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March 4, 2024

Ms. Temple McKinnon
Director, Water Supply Planning
Texas Water Development Board
Stephen F. Austin Bldg.
P.O. Box 13231
Austin, Texas 78711-3231

RE: Technical Memorandum Submittal for the Coastal Bend Regional Water Planning Group (Region N)

Dear Ms. McKinnon:

Included in this transmittal is two electronic copies of the Region N Technical Memorandum (PDF and one Microsoft Word) to include:

- Electronic PDF copies of TWDB requested DB27 data reports;
- RWPG-approved process to identify potentially feasible WMSs;
- A list of all potentially feasible WMSs identified by the RWPG;
- A copy of hydrologic variance requests and TWDB responses;
- Documentation of anticipated sedimentation rate methodology;
- A table providing the details of hydrologic models used;
- Documentation of method used for RWPG-estimated groundwater;
- A summary of the region's interregional coordination efforts to date;
- A list of infeasible WMSs from the 2021 RWP, where applicable; and
- Electronic model input/output or other model files used to date in determining water availability.

Region N relied on modeled available groundwater values for groundwater availability and did not perform any GAM analyses.

On February 22, 2024, the Coastal Bend Regional Water Planning Group (Region N) approved and authorized the Nueces River Authority to submit the Coastal Bend Technical Memorandum to the Texas Water Development Board.

Please contact me at 830-278-6810 with any questions or comments.



John Byrum
Executive Director
Nueces River Authority

CC: Scott Bledsoe, Co-Chair CBRWPG
Dr. Pancho Hubert, Co-Chair CBRWPG
Kristi Shaw, HDR Engineering



2026 Coastal Bend Region N – Regional Water Plan

Technical Memorandum

Coastal Bend Region, Texas
March 4, 2024



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Figures

None.

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In accordance with the Texas Administrative Code §357.12 and Section 2.12.1 of the Second Amended General Guidelines for Development of the 2026 Regional Water Plans, the Coastal Bend (Region N) Regional Water Planning Group submits this technical memorandum for consideration by the TWDB.

This technical memorandum presents:

- Data reports on population, demand, source availability, existing supply, water needs, and comparison between the 2026 Plan and 2021 Plan data;
- Region N's adopted process for identifying potentially feasible water management strategies,
- List of potentially feasible water management strategies identified to date,
- Hydrologic variance requests and TWDB approvals,
- Documentation of methodology for calculating sedimentation rates and elevation-area-capacity rating curves for reservoirs,
- Summary of hydrologic models used,
- Methods used for RFPG- estimated groundwater availabilities,
- Interregional coordination efforts to date,
- List of infeasible strategies from the 2021 Plan, and
- Model files to determine water availability (electronic submittal).

The appendix includes the seven- DB27 reports requested by the TWDB for inclusion in the technical memorandum. The contents of this technical memorandum were approved at Region N's public meeting on February 22, 2024 that included the 14-day public notice and posting requirements.

1 DB27 Data Reports

The following DB27 reports are provided in Appendix A of this document.

- Report # 1- Water User Group (WUG) Population Projections
- Report # 2- WUG Water Demand Projections
- Report # 3- Source Availability
- Report # 4- WUG Existing Water Supply
- Report # 5- WUG Needs/Surplus
- Report # 6- WUG Data Comparison to 2026 RWP
- Report # 7- Source Data Comparison to 2026 RWP

2 Documented Process used by the Coastal Bend Regional Water Planning Group to Identify Potentially Feasible Water Management Strategies

During Region N’s meeting on October 12, 2023, the planning group discussed the types of water management strategies shown in Table 2-1 that regional water planning groups are advised to consider for identified water needs as provided in TWDB guidance¹ and as required by Texas Water Code §16.053(e)(3) and 31 Texas Administrative Code §357.34(c).

Table 2-1. Types of Potentially Feasible Water Management Strategies Considered by Region N, per Statutory Guidance

• Conservation	• Interbasin Transfers
• Drought Management	• System Optimization
• Reuse	• Reallocation of Reservoir Storage to New Uses
• Management of Existing Supplies	• Yield Enhancement
• Conjunctive Use	• Water Quality Improvements
• Acquisition of Available Existing Supplies	• New Surface Water Supply
• New Water Supplies	• New Groundwater Supply
• Regional Water Supply Facilities	• Brush Control
• Desalination – Seawater	• Precipitation Enhancement
• Desalination – Brackish Groundwater	• Aquifer Storage and Recovery
• Voluntary Redistribution	• Cancellation of Water Rights
• Emergency Transfers	• Rainwater Harvesting

¹Section 5.1 of the First Amended General Guidelines for Fifth Cycle of Regional Water Plan Development, Exhibit C, April 2017.

The Coastal Bend Regional Water Planning Group (RWPG) adopted the following process on October 12, 2023, to use to identify potentially feasible water management strategies for development of the 2026 Region N Regional Water Plan (2026 Plan)²:

- 1) The Coastal Bend RWPG recognizes that regional water planning is an evolving process and draws upon results obtained from previous planning efforts. A summary of water management strategies (WMSs) from the five previous planning cycles (2001, 2006, 2011, 2016, and 2021 Plans) will be discussed at a Region N meeting for consideration for the 2026 Plan. The Texas Water Code list of WMSs eligible for consideration in the Plan will be discussed, including the TWDB Water Loss Audit Report, conservation best management practices, and drought management as required by TWDB guidance.
- 2) The Nueces River Authority will host a workshop for water utilities located within the 11-county Region N area to discuss local plans and assess potential regional collaboration opportunities. Current local, on-going studies and future water plans, including specific WMSs of interest, will be solicited from Water User Groups (WUGs) and Wholesale Water Providers (WWPs).
- 3) Considering information compiled from outreach, a draft list of potentially feasible WMSs will be discussed at a Coastal Bend RWPG meeting for public comment.
- 4) HDR, the Region N technical consultant, will follow-up with WUGs and WWPs to confirm the list of WMSs for development of the 2026 Plan.
- 5) The Coastal Bend RWPG will consider forming a subcommittee to review potentially feasible strategies and prepare a draft scope of work for strategies to evaluate for the 2026 Plan. The scope of work subcommittee will review a preliminary list of potentially feasible WMSs and prepare a recommendation for Coastal Bend RWPG consideration given TWDB funding allocations.
- 6) A scope of work for strategies to be evaluated will be considered and adopted at a RWPG meeting after receiving public comment. Subsequently, the Nueces River Authority will submit a letter request for TWDB consideration and approval.
- 7) Based on the adopted list of potentially feasible WMSs, potential water management strategies will be identified to meet needs for all WUGs and WWPs with identified needs. If no potentially feasible strategy can be identified for a WUG or WWP with a need, the reason for this will be documented in the Technical Memorandum, Initially Prepared Plan (IPP) and Final Plan.
- 8) The list of potentially feasible water management strategies will be included in the Technical Memorandum, IPP, and Final Plan.
- 9) After TWDB approval of the scope of work for WMS evaluations, additional WMSs may be considered and approved for inclusion in the 2026 Plan at WUG sponsor request and expense. These strategies will be brought to the Coastal Bend RWPG for consideration as potentially feasible WMSs and, if approved, will be included in the IPP and Final Plan.

² Pursuant to Texas Administrative Code Title 31 Part 10 Chapter 357.5(e)(4) of the Regional Water Planning Guidelines which states: "Before a regional water planning group begins the process of identifying potentially feasible water management strategies, it shall document the process by which it will list all possible water management strategies and identify the water management strategies that are potentially feasible for meeting a need in the region."

3 List of Potentially Feasible WMSs Identified by the Coastal Bend Regional Water Planning Group

A summary of water management strategies (WMSs) from the five previous planning cycles (2001, 2006, 2011, 2016, 2021 Plans) was discussed at the January 25, 2024, Region N meeting. A draft list of potentially feasibility water management strategies (WMSs) for the 2026 Plan was discussed. The list included strategies evaluated in previous plans, consideration of the types of water management strategies outlined in TWDB guidance (Table 2-1), and additional water management strategies identified by WUGs and WWP during interviews conducted by HDR from October 2023 to January 2024 to gather feedback on local, on-going studies and future water supply plans. During the January 25th Region N meeting, comments were provided by regional water planning group members and local stakeholders to add four water management strategies from previous regional water plans, two new strategies related to transmission system improvements to boost existing supply resiliency, and one potential reuse project.

The Nueces River Authority hosted a workshop on January 26th for water utilities, water providers, and local stakeholders to discuss local plans, assess potential regional collaboration opportunities, and receive public input. Table 3-1 summarizes the list of potentially feasible WMSs identified by the Coastal Bend RWPG to date. A subcommittee appointed on October 12, 2023, will review the list of potentially feasible water management strategies (Table 3-1) and prioritize water management strategies to be included in the TWDB scope of work request, which requires approval by TWDB for notice to proceed to begin Task 5B- Evaluation of Water Management Strategies. The subcommittee will present a draft Task 5B scope of work at the next Region N meeting on May 9th. It is important to note that not all strategies listed below will be evaluated and/or recommended in the 2026 Region N Plan due to lack of sponsor, funding constraints, or other factors. This list is strictly a list of potentially feasible water management strategies identified to date for inclusion in the Technical Memorandum in accordance with TWDB guidance.

The City of Alice is currently implementing a 3 million gallons per day (MGD) brackish groundwater WMS and anticipates the project to be delivering water by the end of 2024. Since this strategy is actively in construction for completion prior to delivery of the 2026 Region N Plan, it is not included in the list of potentially feasible WMSs.



Table 3-1. Potentially Feasible Water Management Strategies for Consideration in the 2026 Region N Plan

Municipal Water Conservation, including meter replacement
Irrigation Water Conservation
Manufacturing Water Conservation
Mining Water Conservation
Drought Management
Mary Rhodes Pipeline Rehabilitation
Evangeline Groundwater Project, up to 24 MGD with Brackish Groundwater Desalination
Gulf Coast Aquifer Supplies- Additional Groundwater for Rural Entities
City of Corpus Christi- Inner Harbor Seawater Desalination Project, up to 30 MGD
City of Corpus Christi- La Quinta Seawater Desalination Project, up to 40 MGD
Port of Corpus Christi Authority- Harbor Island Seawater Desalination Project, up to 50 MGD
Local Balancing Storage Reservoir to make reliable run-of-the-river rights, affected by drought
Nueces Off-Channel Reservoir Project
City of Corpus Christi- Aquifer Storage and Recovery
Pipeline from Choke Canyon Reservoir to Lake Corpus Christi
Nueces River Diversion to Choke Canyon Reservoir
San Patricio Municipal Water District Water Treatment Plant (WTP) Improvements- Microfiltration
City of Corpus Christi- ON Stevens WTP Facility Expansion
San Patricio Municipal Water District- Replacement of Nueces River Raw Water Transmission Main
Port of Corpus Christi Authority- La Quinta Seawater Desalination Project, up to 30 MGD
Sediment Removal in Lake Corpus Christi and Choke Canyon Reservoir
San Patricio Municipal Water District- Transmission Pump Station at Dressen Improvements
Reclaimed Wastewater Supplies and Reuse- Nueces County
Air capture wells- Duval County Irrigation

4 Hydrologic Variance Requests Submitted by the Region and TWDB Approval of Variances

The TWDB guidelines³ state that planning groups must use firm yield and TCEQ WAM Run 3 for determining current and future water supplies unless a hydrologic variance request is approved by the TWDB Executive Administrator for variations from the standard modeling requirements.

At the Region N meeting on May 18, 2023, Region N discussed the TCEQ WAMs relevant to surface water supplies in the region and the City of Corpus Christi Water Supply Model⁴(formerly NUBAY model). In 1990, the City of Corpus Christi developed the Lower Nueces River Basin and Estuary Model (NUBAY) to evaluate its multi-basin regional water supply system subject to environmental flow provisions and reservoir operating policies. Since then, the City and other public agencies have supported enhancements and updates to the NUBAY model, which has been renamed the City of Corpus Christi Water Supply Model. The previous Region N Plans (2001, 2006, 2011, 2016, and 2021) used the Corpus Christi Water Supply Model to evaluate water availability, with safe yield as a basis for developing water planning and needs analysis for the City of Corpus Christi and its customers. The Corpus Christi Regional Water Supply System, simulated by the Corpus Christi Water Supply Model, includes the City’s contracted and/or permitted water rights from Choke Canyon Reservoir, Lake Corpus Christi, Lake Texana, and the Lower Colorado River.

In 2017, the Corpus Christi Water Supply Model was updated to include:

- Recent hydrology through 2015 to include the most recent drought of record for a total model period of 82 years (1934 to 2015), including extensions to net evaporation and ungaged runoff below LCC for recent hydrology using methods consistent with previous model versions (1934 to 2003);
- New TWDB volumetric survey data for Lake Corpus Christi (2016), Choke Canyon Reservoir (2012), and Lake Texana (2010) with updated sedimentation rates;
- Recent hydrology for Lake Texana and the Colorado River (for Mary Rhodes Phase II supplies) through 2015;
- Lake Texana callback of 5,400 ac-ft/yr as exercised by LNRA for local water users in Jackson County pursuant to City of Corpus Christi contract terms; and

³ Second Amended General Guidelines for Development of the 2026 Regional Water Plans, September 2023.

⁴ In 1990, the City of Corpus Christi developed the Lower Nueces River Basin and Estuary Model (NUBAY) to evaluate its multi-basin regional water supply system subject to environmental flow provisions and reservoir operating policies. Since then, the City and other public agencies have supported enhancements and updates to the NUBAY model, which has been renamed the City of Corpus Christi Water Supply Model. The previous Region N Plans (2001, 2006, 2011, 2016, and 2021) used the Corpus Christi Water Supply Model to evaluate water availability, with safe yield as a basis for developing water planning and needs analysis for the City of Corpus Christi and its customers.

- Verification that all enhancements maintain the provisions of the TCEQ 2001 Agreed Order⁵.

In 2019, additional model updates were made to include:

- Lake Texana callback of 10,400 ac-ft/yr as exercised by LNRA for local water users in Jackson County pursuant to City of Corpus Christi contract terms; and
- Operational flexibility to exercise water supply calls on the Garwood water right on the Colorado River at a variable rate according to diversion rate and priority dates of the rights and based on Mary Rhodes Pipeline Phase II system capacities.

The Region N planning group does not consider the TCEQ Nueces Basin WAM Run 3 to be the best model to simulate the Corpus Christi Regional Water Supply System operation policy subject to permits nor does it reflect all aspects of the TCEQ 2001 Agreed Order. Furthermore, the hydrology ends in 1996 and doesn't cover the recent drought of record.

At the May 18, 2023, Region N meeting, the planning group also considered TWDB's guidance to use firm yield when determining surface water availability. The City's regional water supply system is prone to severe drought. Average annual inflows to the Lake Corpus Christi and Choke Canyon System are lower with each successive drought, with the most recent hydrology update to the Corpus Christi Water Supply Model (through 2015) showing a *new* drought of record for the Corpus Christi Regional Water Supply System. Safe yield is a standard approach that Region N and the City of Corpus Christi have consistently used in previous planning cycles as a provision for climate and growth uncertainty, such that a *specified reserve amount remains* in storage during the modeled critical drought.

At the Region N meeting on May 18, 2023, the Coastal Bend RWPG approved submittal of a hydrologic variance request to the TWDB Executive Administrator to (1) use the Corpus Christi Water Supply Model to evaluate water availability for the Corpus Christi Regional Water Supply System and (2) use of safe yield with 75,000 ac-ft reserve and the City's reservoir operating policies to calculate water availability from the Corpus Christi Regional Water Supply System for the 2026 Region N Water Plan. The TWDB approved the hydrologic variance request on January 8, 2024. A copy of the hydrologic variance request submitted by Region N, additional background information related to the request, and TWDB approval of the variance is included in Appendix B.

