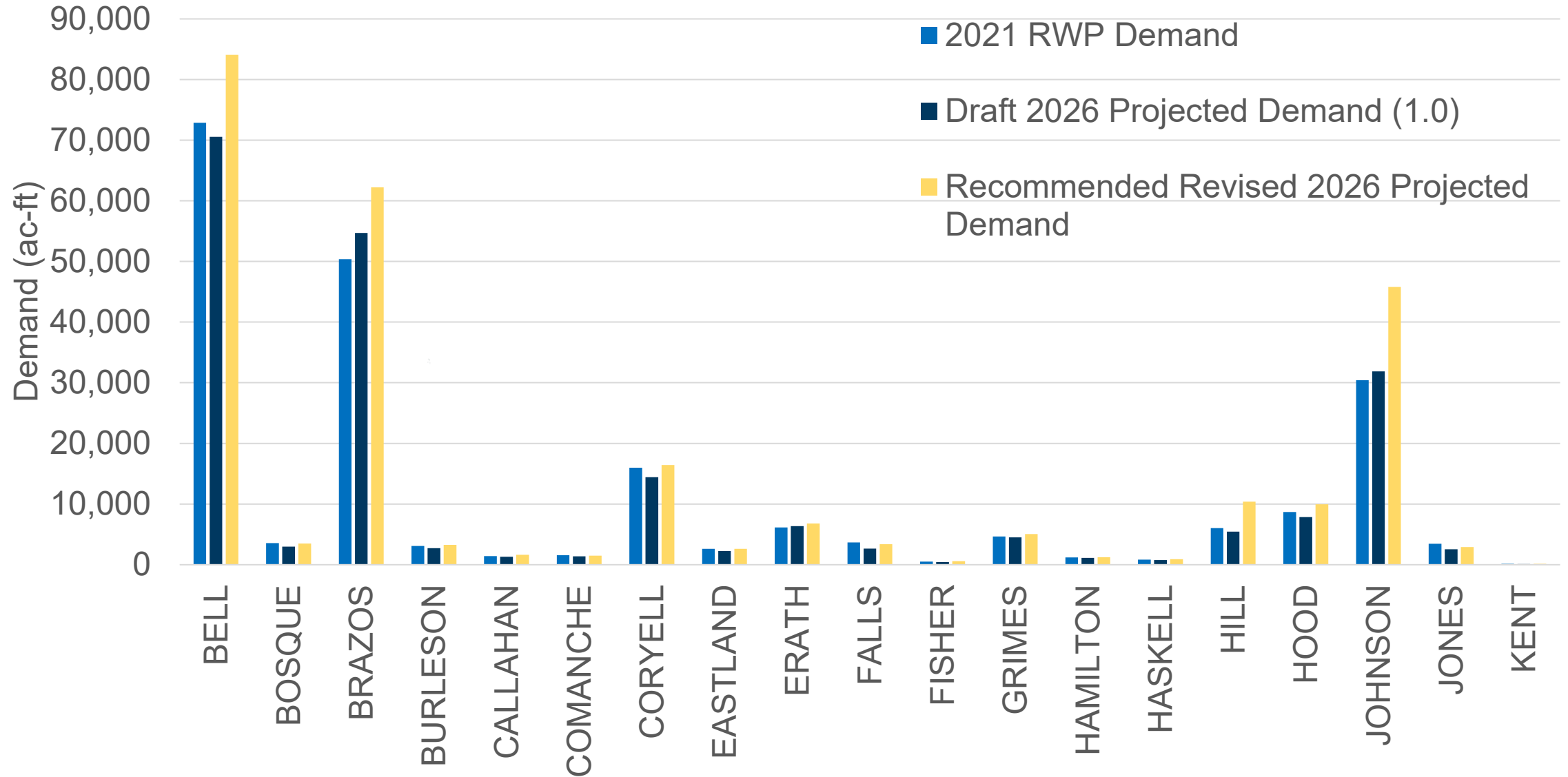
03

Comparative Summary of Water Demand

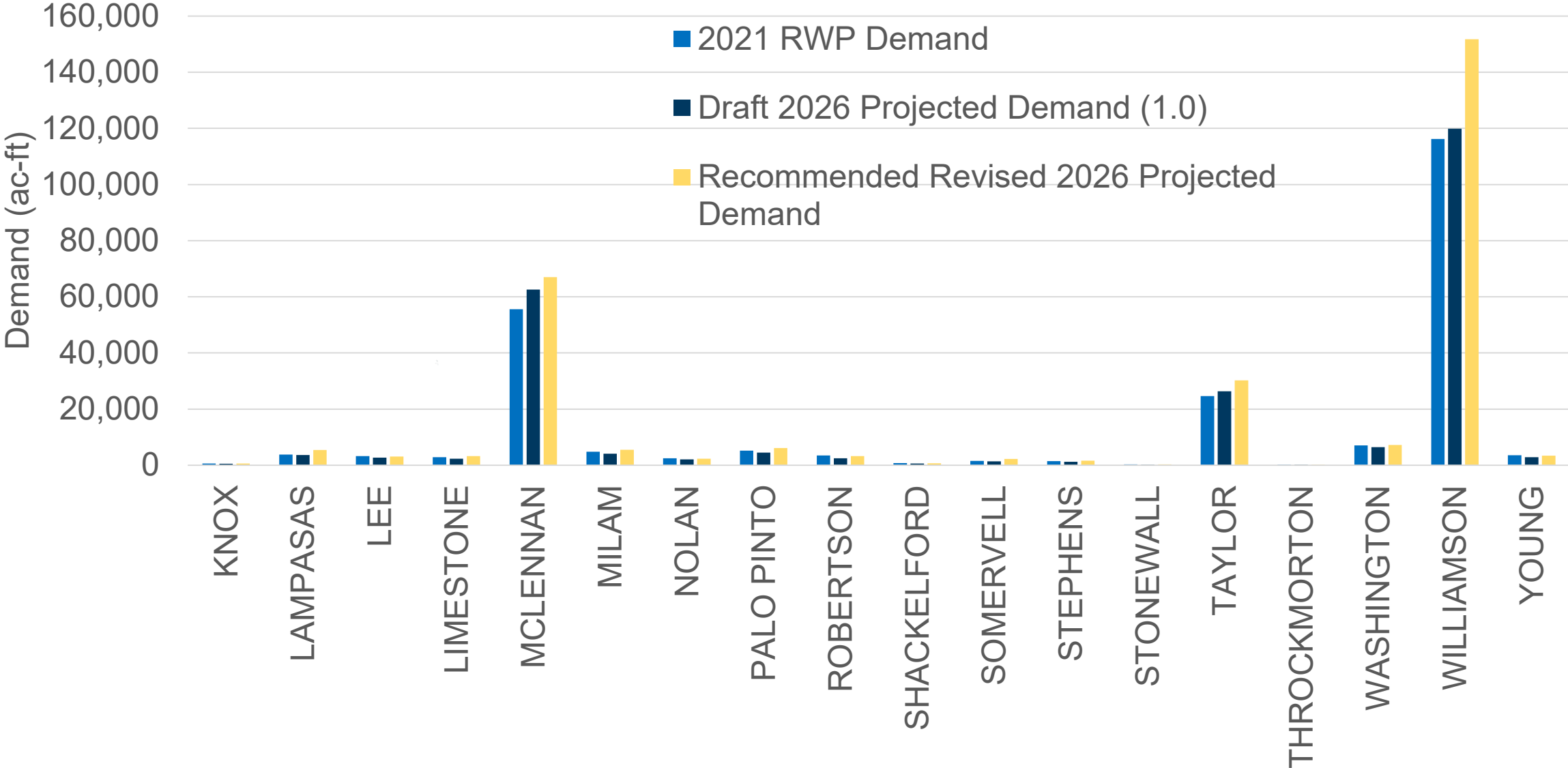
Region G – Comparison of Recommended Region G Municipal Water Demand Projections to 2021 Plan, 1.0-, and 0.5 Migration Scenarios



Draft Municipal Demand Projections by County: 2030



Draft Municipal Demand Projections by County: 2030



Action Sought

Action Sought

Action

- Authorize the technical consultant to submit a technical memorandum, populate, and distribute to the TWDB recommended revisions to the draft municipal projections for Region G consistent with the information provided in this meeting, and approve for the consultant to work with the Administrator, Chair, and TWDB to submit further revisions and make responses to revision requests by TWDB.

Item 8.2

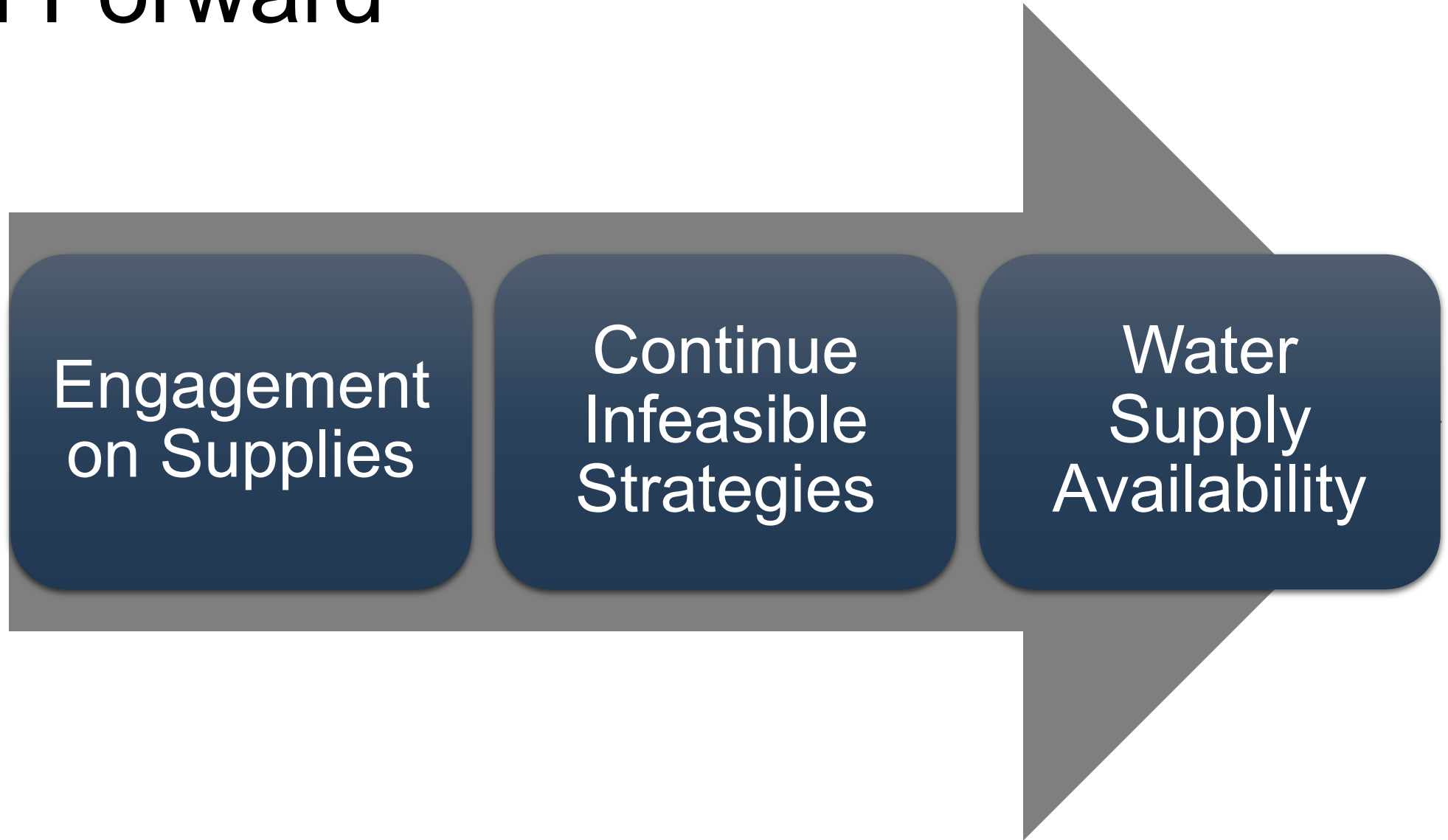
Regional Water Planning Update

Regional Water Planning Update

Upcoming Items

- Engagement, engagement, engagement
- Finalizing contracts
- Submittal of Non-Municipal Request and responding to TWDB
- Interregional coordination
- Water supply assumptions
- 3/4/24 – Technical Memorandum
 - Identify Infeasible 2021 RWP Water Management Strategies
 - Consider initiation of amendment process
 - Hydrologic Variances