Surface water availability for all other surface water rights, including run of the river rights, is based on the TCEQ WAM Run 3. Pursuant to TWDB guidance "Run of river availability, or firm diversion, evaluated for a municipal sole-source water use, is defined as the minimum monthly diversion amount that is available 100% of the time during a repeat of the drought of record (i.e., this minimum volume must be available each and every month)."

⁵ Texas Commission on Environmental Quality (TCEQ), Agreed Order Amending the Operational Procedures and Continuing an Advisory Council Pertaining to Special Condition 5B, Certificate of Adjudication No. 21-3214, Docket No. 2001-0230-WR held by City of Corpus Christi, et al, April 5, 2001.

5 Methodology Utilized for Calculating the Anticipated Sedimentation Rate and Revised Area-Capacity Rating Curve for Reservoirs

The Corpus Christi Water Supply Model, used to calculate surface water availability for the Corpus Christi Regional Water System, includes a 82 year hydrologic period from 1934 to 2015. Region N used reservoir sedimentation estimates for Years 2030, 2060 and 2070 that were in the model from the 2021 Regional Water Plan. Existing data was used to interpolate sedimentation rates for 2040 and 2050 and extrapolate for 2080 including updating areas and capacities for the reservoirs expected to correspond with these decades. This method relies on the sedimentation rates for reservoirs simulated in the model and from the adopted 2021 Regional Water Plan.

6 Preliminary Surface Water Availability Analysis and Summary Table of Hydrologic Models Used

Table 6-1 presents surface water supplies available to Region N, including safe yield for entities where hydrologic variances were approved. For surface water withdrawals that do not require permits, such as for livestock purposes, Region N estimated local annual water availability volumes under drought of record conditions based on current water use data provided by the TWDB. Region N’s technical consultant is coordinating with wholesale water providers to confirm water contracts and infrastructure constraints. This may constrain existing surface water supplies and result in supplies from the Corpus Christi Regional Water Supply System being lower than the availability shown.

Table 6-1. Surface Water Supplies Available to Region N (Not limited by infrastructure)

Source	Entity Using the Source	Alternative Availability Utilized as the Basis for Planning	Model Used	Basis	Surface Water Availability (ac-ft/yr)					
					2030	2040	2050	2060	2070	2080
Corpus Christi Regional Water Supply System ^{1,2}	City of Corpus Christi and its direct/indirect customers	Yes	Corpus Christi Water Supply Model ³	Safe Yield-75,000 acft reserve	170,000	168,000	166,000	164,000	162,000	157,000
Corpus Christi Regional Water Supply System ⁴	City of Corpus Christi and its direct/indirect customers	Yes	Corpus Christi Water Supply Model ²	Firm Yield	186,000	184,000	182,000	180,000	177,000	174,000



Table 6-1. Surface Water Supplies Available to Region N (Not limited by infrastructure)

Source	Entity Using the Source	Alternative Availability Utilized as the Basis for Planning	Model Used	Basis	Surface Water Availability (ac-ft/yr)					
					2030	2040	2050	2060	2070	2080
Nueces-Run of the River	Nueces County WCID #3 ⁵	No	TCEQ Nueces WAM	Firm Yield	384	384	384	384	384	384

N/A- Not applicable.

¹Includes Corpus Christi contract with the City of Three Rivers to divert up to 3 MGD (or 3,363 acft/yr) from Choke Canyon.

²Includes system supplies from Nueces, Frio, Lavaca-Navidad, and Colorado River Basins.

³See details on model modification assumptions, described in Section 4.

⁴Firm yield reported per TWDB guidelines, however safe yield is used as the basis for planning as approved by TWDB variance.

⁵Subject to Nueces County WCID # 3's Certificate of Adjudication provisions for No. 2466, 1909+ priority, no storage.

The following models will be used to develop surface water availabilities for the 2026 Region N Plan.

- Corpus Christi Water Supply Model
- TCEQ Nueces Basin Water Availability Model

As discussed previously, the TWDB approved a hydrologic variance request on January 8, 2024 to use the Corpus Christi Water Supply Model to evaluate water availability for the Corpus Christi Regional Water Supply System and safe yield with 75,000 ac-ft reserve and the City's reservoir operating policies to calculate water availability from the Corpus Christi Regional Water Supply System for the 2026 Region N Water Plan.

For Nueces County WCID 3 and smaller run-of-river water rights in the Nueces River Basin, firm yield supplies were based on the minimum annual supply that could be diverted over a historical period of record limited by minimum month conditions in accordance with TWDB guidelines. Run-of-river availabilities were simulated for these water users using the TCEQ unmodified Nueces WAM Run 3, which determined monthly availability subject to water right priority and hydrologic conditions. Minimum month conditions were assessed within the context of use-appropriate monthly percentage of the annual authorized diversion. The TCEQ Nueces Basin WAM hydrology ends in 1996 and doesn't cover the recent drought of record. Therefore, the Coastal Bend RWPG believes the supplies estimated using the TCEQ WAM Run 3 for run-of-river rights may be overstated. It is anticipated that storage will be identified as a water management strategy to bridge potential seasonal water shortages to avoid overestimating the reliability of run-of-river water during drought.

Details of the model runs performed to determine surface water availability are included in Table 6-2.

Table 6-2. Models Used in Determining Surface Water Availability in Region N

Name of Model (and version)	Model Use/Entities Served	Date Modifications were Approved by TWDB	Run Performed by	Date of Model Run	Model Inputs/Output Files Used	Comments
Corpus Christi Water Supply Model v.13	Corpus Christi Regional Water Supply System	January 8, 2024	HDR	2/9/2024	/2-2030_SY_75; /4-2050_SY_75; /5-2070_SY_75 and /6-2080_SY_75 OSUM; OASYSOP OCCR; OLCC QQUEST; OQM OSALTTRC; OSYSOP OTEX; OTEXOP OTRACE; OWQ OBAY; OBBEST DAIYP; ADDSOUR	2030, 2050, 2070, and 2080 Safe Yield; Includes timeseries from Region K LCRA Cutoff unmodified Run 3 2030-2080 conditions for the City of Corpus Christi's Garwood/ Colorado Water Right.
Corpus Christi Water Supply Model v.13	Corpus Christi Regional Water Supply System	January 8, 2024	HDR	2/29/2024	/2-2030_FY; /4-2050_FY; and /5-2070_FY; and /6-2080_FY OSUM; OASYSOP OCCR; OLCC QQUEST; OQM OSALTTRC; OSYSOP OTEX; OTEXOP OTRACE; OWQ OBAY; OBBEST DAIYP; ADDSOUR	2030, 2050, 2070, and 2080 Firm Yield; Includes timeseries from Region K LCRA Cutoff unmodified Run 3 2030-2080 conditions for the City of Corpus Christi's Garwood/ Colorado Water Right.
TCEQ Nueces WAM- Run 3	Run of the River Right Holders, including NCWCID # 3	Not Applicable	HDR	5/3/2018	/2020/ and /2070/ N_RUN3.DAT N_RUN3.DIS N_RUN3.EVA N_RUN3.flo N_RUN3.out (Note: to minimize file size, output file not included in CD)	Consistent yield for 50 year period; 2080 set equal to 2070.



7 Groundwater Availability and Methodologies Utilized by Coastal Bend RWPG- Estimated Groundwater Availabilities

Three groundwater management areas (GMAs) are located wholly or partially within the Region N 11-county area: GMA 13, GMA 15, and GMA 16. These GMAs adopted new desired future conditions (DFCs) between October and November 2021, as summarized in Table 7-1. These DFCs were then used by the TWDB to develop Modeled Available Groundwater estimates (MAGs) for use in development of the 2026 Region N Regional Water Plan. A summary of the MAGs and associated TWDB model runs and date of TWDB model simulation from which the MAGs originated is included in Table 7-2. These MAG projections based on GMA-approved DFCs were discussed at Region N’s meeting on October 12, 2023 and confirmed to serve as the basis of groundwater availability in the 2026 Region N Plan.

Table 7-1. Desired Future Conditions Adopted by GMAs in Region N

Aquifer	Desired Future Condition
GMA 13 (Date DFC Adopted 11/19/2021)	
Carrizo-Wilcox, Queen City, and Sparta Aquifer System	Average drawdown of 48 feet (+/- 5 feet) for all of GMA 13 calculated from the end of 2012 conditions to the year 2080
GMA 15 (Date DFC Adopted 10/14/2021)	
Aransas Gulf Coast Aquifer System	0 feet of drawdown of the Gulf Coast Aquifer System
Bee Gulf Coast Aquifer System	7 feet of drawdown of the Gulf Coast Aquifer System
GMA 16 (Date DFC Adopted 11/23/2021)	
Bee GCD Gulf Coast Aquifer System	93 feet of drawdown of the Gulf Coast Aquifer System
Live Oak UWCD Gulf Coast Aquifer System	45 feet of drawdown of the Gulf Coast Aquifer System
McMullen GCD Gulf Coast Aquifer System	12 feet of drawdown of the Gulf Coast Aquifer System
Kenedy County GCD Gulf Coast Aquifer System	27 feet of drawdown of the Gulf Coast Aquifer System
Brush Country GCD Gulf Coast Aquifer System	89 feet of drawdown of the Gulf Coast Aquifer System
Duval County GCD Gulf Coast Aquifer System	137 feet of drawdown of the Gulf Coast Aquifer System
San Patricio County GCD Gulf Coast Aquifer System	69 feet of drawdown of the Gulf Coast Aquifer System
Non-District Kleberg Gulf Coast Aquifer System	21 feet of drawdown of the Gulf Coast Aquifer System
Non-District Nueces Gulf Coast Aquifer System	26 feet of drawdown of the Gulf Coast Aquifer System

Table 7-2. Modeled Available Groundwater Values and Details on Related TWDB Model Runs

Aquifer	County	Region	River Basin	Modeled Available Groundwater (ac-ft/yr)					
				2030	2040	2050	2060	2070	2080
GMA 13 (Model Run: GR21-018 MAG, dated 7/25/2022)									
Carrizo-Wilcox	McMullen	N	Nueces	7,768	4,867	4,854	4,854	4,854	4,854
Queen City	McMullen	N	Nueces	3	3	3	3	3	3
GMA 15 (Model Run: GR21-020 MAG, dated 8/16/2022)									
Gulf Coast	Aransas	N	San Antonio-Nueces	1,547	1,547	1,547	1,547	1,547	1,547
Gulf Coast	Bee	N	San Antonio-Nueces	8,001	8,003	7,983	7,985	7,986	7,972
Gulf Coast	Bee	N	Nueces	26	26	26	26	26	26
GMA 16 (Model Run: GR21-021 MAG, dated 10/31/2022)									
Gulf Coast	Bee	N	Nueces	2,943	3,129	3,216	3,267	3,267	3,267
Gulf Coast	Bee	N	San Antonio-Nueces	32,604	34,650	35,616	36,171	36,171	36,171
Gulf Coast	Brooks	N	Nueces-Rio	10,246	10,706	11,014	11,476	12,874	12,874
Gulf Coast	Duval	N	Nueces	702	752	802	856	856	856
Gulf Coast	Duval	N	Nueces-Rio	43,636	46,776	49,924	53,070	53,070	53,070
Gulf Coast	Jim Wells	N	Nueces	1,186	1,186	1,186	1,186	1,362	1,362
Gulf Coast	Jim Wells	N	Nueces-Rio	17,604	18,366	19,164	19,852	22,736	22,736
Gulf Coast	Kenedy	N	Nueces-Rio	20,208	23,396	25,524	28,716	30,842	30,842
Gulf Coast	Kleberg	N	Nueces-Rio	18,078	19,978	21,374	23,274	24,284	24,284
Gulf Coast	Live Oak	N	Nueces	22,652	20,764	20,466	20,466	20,466	20,466
Gulf Coast	Live Oak	N	San Antonio-Nueces	136	124	122	122	122	122
Gulf Coast	McMullen	N	Nueces	1,020	1,020	1,020	1,020	1,020	1,020
Gulf Coast	Nueces	N	Nueces-Rio	1,512	1,574	1,632	1,690	1,690	1,690
Gulf Coast	Nueces	N	Nueces	12,062	12,582	13,080	13,596	13,636	13,636



Table 7-2. Modeled Available Groundwater Values and Details on Related TWDB Model Runs

Aquifer	County	Region	River Basin	Modeled Available Groundwater (ac-ft/yr)					
				2030	2040	2050	2060	2070	2080
Gulf Coast	San Patricio	N	Nueces	9,004	9,748	10,494	11,238	11,238	11,238
Gulf Coast	San Patricio	N	San Antonio-Nueces	<u>81,028</u>	<u>83,096</u>	<u>85,162</u>	<u>87,230</u>	<u>87,230</u>	<u>87,230</u>
Total Modeled Available Groundwater (acft/yr)				291,966	302,293	314,209	327,645	335,280	335,266
<i>Gulf Coast Aquifer Only (acft/yr)</i>				284,195	297,423	309,352	322,788	330,423	330,409

Region N did not perform any independent analyses using groundwater availability models (GAM) to estimate groundwater availability, nor were any alternative methods utilized by Region N to estimate groundwater availabilities. Although non-MAG information is shown in DB27 entered by TWDB staff in the 2026 RWP Source Availability report, the Coastal Bend RWPG will utilize no non-MAG groundwater supply numbers for groundwater source availabilities and these data should be removed from DB27.

Groundwater supplies in the 2026 Region N Water Plan are based on MAG projections provided by the TWDB, constrained by well capacity as reported in the TCEQ Public Water System (PWS) database. The average annual capacity was estimated to be ½ the rated or tested capacity to account for potential seasonal peaking conditions. For non-municipal groundwater users with groundwater capacities that are not readily obtained from publicly available sources, the groundwater supply was calculated based on TWDB historical water use records (2010-current) using the maximum groundwater use reported over the most recent decade. The final step in determining groundwater supplies was to compare the MAG-preserved well capacities to projected demands for each WUG that has historically relied on groundwater. Groundwater supply was set equal to the amount of capacity or water demand, whichever is lower.

For water user groups that use both groundwater and surface water supplies, it was generally assumed that the water user group would use groundwater up to its well capacity (limited by MAG) and then use available surface water per rights or contracts to total the projected water demand through combined groundwater and surface water supplies. However, for South Texas Water Authority (STWA) customers that rely on both surface and groundwater supplies, surface water supplies were allocated based on historical water use records provided by STWA accounting for modest growth subject to surface water availability, with the remaining water supplies provided by groundwater up to water demand subject to MAG and capacity constraints. Region N assumes that excess groundwater beyond demands would not be pumped and therefore would be available as a collective resource for future water management strategy development subject to adopted MAGs.

The TWDB allows the regional water planning groups to utilize a MAG peak factor for determining groundwater availability, if needed. The Coastal Bend RWPG is not requesting to utilize the MAG peak factor option in Region N.

8 Interregional Coordination

The TWDB guidance⁶ requires regional water planning groups to discuss and document interregional coordination efforts at multiple points during the planning cycle. Interregional coordination efforts may include but are not limited to, the region's use of regional liaisons, forming committees to meet with neighboring regions or their representatives, and authorizing RWPG administrators or planning group consultants to meet with neighboring regions or their representatives.

The Coastal Bend RWPG participates in interregional coordination through member participation in the Interregional Planning Council (Carl Crull, Other- Representative), Nueces River Authority's participation in the South Central Texas (Region L) Regional Water Planning Group (Travis Pruski, Region L County Representative), and technical consultant coordination with the Lower Colorado River (Region K), Lavaca (Region P), South Central Texas (Region L), and Rio Grande (Region M) consultants.

As Region N's liaison to Region L, Mr. Crull monitors Region L's agendas and supporting documentation for any issues that might affect the Coastal Bend region. Through Mr. Crull's participation in the Interregional Planning Council, he attended on behalf of HDR virtual meetings on March 9, May 30, August 15, 2023, and February 8, 2024. The Interregional Planning Council Report⁷ was provided to the TWDB on March 4, 2024.

The Nueces River Authority, administrator for the Coastal Bend Region N, participated in Region L RWPG meetings on February 2, 2023, May 4, 2023, August 3, 2023, November 2, 2024, and February 14, 2024.

Several coordination calls and emails between the Coastal Bend RWPG technical consultant and Lower Colorado River (Region K), South Central Texas (Region L), Lavaca (Region P), and Rio Grande (Region M) consultants have occurred and will continue through development of the 2026 plan.

There are no known interregional coordination conflicts for any water management strategies being considered in the 2026 Coastal Bend Plan.

On October 7, 2021, the Coastal Bend RWPG held a preplanning public meeting to discuss how the planning group will conduct interregional coordination and collaboration regarding water management strategies. At this meeting, the Coastal Bend RWPG considered the 2020's Interregional Planning Council recommended actions assigned to RWPGs. The Coastal Bend RWPG received a letter from the Interregional Planning Council on February 12, 2024, with suggestions for 2026 Regional Water Plan development which will be considered during plan development.

⁶ Second Amended General Guidelines for Development of the 2026 Regional Water Plans, September 2023.

⁷ Interregional Planning Council, 2024 Report to the Texas Water Development Board, March 4, 2024.

9 Infeasible Water Management Strategies or Projects from the Coastal Bend 2021 Regional Water Plan

A new requirement for this cycle of regional planning is to identify infeasible water management strategies and projects that were recommended in the 2021 Regional Water Plans. According to TWDB guidance, “At minimum, RWPGs must review the status of recommended strategies and projects with an online decade of 2020 in the 2021 RWPGs.” A list of these recommended strategies and projects were provided to Region N in January 2023 in supporting data spreadsheets. RWPGs are also encouraged to review additional near-term strategies or projects with lengthy permitting or construction processes. RWPGs must document the region’s process for determining infeasible WMSs.

In accordance with the Texas Water Code (§16.053(h)(10)), a strategy or project is considered infeasible if: “...the proposed sponsor of the water management strategy or project has not taken an affirmative vote or other action to make expenditures necessary to construct or file applications for permits required in connection with the implementation of the water management strategy or project under federal or state law on a schedule that is consistent with the completion of the implementation of the water management strategy or project by the time the water management strategy or project is projected by the regional water plan or the state water plan to be needed.” An infeasibility review is not required for strategies or projects that do not require a permit or involve construction (i.e. water conservation). TWDB recognizes that information may be difficult to obtain for some categories of water users, such as those projects associated with county-wide water user groups. A region may therefore not be able to determine infeasibility for some strategies or projects. If responses are not received from a WUG or sponsor regarding status of a WMS, it may still be considered feasible.

In accordance with contract guidance for the 2021 RWPGs, recommended strategies and projects with an online decade of 2020 were required to be online and delivering water by January 5, 2023. If any such strategies and projects are not currently implemented by this date and the project sponsor has not taken any affirmative steps towards implementation, the 2021 RWP must be amended to remove or revise the strategy or project to make them feasible. Affirmative steps by the sponsor may include but are not limited to 1) spending money on the strategy or project, 2) voting to spend money on the strategy or project, or 3) applying for a federal or state permit for the strategy or project.

The following WUGs were identified as showing WMS in the 2021 Plan for the 2020 decade. Sponsors with water management strategies shown as being implemented by the 2020 decade were contacted and status update is included below. Note: County-wide strategies were not targeted for outreach.

- City of Alice- Brackish Groundwater Desalination
 - This is a feasible strategy and should remain in the 2021 Plan. Active steps have been taken and project is anticipated to be delivering finished water by end of 2024.
- El Oso WSC- Additional groundwater well
 - Sponsor was contacted. El Oso refurbished an existing well. Awaiting additional information on capacity.

- San Diego MUD 1- Additional groundwater well
 - Sponsor was contacted. No additional info available.
- TDCJ Chase Field- Additional groundwater well
 - Sponsor was contacted. No additional info available.
- Nueces County WCID 3- Local Balancing Storage Reservoir
 - On February 20th, we received information from sponsor that they have identified a 100-acre tract that will be developed for flood protection and water supply storage benefits.
- Corpus Christi- O.N. Stevens WTP Improvements
 - This is a feasible strategy and should remain in the 2021 Plan. Active steps have been taken and project is anticipated to be completed in 2024.



The Coastal Bend RWPG discussed 2021 Region N Plan strategies with an online decade of Year 2020 at the January 26, 2023, Region N meeting and TWDB supporting data spreadsheets for consideration of infeasible strategies at the October 12, 2023 meeting.

The Coastal Bend RWPG adopted the following process on October 12, 2023 for determining infeasible water management strategies for the Coastal Bend Regional Water Plan.

- Consider TWDB guidance regarding identifying infeasible water management strategies recommended in the 2021 Region N Plan.
- Review supporting data⁸ provided by TWDB on water management strategies (WMS) and associated projects from the 2021 Region N Plan.
- Conduct outreach to project sponsors to determine project status and assess infeasibility.
- Present the results of outreach, and analysis where applicable, at a Coastal Bend RWPG meeting. This must occur at the same meeting where the RWPG presents its process for identifying potentially feasible WMSs in the current plan under Task 5A.
- If responses are not received from a WUG or sponsor regarding status of a WMS, it will remain feasible (i.e. no action will be taken to warrant amendment to the 2021 Plan). WMSs previously identified for County-Other WUGs will remain feasible.
- The Coastal Bend RWPG will include in the Technical Memorandum a list of RWPG-identified infeasible strategies for projects from the 2021 RWPs, or a statement that no infeasible strategies or projects were identified. If infeasible strategies are identified, the RWPG will prepare an amendment to the 2021 Regional Water Plan to revise/remove infeasible strategies and submit to the TWDB by the June 5, 2024, deadline.

Based on the results of sponsor outreach and discussion by the Coastal Bend RWPG for projects that were unable to be confirmed, no infeasible strategies or projects were identified.

⁸ Sent by TWDB to Region N on January 10, 2013. Includes the following data sheets that were reviewed: '2022SWPWMS&ProjectFeasibilityAnalysis_WMSWorkbook+RegN.xls'
2022SWPWMS&ProjectFeasibilityAnalysis_WMSProjectWorkbook+RegN.xlsx and
2022SWPWMS&ProjectFeasibilityAnalysis_WMSDetails&ProjectRelationships.xlsx



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Appendix A

DB27 Reports



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Appendix A: DB 22 Report # 1- WUG Population Projections

DRAFT Region N Water User Group (WUG) Population

	WUG Population					
	2030	2040	2050	2060	2070	2080
Aransas County Total	24,415	24,299	23,708	23,195	22,691	22,196
Aransas County / San Antonio-Nueces Basin Total	24,415	24,299	23,708	23,195	22,691	22,196
Aransas Pass	842	837	816	798	780	763
Rincon WSC	23	23	22	23	22	21
Rockport	18,530	18,443	17,997	17,611	17,232	16,859
County-Other	5,020	4,996	4,873	4,763	4,657	4,553
Bee County Total	31,363	31,563	31,337	31,030	30,725	30,422
Bee County / Nueces Basin Total	525	644	797	1,003	1,279	1,645
El Oso WSC*	418	542	705	924	1,214	1,597
County-Other	107	102	92	79	65	48
Bee County / San Antonio-Nueces Basin Total	30,838	30,919	30,540	30,027	29,446	28,777
Beeville	13,233	13,852	14,552	15,394	16,317	17,333
El Oso WSC*	54	70	91	119	156	206
Pettus MUD	451	480	512	551	593	640
Skidmore WSC	649	667	687	718	753	794
TDCJ Chase Field	4,362	4,362	4,362	4,362	4,362	4,362
County-Other	12,089	11,488	10,336	8,883	7,265	5,442
Brooks County Total	6,895	6,702	6,493	6,256	6,020	5,785
Brooks County / Nueces-Rio Grande Basin Total	6,895	6,702	6,493	6,256	6,020	5,785
Falfurrias	4,331	4,285	4,305	4,361	4,481	4,693
County-Other	2,564	2,417	2,188	1,895	1,539	1,092
Duval County Total	9,261	8,828	8,436	8,108	7,782	7,458
Duval County / Nueces Basin Total	2,546	2,384	2,237	2,106	1,962	1,796
Freer WCID	2,231	2,104	1,987	1,882	1,772	1,654
County-Other	315	280	250	224	190	142
Duval County / Nueces-Rio Grande Basin Total	6,715	6,444	6,199	6,002	5,820	5,662
Duval County CRD	1,185	1,119	1,055	1,000	941	879
Freer WCID	23	21	20	19	18	17
San Diego MUD 1	3,748	3,746	3,732	3,733	3,803	3,974
County-Other	1,759	1,558	1,392	1,250	1,058	792

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Population

	WUG Population					
	2030	2040	2050	2060	2070	2080
Jim Wells County Total	38,692	38,400	37,573	36,430	35,294	34,164
Jim Wells County / Nueces Basin Total	2,668	2,337	1,934	1,417	841	189
County-Other	2,668	2,337	1,934	1,417	841	189
Jim Wells County / Nueces-Rio Grande Basin Total	36,024	36,063	35,639	35,013	34,453	33,975
Alice	20,549	21,799	22,830	24,021	25,441	27,158
Jim Wells County FWSD 1	1,669	1,667	1,668	1,678	1,699	1,734
Orange Grove	1,434	1,399	1,369	1,345	1,331	1,327
Premont	2,318	2,272	2,231	2,201	2,186	2,189
San Diego MUD 1	743	767	792	824	861	907
County-Other	9,311	8,159	6,749	4,944	2,935	660
Kenedy County Total	336	306	283	266	249	232
Kenedy County / Nueces-Rio Grande Basin Total	336	306	283	266	249	232
County-Other	336	306	283	266	249	232
Kleberg County Total	33,923	34,901	36,068	37,772	39,466	41,151
Kleberg County / Nueces-Rio Grande Basin Total	33,923	34,901	36,068	37,772	39,466	41,151
Baffin Bay WSC	806	830	859	900	943	983
Kingsville	27,641	28,437	29,380	30,760	32,131	33,494
Naval Air Station Kingsville	55	57	59	61	63	64
Ricardo WSC	3,321	3,417	3,537	3,710	3,880	4,052
Riviera Water System	831	856	886	928	972	1,014
County-Other	1,269	1,304	1,347	1,413	1,477	1,544
Live Oak County Total	11,093	10,740	10,499	10,473	10,447	10,421
Live Oak County / Nueces Basin Total	11,093	10,740	10,499	10,473	10,447	10,421
El Oso WSC*	758	827	827	827	827	827
George West	1,707	1,550	1,426	1,311	1,206	1,111
McCoy WSC*	53	42	33	26	20	16
Old Marbach School WSC	587	560	539	531	522	513
Three Rivers	2,624	2,577	2,565	2,550	2,537	2,527
County-Other	5,364	5,184	5,109	5,228	5,335	5,427

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Population

	WUG Population					
	2030	2040	2050	2060	2070	2080
McMullen County Total	546	511	493	455	417	379
McMullen County / Nueces Basin Total	546	511	493	455	417	379
Three Rivers	72	73	67	61	56	51
County-Other	474	438	426	394	361	328
Nueces County Total	364,690	371,130	371,485	369,261	367,050	364,851
Nueces County / Nueces Basin Total	33,332	33,921	33,952	33,747	33,542	33,338
Corpus Christi	21,936	22,324	22,345	22,210	22,077	21,944
Nueces County WCID 3	4,057	4,130	4,133	4,107	4,081	4,055
Nueces WSC	279	283	283	283	282	282
River Acres WSC	2,017	2,052	2,054	2,042	2,028	2,014
Violet WSC	91	92	92	92	91	91
County-Other	4,952	5,040	5,045	5,013	4,983	4,952
Nueces County / Nueces-Rio Grande Basin Total	331,232	337,081	337,405	335,387	333,381	331,387
Bishop	3,265	3,323	3,326	3,305	3,282	3,261
Corpus Christi	291,437	296,587	296,869	295,082	293,305	291,538
Corpus Christi Naval Air Station	1,360	1,384	1,385	1,380	1,374	1,368
Driscoll	641	652	654	649	645	640
Nueces County WCID 3	7,807	7,946	7,953	7,902	7,852	7,802
Nueces County WCID 4	2,705	2,754	2,757	2,740	2,721	2,703
Nueces WSC	5,698	5,788	5,798	5,785	5,772	5,759
Violet WSC	2,647	2,696	2,698	2,680	2,663	2,645
County-Other	15,672	15,951	15,965	15,864	15,767	15,671
Nueces County / San Antonio-Nueces Basin Total	126	128	128	127	127	126
Nueces County WCID 4	12	12	12	12	12	12
County-Other	114	116	116	115	115	114
San Patricio County Total	71,973	74,569	75,816	75,578	75,344	75,114
San Patricio County / Nueces Basin Total	7,541	7,443	7,056	6,358	5,608	4,797
Mathis	3,819	3,431	3,274	3,414	3,553	3,690
County-Other	3,722	4,012	3,782	2,944	2,055	1,107
San Patricio County / San Antonio-Nueces Basin Total	64,432	67,126	68,760	69,220	69,736	70,317
Aransas Pass	8,585	8,591	8,611	8,671	8,729	8,787
Gregory	1,644	1,593	1,575	1,602	1,628	1,654

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Population

	WUG Population					
	2030	2040	2050	2060	2070	2080
Ingleside	9,741	10,019	10,156	10,146	10,135	10,125
Odem	2,984	2,934	2,919	2,955	2,990	3,026
Portland	22,106	23,940	25,926	28,076	30,405	32,927
Rincon WSC	3,939	4,149	4,246	4,213	4,180	4,149
Sinton	4,689	4,602	4,575	4,634	4,692	4,749
Taft	2,422	2,327	2,293	2,338	2,382	2,425
County-Other	8,322	8,971	8,459	6,585	4,595	2,475
Region N Population Total	593,187	601,949	602,191	598,824	595,485	592,173

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

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Appendix A: DB 22 Report # 2- WUG Water Demand Projections

DRAFT Region N Water User Group (WUG) Demand

	WUG Demand (acre-feet per year)					
	2030	2040	2050	2060	2070	2080
Aransas County Total	3,966	3,934	3,840	3,758	3,677	3,599
Aransas County / San Antonio-Nueces Basin Total	3,966	3,934	3,840	3,758	3,677	3,599
Aransas Pass	116	115	112	110	107	105
Rincon WSC	2	2	2	2	2	2
Rockport	3,266	3,240	3,162	3,094	3,027	2,962
County-Other	530	525	512	500	489	478
Livestock	52	52	52	52	52	52
Bee County Total	9,332	9,395	9,432	9,473	9,526	9,353
Bee County / Nueces Basin Total	563	588	619	661	717	551
El Oso WSC*	83	108	141	184	242	318
County-Other	14	14	12	11	9	6
Mining	239	239	239	239	239	0
Livestock	101	101	101	101	101	101
Irrigation	126	126	126	126	126	126
Bee County / San Antonio-Nueces Basin Total	8,769	8,807	8,813	8,812	8,809	8,802
Beeville	2,805	2,927	3,075	3,253	3,448	3,663
El Oso WSC*	11	14	18	24	31	41
Pettus MUD	65	68	73	79	85	91
Skidmore WSC	103	105	108	113	119	125
TDCJ Chase Field	1,295	1,292	1,292	1,292	1,292	1,292
County-Other	1,631	1,542	1,388	1,192	975	731
Livestock	467	467	467	467	467	467
Irrigation	2,392	2,392	2,392	2,392	2,392	2,392
Brooks County Total	2,566	2,532	2,509	2,488	2,477	2,480
Brooks County / Nueces-Rio Grande Basin Total	2,566	2,532	2,509	2,488	2,477	2,480
Falfurrias	1,162	1,147	1,152	1,167	1,199	1,256
County-Other	313	294	266	230	187	133
Mining	16	16	16	16	16	16
Livestock	478	478	478	478	478	478
Irrigation	597	597	597	597	597	597
Duval County Total	4,181	4,108	4,046	3,996	3,948	3,907
Duval County / Nueces Basin Total	675	640	611	585	556	524
Freer WCID	496	465	440	417	392	366

*A single asterisk next to a WUG's name denotes that the WUG is split by more than one planning region.