 - Identify WWPs and MWPs
 - Present process to identify potentially feasible WMSs in 2026 RWP.
- Subcommittee Meetings
 - Groundwater
 - Scope of Work

Path Forward





9. Discussion and possible action to authorize the planning group sponsor, Brazos River Authority, to negotiate and execute an amendment to the TWDB contract to increase the total project cost and committed funds for the 2026 RWP



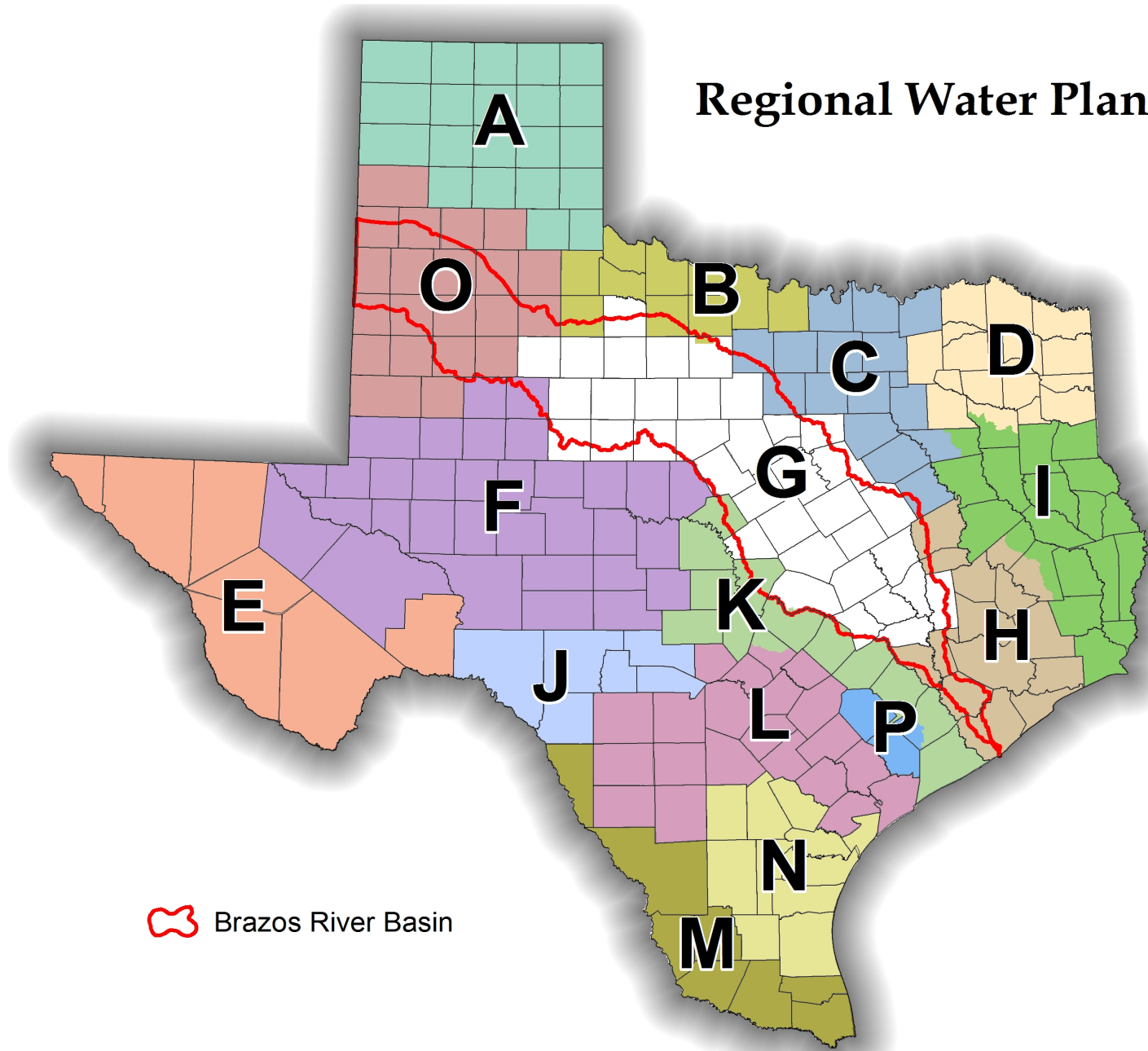
Action Item :