DRAFT Region N Water User Group (WUG) Demand

	WUG Demand (acre-feet per year)					
	2030	2040	2050	2060	2070	2080
County-Other	38	34	30	27	23	17
Livestock	40	40	40	40	40	40
Irrigation	101	101	101	101	101	101
Duval County / Nueces-Rio Grande Basin Total	3,506	3,468	3,435	3,411	3,392	3,383
Duval County CRD	161	152	143	135	127	119
Freer WCID	5	5	4	4	4	4
San Diego MUD 1	678	675	672	673	685	716
County-Other	215	189	169	152	128	96
Mining	6	6	6	6	7	7
Livestock	526	526	526	526	526	526
Irrigation	1,915	1,915	1,915	1,915	1,915	1,915
Jim Wells County Total	9,292	9,290	9,233	9,140	9,065	9,011
Jim Wells County / Nueces Basin Total	775	728	672	601	522	432
County-Other	369	322	266	195	116	26
Livestock	86	86	86	86	86	86
Irrigation	320	320	320	320	320	320
Jim Wells County / Nueces-Rio Grande Basin Total	8,517	8,562	8,561	8,539	8,543	8,579
Alice	4,009	4,235	4,436	4,667	4,943	5,276
Jim Wells County FWSD 1	112	112	112	113	114	117
Orange Grove	364	354	347	341	337	336
Premont	554	541	532	524	521	522
San Diego MUD 1	134	138	143	148	155	163
County-Other	1,287	1,122	928	680	403	91
Manufacturing	87	90	93	96	100	104
Livestock	625	625	625	625	625	625
Irrigation	1,345	1,345	1,345	1,345	1,345	1,345
Kenedy County Total	809	794	782	773	764	755
Kenedy County / Nueces-Rio Grande Basin Total	809	794	782	773	764	755
County-Other	175	160	148	139	130	121
Mining	3	3	3	3	3	3
Livestock	631	631	631	631	631	631

*A single asterisk next to a WUG's name denotes that the WUG is split by more than one planning region.

DRAFT Region N Water User Group (WUG) Demand

	WUG Demand (acre-feet per year)					
	2030	2040	2050	2060	2070	2080
Kleberg County Total	6,792	6,955	7,169	7,460	7,750	8,037
Kleberg County / Nueces-Rio Grande Basin Total	6,792	6,955	7,169	7,460	7,750	8,037
Baffin Bay WSC	129	132	136	143	150	156
Kingsville	3,907	4,002	4,135	4,329	4,522	4,714
Naval Air Station Kingsville	264	273	282	292	301	306
Ricardo WSC	385	394	408	428	447	467
Riviera Water System	128	131	136	142	149	155
County-Other	208	212	219	230	240	251
Manufacturing	1,088	1,128	1,170	1,213	1,258	1,305
Mining	10	10	10	10	10	10
Livestock	532	532	532	532	532	532
Irrigation	141	141	141	141	141	141
Live Oak County Total	7,233	7,282	7,354	7,457	7,562	6,414
Live Oak County / Nueces Basin Total	7,233	7,282	7,354	7,457	7,562	6,414
El Oso WSC*	152	165	165	165	165	165
George West	304	275	253	233	214	197
McCoy WSC*	6	5	4	3	2	2
Old Marbach School WSC	86	82	79	78	76	75
Three Rivers	444	434	432	430	427	426
County-Other	639	614	605	619	632	643
Manufacturing	2,843	2,948	3,057	3,170	3,287	3,409
Mining	1,264	1,264	1,264	1,264	1,264	2
Livestock	651	651	651	651	651	651
Irrigation	844	844	844	844	844	844
McMullen County Total	4,947	4,942	4,939	4,934	4,929	388
McMullen County / Nueces Basin Total	4,947	4,942	4,939	4,934	4,929	388
Three Rivers	12	12	11	10	9	9
County-Other	61	56	54	50	46	42
Manufacturing	34	34	34	34	34	34
Mining	4,538	4,538	4,538	4,538	4,538	1
Livestock	278	278	278	278	278	278
Irrigation	24	24	24	24	24	24
Nueces County Total	124,887	125,890	125,981	125,576	125,270	126,718
Nueces County / Nueces Basin Total	7,949	8,072	8,103	8,082	8,055	8,049
Corpus Christi	4,136	4,192	4,196	4,171	4,146	4,121

*A single asterisk next to a WUG's name denotes that the WUG is split by more than one planning region.

DRAFT Region N Water User Group (WUG) Demand

	WUG Demand (acre-feet per year)					
	2030	2040	2050	2060	2070	2080
Nueces County WCID 3	1,181	1,198	1,199	1,192	1,184	1,177
Nueces WSC	46	46	47	46	46	46
River Acres WSC	315	319	320	318	316	313
Violet WSC	8	8	8	8	8	7
County-Other	623	630	631	627	623	619
Manufacturing	736	736	736	736	737	765
Mining	795	834	857	875	886	892
Livestock	40	40	40	40	40	40
Irrigation	69	69	69	69	69	69
Nueces County / Nueces-Rio Grande Basin Total	114,448	115,327	115,387	115,004	114,719	116,082
Bishop	550	558	558	555	551	547
Corpus Christi	54,948	55,693	55,746	55,410	55,077	54,745
Corpus Christi Naval Air Station	2,078	2,111	2,112	2,105	2,096	2,086
Driscoll	80	81	81	81	80	80
Nueces County WCID 3	2,271	2,306	2,308	2,293	2,279	2,264
Nueces County WCID 4	1,364	1,385	1,386	1,378	1,368	1,359
Nueces WSC	940	951	952	951	948	946
Violet WSC	220	221	222	220	219	218
County-Other	1,970	1,994	1,995	1,984	1,972	1,960
Manufacturing	47,158	47,158	47,158	47,158	47,260	49,008
Mining	1	1	1	1	1	1
Steam Electric Power	2,201	2,201	2,201	2,201	2,201	2,201
Livestock	177	177	177	177	177	177
Irrigation	490	490	490	490	490	490
Nueces County / San Antonio-Nueces Basin Total	2,490	2,491	2,491	2,490	2,496	2,587
Nueces County WCID 4	6	6	6	6	6	6
County-Other	14	15	15	14	14	14
Manufacturing	2,469	2,469	2,469	2,469	2,475	2,566
Livestock	1	1	1	1	1	1
San Patricio County Total	79,493	79,833	80,047	80,075	80,109	80,147
San Patricio County / Nueces Basin Total	36,396	36,387	36,339	36,243	36,142	36,031
Mathis	469	419	400	417	434	451
County-Other	514	552	520	405	283	152
Manufacturing	34,707	34,710	34,713	34,715	34,719	34,722
Livestock	157	157	157	157	157	157

*A single asterisk next to a WUG's name denotes that the WUG is split by more than one planning region.

DRAFT Region N Water User Group (WUG) Demand

	WUG Demand (acre-feet per year)					
	2030	2040	2050	2060	2070	2080
Irrigation	549	549	549	549	549	549
San Patricio County / San Antonio-Nueces Basin Total	43,097	43,446	43,708	43,832	43,967	44,116
Aransas Pass	1,185	1,180	1,183	1,191	1,199	1,207
Gregory	270	260	257	262	266	270
Ingleside	986	1,008	1,022	1,021	1,020	1,019
Odem	432	423	421	426	431	437
Portland	3,555	3,837	4,155	4,500	4,873	5,277
Rincon WSC	378	396	405	402	399	396
Sinton	1,073	1,051	1,045	1,058	1,071	1,084
Taft	337	323	318	324	330	336
County-Other	1,150	1,233	1,163	905	632	341
Manufacturing	25,998	26,000	26,002	26,005	26,007	26,010
Mining	88	90	92	93	94	94
Steam Electric Power	2,576	2,576	2,576	2,576	2,576	2,576
Livestock	121	121	121	121	121	121
Irrigation	4,948	4,948	4,948	4,948	4,948	4,948
Region N Demand Total	253,498	254,955	255,332	255,130	255,077	250,809

*A single asterisk next to a WUG's name denotes that the WUG is split by more than one planning region.

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Appendix A: DB 22 Report # 4- Source Water Availability

DRAFT Region N Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	County	Basin	Salinity*	2030	2040	2050	2060	2070	2080
Groundwater Source Availability Total				149,009	152,348	158,115	164,737	168,555	168,541
Carrizo-Wilcox Aquifer	McMullen	Nueces	Fresh	7,768	4,867	4,854	4,854	4,854	4,854
Gulf Coast Aquifer System	Aransas	San Antonio-Nueces	Fresh	1,547	1,547	1,547	1,547	1,547	1,547
Gulf Coast Aquifer System	Bee	Nueces	Fresh	1,007	1,069	1,098	1,115	1,115	1,115
Gulf Coast Aquifer System	Bee	San Antonio-Nueces	Fresh/Brackish	18,869	19,553	19,855	20,042	20,043	20,029
Gulf Coast Aquifer System	Brooks	Nueces-Rio Grande	Fresh	5,123	5,353	5,507	5,738	6,437	6,437
Gulf Coast Aquifer System	Duval	Nueces	Fresh	351	376	401	428	428	428
Gulf Coast Aquifer System	Duval	Nueces-Rio Grande	Fresh	21,818	23,388	24,962	26,535	26,535	26,535
Gulf Coast Aquifer System	Jim Wells	Nueces	Fresh	593	593	593	593	681	681
Gulf Coast Aquifer System	Jim Wells	Nueces-Rio Grande	Fresh/Brackish	8,802	9,183	9,582	9,926	11,368	11,368
Gulf Coast Aquifer System	Kenedy	Nueces-Rio Grande	Fresh	10,104	11,698	12,762	14,358	15,421	15,421
Gulf Coast Aquifer System	Kleberg	Nueces-Rio Grande	Fresh	9,039	9,989	10,687	11,637	12,142	12,142
Gulf Coast Aquifer System	Live Oak	Nueces	Fresh	11,326	10,382	10,233	10,233	10,233	10,233
Gulf Coast Aquifer System	Live Oak	San Antonio-Nueces	Fresh	68	62	61	61	61	61
Gulf Coast Aquifer System	McMullen	Nueces	Fresh	510	510	510	510	510	510
Gulf Coast Aquifer System	Nueces	Nueces	Fresh	756	787	816	845	845	845

* Salinity field indicates whether the source availability is considered ‘fresh’ (less than 1,000 mg/L), ‘brackish’ (1,000 to 10,000 mg/L), ‘saline’ (10,001 mg/L to 34,999 mg/L), or ‘seawater’ (35,000 mg/L or greater). Sources can also be labeled as ‘fresh/brackish’ or ‘brackish/saline’, if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, ‘reservoir’ is applied to all reservoir sources.

DRAFT Region N Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	County	Basin	Salinity*	2030	2040	2050	2060	2070	2080
Gulf Coast Aquifer System	Nueces	Nueces-Rio Grande	Fresh	6,031	6,291	6,540	6,798	6,818	6,818
Gulf Coast Aquifer System	Nueces	San Antonio-Nueces	Fresh	78	81	84	87	87	87
Gulf Coast Aquifer System	San Patricio	Nueces	Fresh	4,502	4,874	5,247	5,619	5,619	5,619
Gulf Coast Aquifer System	San Patricio	San Antonio-Nueces	Fresh/Brackish	40,514	41,548	42,581	43,615	43,615	43,615
Queen City Aquifer	McMullen	Nueces	Fresh	3	3	3	3	3	3
Sparta Aquifer	McMullen	Nueces	Fresh	0	0	0	0	0	0
Yegua-Jackson Aquifer	Duval	Nueces	Fresh	1	1	1	2	2	2
Yegua-Jackson Aquifer	Live Oak	Nueces	Fresh	19	13	11	11	11	11
Yegua-Jackson Aquifer	McMullen	Nueces	Fresh	180	180	180	180	180	180

Reuse Source Availability Total				1,128	1,128	1,128	1,128	1,128	1,128
Direct Reuse	Nueces	Nueces-Rio Grande	Fresh	1,128	1,128	1,128	1,128	1,128	1,128
Direct Reuse	San Patricio	San Antonio-Nueces	Fresh	0	0	0	0	0	0

Surface Water Source Availability Total				113,918	112,001	110,108	108,219	106,333	101,454
Corpus Christi-Choke Canyon Lake/Reservoir System	Reservoir**	Nueces	Fresh	110,766	108,766	106,766	104,766	102,766	97,766
Nueces Livestock Local Supply	Bee	Nueces	Fresh	44	44	44	44	44	44
Nueces Livestock Local Supply	Duval	Nueces	Fresh	28	28	28	28	28	28
Nueces Livestock Local Supply	Jim Wells	Nueces	Fresh	33	33	33	33	33	33

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

DRAFT Region N Source Total Availability

Source Name	County	Basin	Salinity*	Source Availability (acre-feet per year)					
				2030	2040	2050	2060	2070	2080
Nueces Livestock Local Supply	Live Oak	Nueces	Fresh	211	211	211	211	211	211
Nueces Livestock Local Supply	McMullen	Nueces	Fresh	295	295	295	295	295	295
Nueces Livestock Local Supply	Nueces	Nueces	Fresh	50	50	50	50	50	50
Nueces Livestock Local Supply	San Patricio	Nueces	Fresh	83	83	83	83	83	83
Nueces Run-of-River	Live Oak	Nueces	Fresh	1,177	1,260	1,367	1,478	1,592	1,713
Nueces Run-of-River	Nueces	Nueces	Fresh	384	384	384	384	384	384
Nueces-Rio Grande Livestock Local Supply	Brooks	Nueces-Rio Grande	Fresh	135	135	135	135	135	135
Nueces-Rio Grande Livestock Local Supply	Duval	Nueces-Rio Grande	Fresh	2	2	2	2	2	2
Nueces-Rio Grande Livestock Local Supply	Jim Wells	Nueces-Rio Grande	Fresh	179	179	179	179	179	179
Nueces-Rio Grande Livestock Local Supply	Nueces	Nueces-Rio Grande	Fresh	2	2	2	2	2	2
Nueces-Rio Grande Run-of-River	Nueces	Nueces-Rio Grande	Fresh	0	0	0	0	0	0
San Antonio-Nueces Livestock Local Supply	Aransas	San Antonio-Nueces	Fresh	29	29	29	29	29	29
San Antonio-Nueces Livestock Local Supply	Bee	San Antonio-Nueces	Fresh	420	420	420	420	420	420
San Antonio-Nueces Livestock Local Supply	San Patricio	San Antonio-Nueces	Fresh	80	80	80	80	80	80
San Antonio-Nueces Run-of-River	Bee	San Antonio-Nueces	Fresh	0	0	0	0	0	0

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

DRAFT Region N Source Total Availability

				Source Availability (acre-feet per year)					
Source Name	County	Basin	Salinity*	2030	2040	2050	2060	2070	2080
San Antonio-Nueces Run-of-River	San Patricio	San Antonio-Nueces	Fresh	0	0	0	0	0	0
Region N Source Availability Total				264,055	265,477	269,351	274,084	276,016	271,123

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

** Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

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Appendix A: DB 22 Report # 5- WUG Existing Water Supplies

DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Aransas County WUG Total			3,762	3,731	3,638	3,558	3,478	3,402
Aransas County / San Antonio-Nueces Basin WUG Total			3,762	3,731	3,638	3,558	3,478	3,402
Aransas Pass	N	Corpus Christi-Choke Canyon Lake/Reservoir System	27	27	26	26	25	25
Aransas Pass	P	Texana Lake/Reservoir	27	27	26	26	25	25
Rincon WSC	N	Corpus Christi-Choke Canyon Lake/Reservoir System	1	1	1	1	1	1
Rincon WSC	P	Texana Lake/Reservoir	1	1	1	1	1	1
Rockport	N	Corpus Christi-Choke Canyon Lake/Reservoir System	1,586	1,573	1,534	1,500	1,466	1,434
Rockport	P	Texana Lake/Reservoir	1,586	1,573	1,534	1,500	1,467	1,434
County-Other	N	Gulf Coast Aquifer System Aransas County	482	477	464	452	441	430
Livestock	N	Gulf Coast Aquifer System Aransas County	23	23	23	23	23	23
Livestock	N	Local Surface Water Supply	29	29	29	29	29	29
Bee County WUG Total			7,539	7,686	7,866	8,082	8,323	8,523
Bee County / Nueces Basin WUG Total			414	434	458	486	522	495
El Oso WSC*	L	Carrizo-Wilcox Aquifer Wilson County	110	130	154	182	218	265
County-Other	N	Gulf Coast Aquifer System Bee County	3	3	3	3	3	3
Mining	N	Gulf Coast Aquifer System Bee County	74	74	74	74	74	0
Livestock	N	Gulf Coast Aquifer System Bee County	91	91	91	91	91	91
Livestock	N	Local Surface Water Supply	10	10	10	10	10	10
Irrigation	N	Gulf Coast Aquifer System Bee County	126	126	126	126	126	126
Bee County / San Antonio-Nueces Basin WUG Total			7,125	7,252	7,408	7,596	7,801	8,028
Beeville	N	Corpus Christi-Choke Canyon Lake/Reservoir System	1,243	1,365	1,513	1,691	1,886	2,101

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Beeville	N	Gulf Coast Aquifer System Bee County	1,255	1,255	1,255	1,255	1,255	1,255
El Oso WSC*	L	Carrizo-Wilcox Aquifer Wilson County	15	17	20	24	28	34
Pettus MUD	N	Gulf Coast Aquifer System Bee County	65	68	73	79	85	91
Skidmore WSC	N	Gulf Coast Aquifer System Bee County	81	81	81	81	81	81
TDCJ Chase Field	N	Gulf Coast Aquifer System Bee County	1,290	1,290	1,290	1,290	1,290	1,290
County-Other	N	Gulf Coast Aquifer System Bee County	317	317	317	317	317	317
Livestock	N	Gulf Coast Aquifer System Bee County	467	467	467	467	467	467
Irrigation	N	Gulf Coast Aquifer System Bee County	2,392	2,392	2,392	2,392	2,392	2,392
Irrigation	N	San Antonio-Nueces Run-of-River	0	0	0	0	0	0
Brooks County WUG Total			2,285	2,270	2,275	2,290	2,322	2,379
Brooks County / Nueces-Rio Grande Basin WUG Total			2,285	2,270	2,275	2,290	2,322	2,379
Falfurrias	N	Gulf Coast Aquifer System Brooks County	1,162	1,147	1,152	1,167	1,199	1,256
County-Other	N	Gulf Coast Aquifer System Brooks County	32	32	32	32	32	32
Mining	N	Gulf Coast Aquifer System Brooks County	16	16	16	16	16	16
Livestock	N	Gulf Coast Aquifer System Brooks County	343	343	343	343	343	343
Livestock	N	Local Surface Water Supply	135	135	135	135	135	135
Irrigation	N	Gulf Coast Aquifer System Brooks County	597	597	597	597	597	597
Duval County WUG Total			4,017	3,973	3,932	3,896	3,861	3,826
Duval County / Nueces Basin WUG Total			637	606	581	558	533	507
Freer WCID	N	Gulf Coast Aquifer System Duval County	496	465	440	417	392	366
County-Other	N	Gulf Coast Aquifer System Duval County	0	0	0	0	0	0

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Livestock	N	Gulf Coast Aquifer System Duval County	40	40	40	40	40	40
Irrigation	N	Gulf Coast Aquifer System Duval County	101	101	101	101	101	101
Duval County / Nueces-Rio Grande Basin WUG Total			3,380	3,367	3,351	3,338	3,328	3,319
Duval County CRD	N	Gulf Coast Aquifer System Duval County	161	152	143	135	127	119
Freer WCID	N	Gulf Coast Aquifer System Duval County	5	5	4	4	4	4
San Diego MUD 1	N	Gulf Coast Aquifer System Duval County	740	736	731	726	723	722
San Diego MUD 1	N	Gulf Coast Aquifer System Jim Wells County	27	27	26	26	26	26
County-Other	N	Gulf Coast Aquifer System Duval County	0	0	0	0	0	0
Mining	N	Gulf Coast Aquifer System Duval County	6	6	6	6	7	7
Livestock	N	Gulf Coast Aquifer System Duval County	526	526	526	526	526	526
Irrigation	N	Gulf Coast Aquifer System Duval County	1,915	1,915	1,915	1,915	1,915	1,915
Jim Wells County WUG Total			7,450	7,657	7,848	8,071	8,344	8,681
Jim Wells County / Nueces Basin WUG Total			406	406	406	406	406	406
County-Other	N	Gulf Coast Aquifer System Jim Wells County	0	0	0	0	0	0
Livestock	N	Gulf Coast Aquifer System Jim Wells County	86	86	86	86	86	86
Irrigation	N	Gulf Coast Aquifer System Jim Wells County	320	320	320	320	320	320
Jim Wells County / Nueces-Rio Grande Basin WUG Total			7,044	7,251	7,442	7,665	7,938	8,275
Alice	N	Corpus Christi-Choke Canyon Lake/Reservoir System	1,105	1,218	1,319	1,434	1,572	1,739
Alice	N	Gulf Coast Aquifer System Jim Wells County	1,568	1,568	1,568	1,568	1,568	1,568
Alice	P	Texana Lake/Reservoir	1,106	1,219	1,319	1,435	1,573	1,739
Jim Wells County FWSD 1	N	Gulf Coast Aquifer System Jim Wells County	112	112	112	113	114	117

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Orange Grove	N	Gulf Coast Aquifer System Jim Wells County	364	354	347	341	337	336
Premont	N	Gulf Coast Aquifer System Jim Wells County	554	541	532	524	521	522
San Diego MUD 1	N	Gulf Coast Aquifer System Duval County	146	150	155	160	163	164
San Diego MUD 1	N	Gulf Coast Aquifer System Jim Wells County	5	5	6	6	6	6
County-Other	N	Gulf Coast Aquifer System Jim Wells County	35	35	35	35	35	35
Manufacturing	N	Gulf Coast Aquifer System Jim Wells County	79	79	79	79	79	79
Livestock	N	Gulf Coast Aquifer System Jim Wells County	575	575	575	575	575	575
Livestock	N	Local Surface Water Supply	50	50	50	50	50	50
Irrigation	N	Gulf Coast Aquifer System Jim Wells County	1,345	1,345	1,345	1,345	1,345	1,345
Kenedy County WUG Total			808	793	781	772	763	754
Kenedy County / Nueces-Rio Grande Basin WUG Total			808	793	781	772	763	754
County-Other	N	Gulf Coast Aquifer System Kenedy County	175	160	148	139	130	121
Mining	N	Gulf Coast Aquifer System Kenedy County	2	2	2	2	2	2
Livestock	N	Gulf Coast Aquifer System Kenedy County	631	631	631	631	631	631
Kleberg County WUG Total			6,791	6,954	7,168	7,459	7,749	8,036
Kleberg County / Nueces-Rio Grande Basin WUG Total			6,791	6,954	7,168	7,459	7,749	8,036
Baffin Bay WSC	N	Gulf Coast Aquifer System Kleberg County	129	132	136	143	150	156
Kingsville	N	Corpus Christi-Choke Canyon Lake/Reservoir System	0	0	0	0	25	121
Kingsville	N	Gulf Coast Aquifer System Kleberg County	3,907	4,002	4,135	4,329	4,472	4,472
Kingsville	P	Texana Lake/Reservoir	0	0	0	0	25	121
Naval Air Station Kingsville	N	Corpus Christi-Choke Canyon Lake/Reservoir System	113	118	122	128	132	134

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source		Existing Supply (acre-feet per year)					
	Region	Source Description	2030	2040	2050	2060	2070	2080
Naval Air Station Kingsville	P	Texana Lake/Reservoir	151	155	160	164	169	172
Ricardo WSC	N	Corpus Christi-Choke Canyon Lake/Reservoir System	192	197	204	214	223	233
Ricardo WSC	P	Texana Lake/Reservoir	193	197	204	214	224	234
Riviera Water System	N	Gulf Coast Aquifer System Kleberg County	128	131	136	142	149	155
County-Other	N	Gulf Coast Aquifer System Kleberg County	208	212	219	230	240	251
Manufacturing	N	Gulf Coast Aquifer System Kleberg County	1,088	1,128	1,170	1,213	1,258	1,305
Mining	N	Gulf Coast Aquifer System Kleberg County	9	9	9	9	9	9
Livestock	N	Gulf Coast Aquifer System Kleberg County	532	532	532	532	532	532
Irrigation	N	Gulf Coast Aquifer System Kleberg County	141	141	141	141	141	141
Live Oak County WUG Total			8,628	8,591	8,548	8,511	8,476	8,447
Live Oak County / Nueces Basin WUG Total			8,628	8,591	8,548	8,511	8,476	8,447
El Oso WSC*	L	Carrizo-Wilcox Aquifer Wilson County	202	199	180	163	148	137
George West	N	Gulf Coast Aquifer System Live Oak County	304	275	253	233	214	197
McCoy WSC*	L	Queen City Aquifer Atascosa County	21	20	20	20	20	20
Old Marbach School WSC	N	Gulf Coast Aquifer System Live Oak County	86	82	79	78	76	75
Three Rivers	N	Corpus Christi-Choke Canyon Lake/Reservoir System	2,562	2,457	2,349	2,237	2,121	1,999
Three Rivers	N	Nueces Run-of-River	0	0	0	0	0	0
County-Other	N	Gulf Coast Aquifer System Live Oak County	441	441	441	441	441	441
Manufacturing	N	Corpus Christi-Choke Canyon Lake/Reservoir System	395	447	501	558	616	677
Manufacturing	N	Gulf Coast Aquifer System Live Oak County	2,054	2,054	2,054	2,054	2,054	2,054
Manufacturing	N	Nueces Run-of-River	394	447	502	558	617	678

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DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Mining	N	Gulf Coast Aquifer System Live Oak County	674	674	674	674	674	674
Livestock	N	Gulf Coast Aquifer System Live Oak County	529	529	529	529	529	529
Livestock	N	Local Surface Water Supply	122	122	122	122	122	122
Irrigation	N	Gulf Coast Aquifer System Live Oak County	844	844	844	844	844	844
McMullen County WUG Total			1,395	1,390	1,387	1,382	1,377	1,373
McMullen County / Nueces Basin WUG Total			1,395	1,390	1,387	1,382	1,377	1,373
Three Rivers	N	Corpus Christi-Choke Canyon Lake/Reservoir System	12	12	11	10	9	9
Three Rivers	N	Nueces Run-of-River	0	0	0	0	0	0
County-Other	N	Carrizo-Wilcox Aquifer McMullen County	60	55	53	49	45	41
Manufacturing	N	Carrizo-Wilcox Aquifer McMullen County	34	34	34	34	34	34
Mining	N	Carrizo-Wilcox Aquifer McMullen County	557	557	557	557	557	557
Mining	N	Gulf Coast Aquifer System McMullen County	454	454	454	454	454	454
Livestock	N	Carrizo-Wilcox Aquifer McMullen County	4	4	4	4	4	4
Livestock	N	Gulf Coast Aquifer System McMullen County	56	56	56	56	56	56
Livestock	N	Local Surface Water Supply	215	215	215	215	215	215
Livestock	N	Queen City Aquifer McMullen County	3	3	3	3	3	3
Irrigation	N	Carrizo-Wilcox Aquifer McMullen County	0	0	0	0	0	0
Nueces County WUG Total			93,787	99,599	97,253	94,343	91,450	82,836
Nueces County / Nueces Basin WUG Total			6,194	6,357	6,358	6,318	6,250	5,941
Corpus Christi	K	Colorado Run-of-River	1,455	1,458	1,443	1,417	1,391	1,279
Corpus Christi	N	Corpus Christi-Choke Canyon Lake/Reservoir System	2,497	2,502	2,477	2,432	2,387	2,195
Corpus Christi	P	Texana Lake/Reservoir	175	222	266	313	358	441

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DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Nueces County WCID 3	N	Nueces Run-of-River	24	22	22	23	23	24
Nueces WSC	N	Corpus Christi-Choke Canyon Lake/Reservoir System	23	23	23	23	23	23
Nueces WSC	P	Texana Lake/Reservoir	23	23	24	23	23	23
River Acres WSC	N	Nueces Run-of-River	315	319	320	318	316	313
Violet WSC	N	Corpus Christi-Choke Canyon Lake/Reservoir System	4	4	4	4	4	3
Violet WSC	P	Texana Lake/Reservoir	4	4	4	4	4	4
County-Other	N	Corpus Christi-Choke Canyon Lake/Reservoir System	311	315	316	313	311	309
County-Other	P	Texana Lake/Reservoir	312	315	315	314	312	310
Manufacturing	K	Colorado Run-of-River	92	115	104	91	79	52
Manufacturing	N	Corpus Christi-Choke Canyon Lake/Reservoir System	92	115	104	91	79	52
Manufacturing	P	Texana Lake/Reservoir	92	115	103	91	79	52
Mining	N	Gulf Coast Aquifer System Nueces County	703	733	761	789	789	789
Livestock	N	Gulf Coast Aquifer System Nueces County	21	22	23	24	24	24
Livestock	N	Local Surface Water Supply	19	18	17	16	16	16
Irrigation	N	Gulf Coast Aquifer System Nueces County	32	32	32	32	32	32
Nueces County / Nueces-Rio Grande Basin WUG Total			86,651	92,059	89,832	87,086	84,384	76,343
Bishop	N	Corpus Christi-Choke Canyon Lake/Reservoir System	154	158	158	156	154	152
Bishop	N	Gulf Coast Aquifer System Nueces County	282	282	282	282	282	282
Bishop	P	Texana Lake/Reservoir	114	118	118	117	115	113
Corpus Christi	K	Colorado Run-of-River	19,335	19,375	19,179	18,830	18,485	16,993
Corpus Christi	N	Corpus Christi-Choke Canyon Lake/Reservoir System	33,171	33,240	32,903	32,304	31,713	29,154
Corpus Christi	P	Texana Lake/Reservoir	2,318	2,955	3,541	4,152	4,756	5,861