“The Brazos G RWPG authorizes the planning group sponsor, Brazos River Authority, to negotiate and execute an amendment to the TWDB contract to increase the total project cost and committed funds for the 2026 RWP.”



10. Report and possible discussion on updates from other regional water planning groups (Regions B, C, F, H, K, L & O)

Regional Water Planning Groups



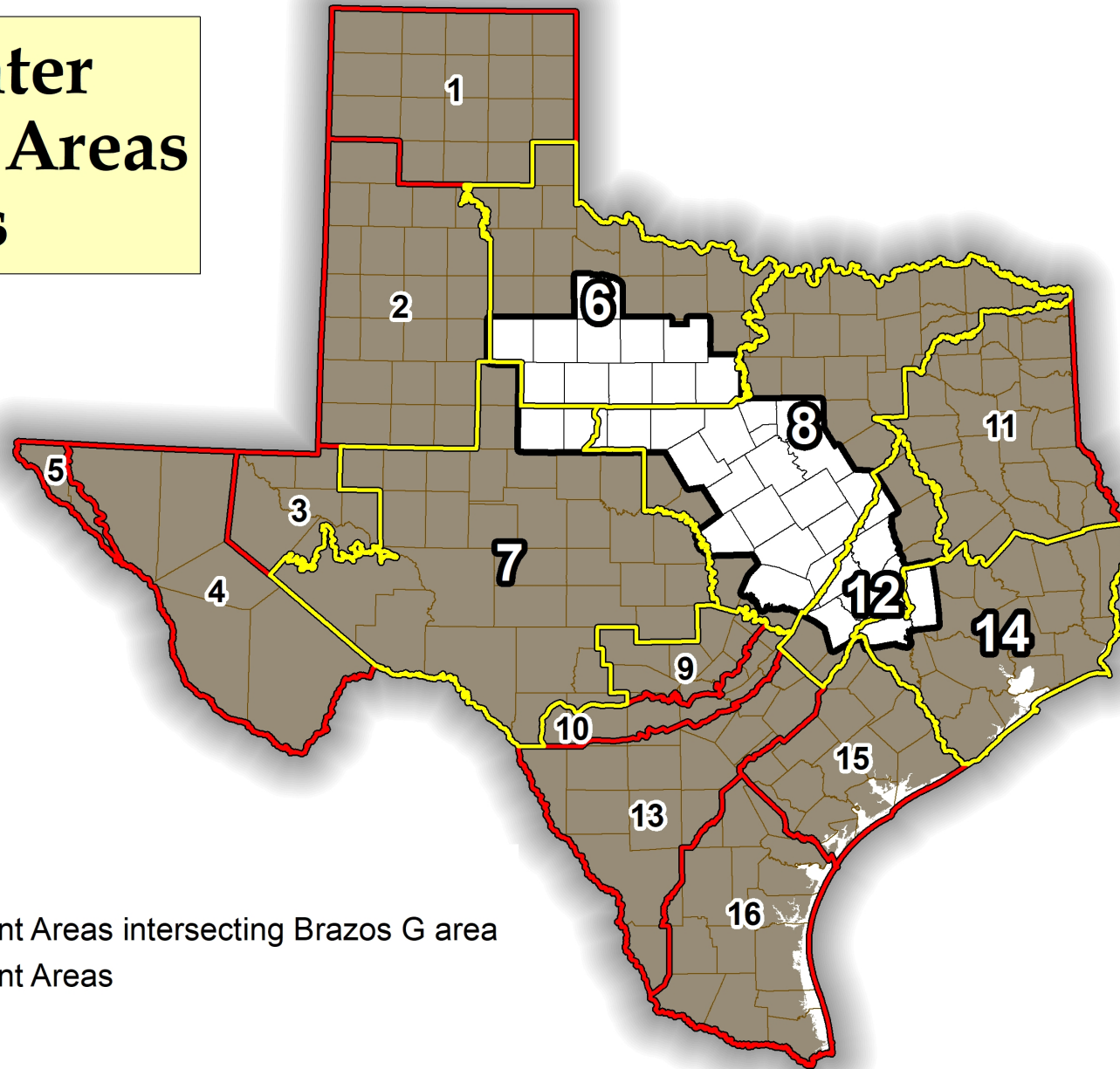
- A** Panhandle
- B** Region B
- C** Region C
- D** North East Texas
- E** Far West Texas
- F** Region F
- G** Brazos G
- H** Region H
- I** East Texas
- J** Plateau
- K** Lower Colorado
- L** South Central Texas
- M** Rio Grande
- N** Coastal Bend
- O** Llano Estacado
- P** Lavaca