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DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Corpus Christi Naval Air Station	N	Corpus Christi-Choke Canyon Lake/Reservoir System	1,578	1,611	1,612	1,605	1,596	1,586
Corpus Christi Naval Air Station	P	Texana Lake/Reservoir	500	500	500	500	500	500
Driscoll	N	Corpus Christi-Choke Canyon Lake/Reservoir System	40	40	40	40	40	40
Driscoll	P	Texana Lake/Reservoir	40	41	41	41	40	40
Nueces County WCID 3	N	Nueces Run-of-River	45	43	42	43	45	47
Nueces County WCID 4	N	Corpus Christi-Choke Canyon Lake/Reservoir System	682	692	693	688	684	679
Nueces County WCID 4	P	Texana Lake/Reservoir	682	693	693	690	684	680
Nueces WSC	N	Corpus Christi-Choke Canyon Lake/Reservoir System	470	475	476	475	474	473
Nueces WSC	P	Texana Lake/Reservoir	470	476	476	476	474	473
Violet WSC	N	Corpus Christi-Choke Canyon Lake/Reservoir System	110	110	111	110	109	109
Violet WSC	P	Texana Lake/Reservoir	110	111	111	110	110	109
County-Other	N	Corpus Christi-Choke Canyon Lake/Reservoir System	985	997	997	992	986	980
County-Other	P	Texana Lake/Reservoir	985	997	998	992	986	980
Manufacturing	K	Colorado Run-of-River	5,869	7,392	6,629	5,838	5,060	3,373
Manufacturing	N	Corpus Christi-Choke Canyon Lake/Reservoir System	5,869	7,390	6,629	5,836	5,059	3,373
Manufacturing	N	Direct Reuse	1,128	1,128	1,128	1,128	1,128	1,128
Manufacturing	N	Gulf Coast Aquifer System Nueces County	3,240	3,240	3,240	3,240	3,240	3,240
Manufacturing	P	Texana Lake/Reservoir	5,868	7,389	6,629	5,835	5,058	3,372
Mining	N	Gulf Coast Aquifer System Nueces County	1	1	1	1	1	1
Steam Electric Power	K	Colorado Run-of-River	733	733	733	733	733	733

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DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source		Existing Supply (acre-feet per year)					
	Region	Source Description	2030	2040	2050	2060	2070	2080
Steam Electric Power	N	Corpus Christi-Choke Canyon Lake/Reservoir System	734	734	734	734	734	734
Steam Electric Power	P	Texana Lake/Reservoir	734	734	734	734	734	734
Livestock	N	Gulf Coast Aquifer System Nueces County	176	176	176	176	176	176
Livestock	N	Local Surface Water Supply	1	1	1	1	1	1
Irrigation	N	Gulf Coast Aquifer System Nueces County	227	227	227	227	227	227
Irrigation	N	Nueces-Rio Grande Run-of-River	0	0	0	0	0	0
Nueces County / San Antonio-Nueces Basin WUG Total			942	1,183	1,063	939	816	552
Nueces County WCID 4	N	Corpus Christi-Choke Canyon Lake/Reservoir System	3	3	3	3	3	3
Nueces County WCID 4	P	Texana Lake/Reservoir	3	3	3	3	3	3
County-Other	N	Corpus Christi-Choke Canyon Lake/Reservoir System	7	7	7	7	7	7
County-Other	P	Texana Lake/Reservoir	7	8	8	7	7	7
Manufacturing	K	Colorado Run-of-River	307	387	347	306	265	177
Manufacturing	N	Corpus Christi-Choke Canyon Lake/Reservoir System	307	387	347	306	265	177
Manufacturing	P	Texana Lake/Reservoir	307	387	347	306	265	177
Livestock	N	Gulf Coast Aquifer System Nueces County	1	1	1	1	1	1
San Patricio County WUG Total			87,853	87,798	87,854	87,958	88,063	87,998
San Patricio County / Nueces Basin WUG Total			41,417	41,184	41,046	40,995	40,935	40,766
Mathis	N	Corpus Christi-Choke Canyon Lake/Reservoir System	234	209	200	208	217	225
Mathis	P	Texana Lake/Reservoir	235	210	200	209	217	226
County-Other	N	Corpus Christi-Choke Canyon Lake/Reservoir System	179	198	182	124	78	76

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DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
County-Other	P	Texana Lake/Reservoir	335	354	338	281	205	76
Manufacturing	N	Corpus Christi-Choke Canyon Lake/Reservoir System	32,125	31,797	31,673	31,745	31,814	31,746
Manufacturing	P	Texana Lake/Reservoir	7,603	7,710	7,747	7,722	7,698	7,711
Livestock	N	Gulf Coast Aquifer System San Patricio County	117	117	117	117	117	117
Livestock	N	Local Surface Water Supply	40	40	40	40	40	40
Irrigation	N	Gulf Coast Aquifer System San Patricio County	549	549	549	549	549	549
San Patricio County / San Antonio-Nueces Basin WUG Total			46,436	46,614	46,808	46,963	47,128	47,232
Aransas Pass	N	Corpus Christi-Choke Canyon Lake/Reservoir System	278	275	276	279	283	286
Aransas Pass	P	Texana Lake/Reservoir	279	276	277	280	283	286
Gregory	N	Corpus Christi-Choke Canyon Lake/Reservoir System	135	130	128	131	133	135
Gregory	P	Texana Lake/Reservoir	135	130	129	131	133	135
Ingleside	N	Corpus Christi-Choke Canyon Lake/Reservoir System	493	504	511	510	510	509
Ingleside	P	Texana Lake/Reservoir	493	504	511	511	510	510
Odem	N	Corpus Christi-Choke Canyon Lake/Reservoir System	216	211	210	213	215	218
Odem	P	Texana Lake/Reservoir	216	212	211	213	216	219
Portland	N	Corpus Christi-Choke Canyon Lake/Reservoir System	1,777	1,918	2,077	2,250	2,436	2,638
Portland	P	Texana Lake/Reservoir	1,778	1,919	2,078	2,250	2,437	2,639
Rincon WSC	N	Corpus Christi-Choke Canyon Lake/Reservoir System	189	198	202	201	199	198
Rincon WSC	P	Texana Lake/Reservoir	189	198	203	201	200	198
Sinton	N	Gulf Coast Aquifer System San Patricio County	1,073	1,051	1,045	1,058	1,071	1,084

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DRAFT Region N Water User Group (WUG) Existing Water Supply

WUG Name	Source	Source Description	Existing Supply (acre-feet per year)					
	Region		2030	2040	2050	2060	2070	2080
Taft	N	Corpus Christi-Choke Canyon Lake/Reservoir System	168	161	159	162	165	168
Taft	P	Texana Lake/Reservoir	169	162	159	162	165	168
County-Other	N	Corpus Christi-Choke Canyon Lake/Reservoir System	400	441	406	278	126	0
County-Other	N	Gulf Coast Aquifer System San Patricio County	506	506	506	506	506	341
County-Other	P	Texana Lake/Reservoir	244	286	251	121	0	0
Manufacturing	N	Corpus Christi-Choke Canyon Lake/Reservoir System	24,141	23,893	23,801	23,855	23,907	23,857
Manufacturing	N	Direct Reuse	0	0	0	0	0	0
Manufacturing	N	Gulf Coast Aquifer System San Patricio County	110	110	110	110	110	110
Manufacturing	P	Texana Lake/Reservoir	5,714	5,794	5,821	5,803	5,784	5,794
Mining	N	Gulf Coast Aquifer System San Patricio County	88	90	92	93	94	94
Steam Electric Power	N	Corpus Christi-Choke Canyon Lake/Reservoir System	2,576	2,576	2,576	2,576	2,576	2,576
Livestock	N	Gulf Coast Aquifer System San Patricio County	116	116	116	116	116	116
Livestock	N	Local Surface Water Supply	5	5	5	5	5	5
Irrigation	N	Gulf Coast Aquifer System San Patricio County	4,948	4,948	4,948	4,948	4,948	4,948
Irrigation	N	San Antonio-Nueces Run-of-River	0	0	0	0	0	0
Region N WUG Existing Water Supply Total			224,315	230,442	228,550	226,322	224,206	216,255

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Appendix A: DB 22 Report # 6- WUG Identified Water Needs/ Surpluses

DRAFT Region N Water User Group (WUG) Needs or Surplus

WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Needs/Surplus report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Surplus volumes are shown as positive values, and needs are shown as negative values in parentheses.

			Water Supply Needs or Surplus (acre-feet per year)					
WUG Name	County	Basin	2030	2040	2050	2060	2070	2080
Aransas Pass	Aransas	San Antonio-Nueces	(62)	(61)	(60)	(58)	(57)	(55)
Rincon WSC	Aransas	San Antonio-Nueces	0	0	0	0	0	0
Rockport	Aransas	San Antonio-Nueces	(94)	(94)	(94)	(94)	(94)	(94)
County-Other	Aransas	San Antonio-Nueces	(48)	(48)	(48)	(48)	(48)	(48)
Livestock	Aransas	San Antonio-Nueces	0	0	0	0	0	0
El Oso WSC*	Bee	Nueces	27	22	13	(2)	(24)	(53)
County-Other	Bee	Nueces	(11)	(11)	(9)	(8)	(6)	(3)
Mining	Bee	Nueces	(165)	(165)	(165)	(165)	(165)	0
Livestock	Bee	Nueces	0	0	0	0	0	0
Irrigation	Bee	Nueces	0	0	0	0	0	0
Beeville	Bee	San Antonio-Nueces	(307)	(307)	(307)	(307)	(307)	(307)
El Oso WSC*	Bee	San Antonio-Nueces	4	3	2	0	(3)	(7)
Pettus MUD	Bee	San Antonio-Nueces	0	0	0	0	0	0
Skidmore WSC	Bee	San Antonio-Nueces	(22)	(24)	(27)	(32)	(38)	(44)
TDCJ Chase Field	Bee	San Antonio-Nueces	(5)	(2)	(2)	(2)	(2)	(2)
County-Other	Bee	San Antonio-Nueces	(1,314)	(1,225)	(1,071)	(875)	(658)	(414)

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DRAFT Region N Water User Group (WUG) Needs or Surplus

			Water Supply Needs or Surplus (acre-feet per year)					
WUG Name	County	Basin	2030	2040	2050	2060	2070	2080
Livestock	Bee	San Antonio-Nueces	0	0	0	0	0	0
Irrigation	Bee	San Antonio-Nueces	0	0	0	0	0	0
Falfurrias	Brooks	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Brooks	Nueces-Rio Grande	(281)	(262)	(234)	(198)	(155)	(101)
Mining	Brooks	Nueces-Rio Grande	0	0	0	0	0	0
Livestock	Brooks	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Brooks	Nueces-Rio Grande	0	0	0	0	0	0
Freer WCID	Duval	Nueces	0	0	0	0	0	0
County-Other	Duval	Nueces	(38)	(34)	(30)	(27)	(23)	(17)
Livestock	Duval	Nueces	0	0	0	0	0	0
Irrigation	Duval	Nueces	0	0	0	0	0	0
Duval County CRD	Duval	Nueces-Rio Grande	0	0	0	0	0	0
Freer WCID	Duval	Nueces-Rio Grande	0	0	0	0	0	0
San Diego MUD 1	Duval	Nueces-Rio Grande	89	88	85	79	64	32
County-Other	Duval	Nueces-Rio Grande	(215)	(189)	(169)	(152)	(128)	(96)
Mining	Duval	Nueces-Rio Grande	0	0	0	0	0	0
Livestock	Duval	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Duval	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Jim Wells	Nueces	(369)	(322)	(266)	(195)	(116)	(26)
Livestock	Jim Wells	Nueces	0	0	0	0	0	0
Irrigation	Jim Wells	Nueces	0	0	0	0	0	0
Alice	Jim Wells	Nueces-Rio Grande	(230)	(230)	(230)	(230)	(230)	(230)
Jim Wells County FWSD 1	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0

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DRAFT Region N Water User Group (WUG) Needs or Surplus

WUG Name	County	Basin	Water Supply Needs or Surplus (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Orange Grove	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0
Premont	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0
San Diego MUD 1	Jim Wells	Nueces-Rio Grande	17	17	18	18	14	7
County-Other	Jim Wells	Nueces-Rio Grande	(1,252)	(1,087)	(893)	(645)	(368)	(56)
Manufacturing	Jim Wells	Nueces-Rio Grande	(8)	(11)	(14)	(17)	(21)	(25)
Livestock	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Kenedy	Nueces-Rio Grande	0	0	0	0	0	0
Mining	Kenedy	Nueces-Rio Grande	(1)	(1)	(1)	(1)	(1)	(1)
Livestock	Kenedy	Nueces-Rio Grande	0	0	0	0	0	0
Baffin Bay WSC	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Kingsville	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Naval Air Station Kingsville	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Ricardo WSC	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Riviera Water System	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Manufacturing	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Mining	Kleberg	Nueces-Rio Grande	(1)	(1)	(1)	(1)	(1)	(1)
Livestock	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
El Oso WSC*	Live Oak	Nueces	50	34	15	(2)	(17)	(28)
George West	Live Oak	Nueces	0	0	0	0	0	0
McCoy WSC*	Live Oak	Nueces	15	15	16	17	18	18

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DRAFT Region N Water User Group (WUG) Needs or Surplus

			Water Supply Needs or Surplus (acre-feet per year)					
WUG Name	County	Basin	2030	2040	2050	2060	2070	2080
Old Marbach School WSC	Live Oak	Nueces	0	0	0	0	0	0
Three Rivers	Live Oak	Nueces	2,118	2,023	1,917	1,807	1,694	1,573
County-Other	Live Oak	Nueces	(198)	(173)	(164)	(178)	(191)	(202)
Manufacturing	Live Oak	Nueces	0	0	0	0	0	0
Mining	Live Oak	Nueces	(590)	(590)	(590)	(590)	(590)	672
Livestock	Live Oak	Nueces	0	0	0	0	0	0
Irrigation	Live Oak	Nueces	0	0	0	0	0	0
Three Rivers	McMullen	Nueces	0	0	0	0	0	0
County-Other	McMullen	Nueces	(1)	(1)	(1)	(1)	(1)	(1)
Manufacturing	McMullen	Nueces	0	0	0	0	0	0
Mining	McMullen	Nueces	(3,527)	(3,527)	(3,527)	(3,527)	(3,527)	1,010
Livestock	McMullen	Nueces	0	0	0	0	0	0
Irrigation	McMullen	Nueces	(24)	(24)	(24)	(24)	(24)	(24)
Corpus Christi	Nueces	Nueces	(9)	(10)	(10)	(9)	(10)	(206)
Nueces County WCID 3	Nueces	Nueces	(1,157)	(1,176)	(1,177)	(1,169)	(1,161)	(1,153)
Nueces WSC	Nueces	Nueces	0	0	0	0	0	0
River Acres WSC	Nueces	Nueces	0	0	0	0	0	0
Violet WSC	Nueces	Nueces	0	0	0	0	0	0
County-Other	Nueces	Nueces	0	0	0	0	0	0
Manufacturing	Nueces	Nueces	(460)	(391)	(425)	(463)	(500)	(609)
Mining	Nueces	Nueces	(92)	(101)	(96)	(86)	(97)	(103)
Livestock	Nueces	Nueces	0	0	0	0	0	0
Irrigation	Nueces	Nueces	(37)	(37)	(37)	(37)	(37)	(37)
Bishop	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Corpus Christi	Nueces	Nueces-Rio Grande	(124)	(123)	(123)	(124)	(123)	(2,737)
Corpus Christi Naval Air Station	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Driscoll	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Nueces County WCID 3	Nueces	Nueces-Rio Grande	(2,226)	(2,263)	(2,266)	(2,250)	(2,234)	(2,217)
Nueces County WCID 4	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Nueces WSC	Nueces	Nueces-Rio Grande	0	0	0	0	0	0

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Needs or Surplus

			Water Supply Needs or Surplus (acre-feet per year)					
WUG Name	County	Basin	2030	2040	2050	2060	2070	2080
Violet WSC	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Manufacturing	Nueces	Nueces-Rio Grande	(25,184)	(20,619)	(22,903)	(25,281)	(27,715)	(34,522)
Mining	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Steam Electric Power	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Livestock	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Nueces	Nueces-Rio Grande	(263)	(263)	(263)	(263)	(263)	(263)
Nueces County WCID 4	Nueces	San Antonio-Nueces	0	0	0	0	0	0
County-Other	Nueces	San Antonio-Nueces	0	0	0	0	0	0
Manufacturing	Nueces	San Antonio-Nueces	(1,548)	(1,308)	(1,428)	(1,551)	(1,680)	(2,035)
Livestock	Nueces	San Antonio-Nueces	0	0	0	0	0	0
Mathis	San Patricio	Nueces	0	0	0	0	0	0
County-Other	San Patricio	Nueces	0	0	0	0	0	0
Manufacturing	San Patricio	Nueces	5,021	4,797	4,707	4,752	4,793	4,735
Livestock	San Patricio	Nueces	0	0	0	0	0	0
Irrigation	San Patricio	Nueces	0	0	0	0	0	0
Aransas Pass	San Patricio	San Antonio-Nueces	(628)	(629)	(630)	(632)	(633)	(635)
Gregory	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Ingleside	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Odem	San Patricio	San Antonio-Nueces	0	0	0	0	0	0

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Needs or Surplus

WUG Name	County	Basin	Water Supply Needs or Surplus (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Portland	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Rincon WSC	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Sinton	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Taft	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
County-Other	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Manufacturing	San Patricio	San Antonio-Nueces	3,967	3,797	3,730	3,763	3,794	3,751
Mining	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Steam Electric Power	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Livestock	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Irrigation	San Patricio	San Antonio-Nueces	0	0	0	0	0	0

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Needs or Surplus

WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Needs/Surplus report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Surplus volumes are shown as positive values, and needs are shown as negative values in parentheses.

			Water Supply Needs or Surplus (acre-feet per year)					
WUG Name	County	Basin	2030	2040	2050	2060	2070	2080
Aransas Pass	Aransas	San Antonio-Nueces	(62)	(61)	(60)	(58)	(57)	(55)
Rincon WSC	Aransas	San Antonio-Nueces	0	0	0	0	0	0
Rockport	Aransas	San Antonio-Nueces	(94)	(94)	(94)	(94)	(94)	(94)
County-Other	Aransas	San Antonio-Nueces	(48)	(48)	(48)	(48)	(48)	(48)
Livestock	Aransas	San Antonio-Nueces	0	0	0	0	0	0
El Oso WSC*	Bee	Nueces	27	22	13	(2)	(24)	(53)
County-Other	Bee	Nueces	(11)	(11)	(9)	(8)	(6)	(3)
Mining	Bee	Nueces	(165)	(165)	(165)	(165)	(165)	0
Livestock	Bee	Nueces	0	0	0	0	0	0
Irrigation	Bee	Nueces	0	0	0	0	0	0
Beeville	Bee	San Antonio-Nueces	(307)	(307)	(307)	(307)	(307)	(307)
El Oso WSC*	Bee	San Antonio-Nueces	4	3	2	0	(3)	(7)
Pettus MUD	Bee	San Antonio-Nueces	0	0	0	0	0	0
Skidmore WSC	Bee	San Antonio-Nueces	(22)	(24)	(27)	(32)	(38)	(44)
TDCJ Chase Field	Bee	San Antonio-Nueces	(5)	(2)	(2)	(2)	(2)	(2)
County-Other	Bee	San Antonio-Nueces	(1,314)	(1,225)	(1,071)	(875)	(658)	(414)

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DRAFT Region N Water User Group (WUG) Needs or Surplus

			Water Supply Needs or Surplus (acre-feet per year)					
WUG Name	County	Basin	2030	2040	2050	2060	2070	2080
Livestock	Bee	San Antonio-Nueces	0	0	0	0	0	0
Irrigation	Bee	San Antonio-Nueces	0	0	0	0	0	0
Falfurrias	Brooks	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Brooks	Nueces-Rio Grande	(281)	(262)	(234)	(198)	(155)	(101)
Mining	Brooks	Nueces-Rio Grande	0	0	0	0	0	0
Livestock	Brooks	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Brooks	Nueces-Rio Grande	0	0	0	0	0	0
Freer WCID	Duval	Nueces	0	0	0	0	0	0
County-Other	Duval	Nueces	(38)	(34)	(30)	(27)	(23)	(17)
Livestock	Duval	Nueces	0	0	0	0	0	0
Irrigation	Duval	Nueces	0	0	0	0	0	0
Duval County CRD	Duval	Nueces-Rio Grande	0	0	0	0	0	0
Freer WCID	Duval	Nueces-Rio Grande	0	0	0	0	0	0
San Diego MUD 1	Duval	Nueces-Rio Grande	89	88	85	79	64	32
County-Other	Duval	Nueces-Rio Grande	(215)	(189)	(169)	(152)	(128)	(96)
Mining	Duval	Nueces-Rio Grande	0	0	0	0	0	0
Livestock	Duval	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Duval	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Jim Wells	Nueces	(369)	(322)	(266)	(195)	(116)	(26)
Livestock	Jim Wells	Nueces	0	0	0	0	0	0
Irrigation	Jim Wells	Nueces	0	0	0	0	0	0
Alice	Jim Wells	Nueces-Rio Grande	(230)	(230)	(230)	(230)	(230)	(230)
Jim Wells County FWSD 1	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0

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DRAFT Region N Water User Group (WUG) Needs or Surplus

WUG Name	County	Basin	Water Supply Needs or Surplus (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Orange Grove	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0
Premont	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0
San Diego MUD 1	Jim Wells	Nueces-Rio Grande	17	17	18	18	14	7
County-Other	Jim Wells	Nueces-Rio Grande	(1,252)	(1,087)	(893)	(645)	(368)	(56)
Manufacturing	Jim Wells	Nueces-Rio Grande	(8)	(11)	(14)	(17)	(21)	(25)
Livestock	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Jim Wells	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Kenedy	Nueces-Rio Grande	0	0	0	0	0	0
Mining	Kenedy	Nueces-Rio Grande	(1)	(1)	(1)	(1)	(1)	(1)
Livestock	Kenedy	Nueces-Rio Grande	0	0	0	0	0	0
Baffin Bay WSC	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Kingsville	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Naval Air Station Kingsville	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Ricardo WSC	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Riviera Water System	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Manufacturing	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Mining	Kleberg	Nueces-Rio Grande	(1)	(1)	(1)	(1)	(1)	(1)
Livestock	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Kleberg	Nueces-Rio Grande	0	0	0	0	0	0
El Oso WSC*	Live Oak	Nueces	50	34	15	(2)	(17)	(28)
George West	Live Oak	Nueces	0	0	0	0	0	0
McCoy WSC*	Live Oak	Nueces	15	15	16	17	18	18

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DRAFT Region N Water User Group (WUG) Needs or Surplus

			Water Supply Needs or Surplus (acre-feet per year)					
WUG Name	County	Basin	2030	2040	2050	2060	2070	2080
Old Marbach School WSC	Live Oak	Nueces	0	0	0	0	0	0
Three Rivers	Live Oak	Nueces	2,118	2,023	1,917	1,807	1,694	1,573
County-Other	Live Oak	Nueces	(198)	(173)	(164)	(178)	(191)	(202)
Manufacturing	Live Oak	Nueces	0	0	0	0	0	0
Mining	Live Oak	Nueces	(590)	(590)	(590)	(590)	(590)	672
Livestock	Live Oak	Nueces	0	0	0	0	0	0
Irrigation	Live Oak	Nueces	0	0	0	0	0	0
Three Rivers	McMullen	Nueces	0	0	0	0	0	0
County-Other	McMullen	Nueces	(1)	(1)	(1)	(1)	(1)	(1)
Manufacturing	McMullen	Nueces	0	0	0	0	0	0
Mining	McMullen	Nueces	(3,527)	(3,527)	(3,527)	(3,527)	(3,527)	1,010
Livestock	McMullen	Nueces	0	0	0	0	0	0
Irrigation	McMullen	Nueces	(24)	(24)	(24)	(24)	(24)	(24)
Corpus Christi	Nueces	Nueces	(9)	(10)	(10)	(9)	(10)	(206)
Nueces County WCID 3	Nueces	Nueces	(1,157)	(1,176)	(1,177)	(1,169)	(1,161)	(1,153)
Nueces WSC	Nueces	Nueces	0	0	0	0	0	0
River Acres WSC	Nueces	Nueces	0	0	0	0	0	0
Violet WSC	Nueces	Nueces	0	0	0	0	0	0
County-Other	Nueces	Nueces	0	0	0	0	0	0
Manufacturing	Nueces	Nueces	(460)	(391)	(425)	(463)	(500)	(609)
Mining	Nueces	Nueces	(92)	(101)	(96)	(86)	(97)	(103)
Livestock	Nueces	Nueces	0	0	0	0	0	0
Irrigation	Nueces	Nueces	(37)	(37)	(37)	(37)	(37)	(37)
Bishop	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Corpus Christi	Nueces	Nueces-Rio Grande	(124)	(123)	(123)	(124)	(123)	(2,737)
Corpus Christi Naval Air Station	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Driscoll	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Nueces County WCID 3	Nueces	Nueces-Rio Grande	(2,226)	(2,263)	(2,266)	(2,250)	(2,234)	(2,217)
Nueces County WCID 4	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Nueces WSC	Nueces	Nueces-Rio Grande	0	0	0	0	0	0

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DRAFT Region N Water User Group (WUG) Needs or Surplus

WUG Name	County	Basin	Water Supply Needs or Surplus (acre-feet per year)					
			2030	2040	2050	2060	2070	2080
Violet WSC	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
County-Other	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Manufacturing	Nueces	Nueces-Rio Grande	(25,184)	(20,619)	(22,903)	(25,281)	(27,715)	(34,522)
Mining	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Steam Electric Power	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Livestock	Nueces	Nueces-Rio Grande	0	0	0	0	0	0
Irrigation	Nueces	Nueces-Rio Grande	(263)	(263)	(263)	(263)	(263)	(263)
Nueces County WCID 4	Nueces	San Antonio-Nueces	0	0	0	0	0	0
County-Other	Nueces	San Antonio-Nueces	0	0	0	0	0	0
Manufacturing	Nueces	San Antonio-Nueces	(1,548)	(1,308)	(1,428)	(1,551)	(1,680)	(2,035)
Livestock	Nueces	San Antonio-Nueces	0	0	0	0	0	0
Mathis	San Patricio	Nueces	0	0	0	0	0	0
County-Other	San Patricio	Nueces	0	0	0	0	0	0
Manufacturing	San Patricio	Nueces	5,021	4,797	4,707	4,752	4,793	4,735
Livestock	San Patricio	Nueces	0	0	0	0	0	0
Irrigation	San Patricio	Nueces	0	0	0	0	0	0
Aransas Pass	San Patricio	San Antonio-Nueces	(628)	(629)	(630)	(632)	(633)	(635)
Gregory	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Ingleside	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Odem	San Patricio	San Antonio-Nueces	0	0	0	0	0	0

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

DRAFT Region N Water User Group (WUG) Needs or Surplus

			Water Supply Needs or Surplus (acre-feet per year)					
WUG Name	County	Basin	2030	2040	2050	2060	2070	2080
Portland	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Rincon WSC	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Sinton	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Taft	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
County-Other	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Manufacturing	San Patricio	San Antonio-Nueces	3,967	3,797	3,730	3,763	3,794	3,751
Mining	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Steam Electric Power	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Livestock	San Patricio	San Antonio-Nueces	0	0	0	0	0	0
Irrigation	San Patricio	San Antonio-Nueces	0	0	0	0	0	0

*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.



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Appendix A: DB 22 Report #10a- WUG Data Comparison to 2016 RWP

DRAFT Region N 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Aransas County Municipal WUG Type						
Existing WUG supply total	4,080	3,710	-9.1%	3,979	3,426	-13.9%
Projected demand total	4,080	3,914	-4.1%	3,979	3,625	-8.9%
Water supply needs total**	0	204	100.0%	0	199	100.0%
Aransas County Mining WUG Type						
Existing WUG supply total	7	0	-100.0%	5	0	-100.0%
Projected demand total	7	0	-100.0%	5	0	-100.0%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Aransas County Livestock WUG Type						
Existing WUG supply total	56	52	-7.1%	56	52	-7.1%
Projected demand total	56	52	-7.1%	56	52	-7.1%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Bee County Municipal WUG Type						
Existing WUG supply total	4,574	4,379	-4.3%	4,550	5,163	13.5%
Projected demand total	6,553	6,007	-8.3%	6,497	6,201	-4.6%
Water supply needs total**	1,979	1,659	-16.2%	1,947	1,038	-46.7%
Bee County Mining WUG Type						
Existing WUG supply total	273	74	-72.9%	256	74	-71.1%
Projected demand total	458	239	-47.8%	318	239	-24.8%
Water supply needs total**	185	165	-10.8%	62	165	166.1%
Bee County Livestock WUG Type						
Existing WUG supply total	834	568	-31.9%	834	568	-31.9%
Projected demand total	834	568	-31.9%	834	568	-31.9%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Bee County Irrigation WUG Type						
Existing WUG supply total	4,073	2,518	-38.2%	4,073	2,518	-38.2%

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

**WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Data Comparison to 2021 RWP report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the water supply needs totals.

DRAFT Region N 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Projected demand total	4,425	2,518	-43.1%	4,425	2,518	-43.1%
Water supply needs total**	352	0	-100.0%	352	0	-100.0%
Brooks County Municipal WUG Type						
Existing WUG supply total	1,700	1,194	-29.8%	1,884	1,231	-34.7%
Projected demand total	1,914	1,475	-22.9%	2,193	1,386	-36.8%
Water supply needs total**	214	281	31.3%	309	155	-49.8%
Brooks County Manufacturing WUG Type						
Existing WUG supply total	1	0	-100.0%	1	0	-100.0%
Projected demand total	1	0	-100.0%	1	0	-100.0%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Brooks County Mining WUG Type						
Existing WUG supply total	178	16	-91.0%	178	16	-91.0%
Projected demand total	360	16	-95.6%	298	16	-94.6%
Water supply needs total**	182	0	-100.0%	120	0	-100.0%
Brooks County Livestock WUG Type						
Existing WUG supply total	463	478	3.2%	463	478	3.2%
Projected demand total	463	478	3.2%	463	478	3.2%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Brooks County Irrigation WUG Type						
Existing WUG supply total	1,161	597	-48.6%	1,161	597	-48.6%
Projected demand total	1,161	597	-48.6%	1,161	597	-48.6%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Duval County Municipal WUG Type						
Existing WUG supply total	1,437	1,429	-0.6%	1,544	1,272	-17.6%
Projected demand total	2,236	1,593	-28.8%	2,477	1,359	-45.1%
Water supply needs total**	799	253	-68.3%	933	151	-83.8%

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

**WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Data Comparison to 2021 RWP report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the water supply needs totals.