 Brazos River Basin



11. Report and possible discussion on Groundwater Management Area (GMA) activities

Groundwater Management Areas of Texas



GMA's in Brazos G:
6, 7, 8, 12, 14

-  Brazos G Area
-  Groundwater Management Areas intersecting Brazos G area
-  Groundwater Management Areas



12. Report and possible discussion on agency communication and information. (TPWD, TDA, TSSWCB, BBASC, & Interregional Planning Council)





13. Discussion and possible action on report by Brazos G Administrator

13.1. Administrator Report – Summary of meeting actions for calendar year 2023 now on www.brazosgwater.org> Meeting Archive

13.2. Finance Report – Summary of Administrative Tasks and Expenses

Brazos River Authority
Brazos G
From 05/01/23 Through 06/30/23

	Current Period	Life to date	Total Budget	Budget Variance	% Budget Remaining
Revenues					
State Grants	1,589	128,119	1,823,980	1,695,861	92.98%
Interest Income	-	-			
Total Revenues	1,589	128,119	1,823,980	1,695,861	92.98%
Reimbursable Expenditures					
Salaries	382	2,938			
Benefits	164	1,276			
Indirect Costs	38	294			
Other Expenditures					
Printing/Publishing ¹	183	4,627			
Public Information/Notices ²	-	2,373			
Total Other Expenditures	768	11,507	42,500	30,993	72.92%
Voting Planning Member Travel	821	4,553	25,500	20,947	82.14%
Subcontractor ³	-	112,059	1,755,980	1,643,921	93.62%
Total Reimbursable Expenditures	1,589	128,119	1,823,980	1,695,861	92.98%
Work in Kind					
Salaries/benefits	554	14,987			
Other	57	350			
Total Work in Kind	611	15,337			
Net Revenue over expenditures	(611)	(15,337)	-	-	

¹ Postage/copies

³ includes



14. Discussion and possible action on report by Brazos G Chair



15. Consider Agenda Items and Date for the next Brazos G RWPG public meeting

Next Brazos G Meeting Date: TBD



16. Adjourn