DRAFT Region N 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Duval County Mining WUG Type						
Existing WUG supply total	676	6	-99.1%	676	7	-99.0%
Projected demand total	1,444	6	-99.6%	1,104	7	-99.4%
Water supply needs total**	768	0	-100.0%	428	0	-100.0%
Duval County Livestock WUG Type						
Existing WUG supply total	640	566	-11.6%	640	566	-11.6%
Projected demand total	640	566	-11.6%	640	566	-11.6%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Duval County Irrigation WUG Type						
Existing WUG supply total	4,042	2,016	-50.1%	4,042	2,016	-50.1%
Projected demand total	4,042	2,016	-50.1%	4,042	2,016	-50.1%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Jim Wells County Municipal WUG Type						
Existing WUG supply total	6,360	4,995	-21.5%	7,784	5,889	-24.3%
Projected demand total	8,524	6,829	-19.9%	10,434	6,589	-36.9%
Water supply needs total**	2,164	1,851	-14.5%	2,650	714	-73.1%
Jim Wells County Manufacturing WUG Type						
Existing WUG supply total	79	79	0.0%	79	79	0.0%
Projected demand total	95	87	-8.4%	95	100	5.3%
Water supply needs total**	16	8	-50.0%	16	21	31.3%
Jim Wells County Mining WUG Type						
Existing WUG supply total	19	0	-100.0%	16	0	-100.0%
Projected demand total	74	0	-100.0%	17	0	-100.0%
Water supply needs total**	55	0	-100.0%	1	0	-100.0%
Jim Wells County Livestock WUG Type						
Existing WUG supply total	902	711	-21.2%	902	711	-21.2%

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

**WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Data Comparison to 2021 RWP report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the water supply needs totals.

DRAFT Region N 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Projected demand total	902	711	-21.2%	902	711	-21.2%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Jim Wells County Irrigation WUG Type						
Existing WUG supply total	1,580	1,665	5.4%	1,580	1,665	5.4%
Projected demand total	1,913	1,665	-13.0%	1,913	1,665	-13.0%
Water supply needs total**	333	0	-100.0%	333	0	-100.0%
Kenedy County Municipal WUG Type						
Existing WUG supply total	260	175	-32.7%	263	130	-50.6%
Projected demand total	260	175	-32.7%	263	130	-50.6%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Kenedy County Mining WUG Type						
Existing WUG supply total	60	2	-96.7%	27	2	-92.6%
Projected demand total	123	3	-97.6%	27	3	-88.9%
Water supply needs total**	63	1	-98.4%	0	1	100.0%
Kenedy County Livestock WUG Type						
Existing WUG supply total	735	631	-14.1%	735	631	-14.1%
Projected demand total	735	631	-14.1%	735	631	-14.1%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Kleberg County Municipal WUG Type						
Existing WUG supply total	5,744	5,021	-12.6%	7,241	5,809	-19.8%
Projected demand total	5,744	5,021	-12.6%	7,241	5,809	-19.8%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Kleberg County Manufacturing WUG Type						
Existing WUG supply total	1,809	1,088	-39.9%	1,809	1,258	-30.5%
Projected demand total	2,056	1,088	-47.1%	2,056	1,258	-38.8%
Water supply needs total**	247	0	-100.0%	247	0	-100.0%

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs
 **WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Data Comparison to 2021 RWP report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the water supply needs totals.

DRAFT Region N 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Kleberg County Mining WUG Type						
Existing WUG supply total	218	9	-95.9%	218	9	-95.9%
Projected demand total	360	10	-97.2%	298	10	-96.6%
Water supply needs total**	142	1	-99.3%	80	1	-98.8%
Kleberg County Livestock WUG Type						
Existing WUG supply total	673	532	-21.0%	673	532	-21.0%
Projected demand total	673	532	-21.0%	673	532	-21.0%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Kleberg County Irrigation WUG Type						
Existing WUG supply total	850	141	-83.4%	850	141	-83.4%
Projected demand total	850	141	-83.4%	850	141	-83.4%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Live Oak County Municipal WUG Type						
Existing WUG supply total	1,769	3,616	104.4%	1,702	3,020	77.4%
Projected demand total	1,770	1,631	-7.9%	1,703	1,516	-11.0%
Water supply needs total**	1	198	19700.0%	1	208	20700.0%
Live Oak County Manufacturing WUG Type						
Existing WUG supply total	2,465	2,843	15.3%	2,465	3,287	33.3%
Projected demand total	2,493	2,843	14.0%	2,493	3,287	31.8%
Water supply needs total**	28	0	-100.0%	28	0	-100.0%
Live Oak County Mining WUG Type						
Existing WUG supply total	917	674	-26.5%	332	674	103.0%
Projected demand total	917	1,264	37.8%	332	1,264	280.7%
Water supply needs total**	0	590	100.0%	0	590	100.0%
Live Oak County Livestock WUG Type						
Existing WUG supply total	740	651	-12.0%	740	651	-12.0%

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

**WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Data Comparison to 2021 RWP report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the water supply needs totals.

DRAFT Region N 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Projected demand total	740	651	-12.0%	740	651	-12.0%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Live Oak County Irrigation WUG Type						
Existing WUG supply total	1,096	844	-23.0%	1,096	844	-23.0%
Projected demand total	1,630	844	-48.2%	1,630	844	-48.2%
Water supply needs total**	534	0	-100.0%	534	0	-100.0%
McMullen County Municipal WUG Type						
Existing WUG supply total	94	72	-23.4%	89	54	-39.3%
Projected demand total	94	73	-22.3%	89	55	-38.2%
Water supply needs total**	0	1	100.0%	0	1	100.0%
McMullen County Manufacturing WUG Type						
Existing WUG supply total	249	34	-86.3%	249	34	-86.3%
Projected demand total	249	34	-86.3%	249	34	-86.3%
Water supply needs total**	0	0	0.0%	0	0	0.0%
McMullen County Mining WUG Type						
Existing WUG supply total	4,804	1,011	-79.0%	1,305	1,011	-22.5%
Projected demand total	4,804	4,538	-5.5%	1,305	4,538	247.7%
Water supply needs total**	0	3,527	100.0%	0	3,527	100.0%
McMullen County Livestock WUG Type						
Existing WUG supply total	335	278	-17.0%	335	278	-17.0%
Projected demand total	335	278	-17.0%	335	278	-17.0%
Water supply needs total**	0	0	0.0%	0	0	0.0%
McMullen County Irrigation WUG Type						
Existing WUG supply total	0	0	0.0%	0	0	0.0%
Projected demand total	0	24	100.0%	0	24	100.0%
Water supply needs total**	0	24	100.0%	0	24	100.0%

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs
 **WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Data Comparison to 2021 RWP report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the water supply needs totals.

DRAFT Region N 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Nueces County Municipal WUG Type						
Existing WUG supply total	74,172	67,234	-9.4%	81,196	67,405	-17.0%
Projected demand total	79,586	70,750	-11.1%	86,589	70,933	-18.1%
Water supply needs total**	5,414	3,516	-35.1%	5,393	3,528	-34.6%
Nueces County Manufacturing WUG Type						
Existing WUG supply total	41,279	23,171	-43.9%	33,776	20,577	-39.1%
Projected demand total	50,363	50,363	0.0%	50,363	50,472	0.2%
Water supply needs total**	9,084	27,192	199.3%	16,587	29,895	80.2%
Nueces County Mining WUG Type						
Existing WUG supply total	104	704	576.9%	133	790	494.0%
Projected demand total	853	796	-6.7%	1,260	887	-29.6%
Water supply needs total**	749	92	-87.7%	1,127	97	-91.4%
Nueces County Steam Electric Power WUG Type						
Existing WUG supply total	2,077	2,201	6.0%	2,077	2,201	6.0%
Projected demand total	2,077	2,201	6.0%	2,077	2,201	6.0%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Nueces County Livestock WUG Type						
Existing WUG supply total	291	218	-25.1%	291	218	-25.1%
Projected demand total	291	218	-25.1%	291	218	-25.1%
Water supply needs total**	0	0	0.0%	0	0	0.0%
Nueces County Irrigation WUG Type						
Existing WUG supply total	1,489	259	-82.6%	1,489	259	-82.6%
Projected demand total	1,540	559	-63.7%	1,540	559	-63.7%
Water supply needs total**	51	300	488.2%	51	300	488.2%
San Patricio County Municipal WUG Type						
Existing WUG supply total	10,437	9,721	-6.9%	10,783	10,305	-4.4%

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

**WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Data Comparison to 2021 RWP report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the water supply needs totals.

DRAFT Region N 2026 Regional Water Plan (RWP) Water User Group (WUG) Data Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Projected demand total	10,437	10,349	-0.8%	10,783	10,938	1.4%
Water supply needs total**	0	628	100.0%	0	633	100.0%
San Patricio County Manufacturing WUG Type						
Existing WUG supply total	36,164	69,693	92.7%	25,660	69,313	170.1%
Projected demand total	43,223	60,705	40.4%	43,223	60,726	40.5%
Water supply needs total**	7,242	0	-100.0%	17,563	0	-100.0%
San Patricio County Mining WUG Type						
Existing WUG supply total	135	88	-34.8%	135	94	-30.4%
Projected demand total	421	88	-79.1%	533	94	-82.4%
Water supply needs total**	286	0	-100.0%	398	0	-100.0%
San Patricio County Steam Electric Power WUG Type						
Existing WUG supply total	1,919	2,576	34.2%	1,919	2,576	34.2%
Projected demand total	1,919	2,576	34.2%	1,919	2,576	34.2%
Water supply needs total**	0	0	0.0%	0	0	0.0%
San Patricio County Livestock WUG Type						
Existing WUG supply total	396	278	-29.8%	396	278	-29.8%
Projected demand total	396	278	-29.8%	396	278	-29.8%
Water supply needs total**	0	0	0.0%	0	0	0.0%
San Patricio County Irrigation WUG Type						
Existing WUG supply total	14,441	5,497	-61.9%	14,441	5,497	-61.9%
Projected demand total	14,645	5,497	-62.5%	14,645	5,497	-62.5%
Water supply needs total**	204	0	-100.0%	204	0	-100.0%
Region N Total						
Existing WUG supply total	238,857	224,315	-6.1%	227,128	224,206	-1.3%
Projected demand total	269,766	253,498	-6.0%	276,492	255,077	-7.7%
Water supply needs total**	31,092	40,491	30.2%	49,364	41,248	-16.4%

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs

**WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Data Comparison to 2021 RWP report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the water supply needs totals.

DRAFT Region N 2026 Regional Water Plan (RWP)
Water User Group (WUG) Data Comparison to 2021 RWP
Water Volumes Shown in Acre-Feet per year

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs
**WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Data Comparison to 2021 RWP report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the water supply needs totals.



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Appendix A: DB 22 Report #10b- Source Data Comparison to 2016 RWP

DRAFT Region N 2026 Regional Water Plan (RWP)

Source Availability Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Aransas County						
Groundwater availability total	1,542	1,547	0.3%	1,542	1,547	0.3%
Surface Water availability total	33	29	-12.1%	33	29	-12.1%
Bee County						
Groundwater availability total	19,837	19,876	0.2%	20,973	21,158	0.9%
Surface Water availability total	464	464	0.0%	464	464	0.0%
Brooks County						
Groundwater availability total	6,352	5,123	-19.3%	7,892	6,437	-18.4%
Surface Water availability total	125	135	8.0%	125	135	8.0%
Duval County						
Groundwater availability total	22,169	22,170	0.0%	26,963	26,965	0.0%
Surface Water availability total	30	30	0.0%	30	30	0.0%
Jim Wells County						
Groundwater availability total	9,683	9,395	-3.0%	11,017	12,049	9.4%
Surface Water availability total	212	212	0.0%	212	212	0.0%
Kenedy County						
Groundwater availability total	18,621	10,104	-45.7%	29,261	15,421	-47.3%
Kleberg County						
Groundwater availability total	13,082	9,039	-30.9%	18,711	12,142	-35.1%
Live Oak County						
Groundwater availability total	9,343	11,413	22.2%	8,441	10,305	22.1%
Surface Water availability total	1,711	1,388	-18.9%	1,711	1,803	5.4%
McMullen County						
Groundwater availability total	7,789	8,461	8.6%	5,138	5,547	8.0%
Surface Water availability total	295	295	0.0%	295	295	0.0%
Nueces County						
Groundwater availability total	6,947	6,865	-1.2%	7,924	7,750	-2.2%
Reuse availability total	1,213	1,128	-7.0%	1,213	1,128	-7.0%
Surface Water availability total	436	436	0.0%	436	436	0.0%
Reservoir** County						

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs.

**Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.


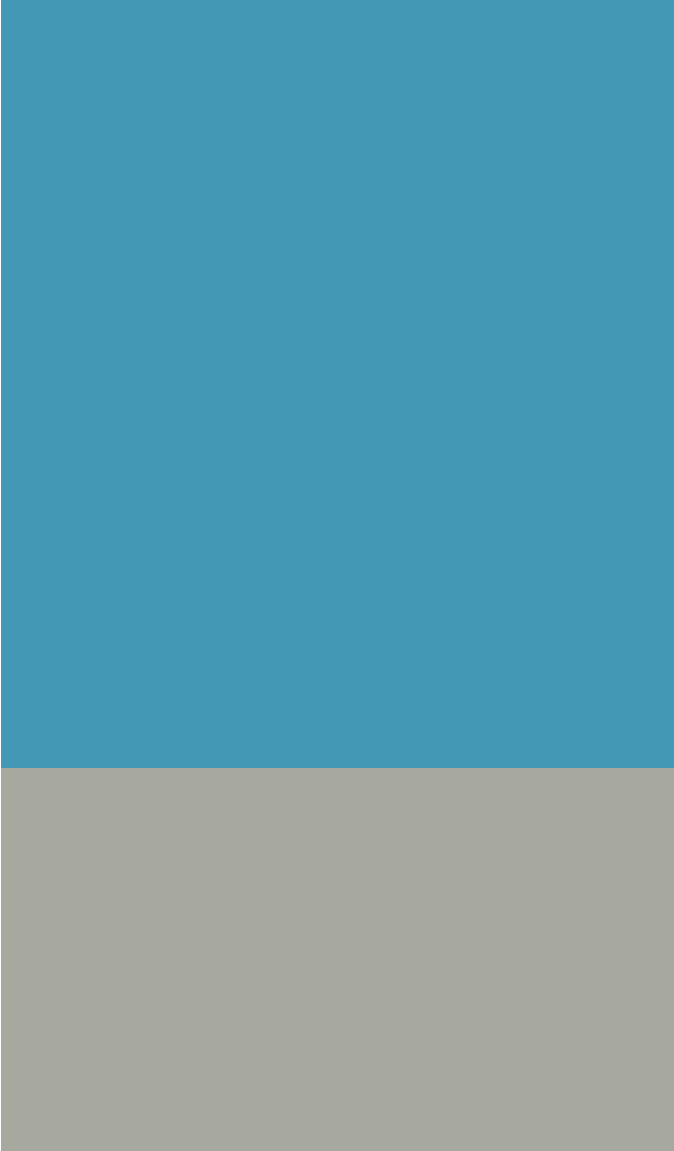
DRAFT Region N 2026 Regional Water Plan (RWP) Source Availability Comparison to 2021 RWP

Water Volumes Shown in Acre-Feet per year

	2030 Planning Decade*			2070 Planning Decade*		
	2021 RWP	2026 RWP	Difference (%)	2021 RWP	2026 RWP	Difference (%)
Surface Water availability total	109,660	110,766	1.0%	100,560	102,766	2.2%
San Patricio County						
Groundwater availability total	45,016	45,016	0.0%	49,234	49,234	0.0%
Reuse availability total	2,688	0	-100.0%	2,688	0	-100.0%
Surface Water availability total	163	163	0.0%	163	163	0.0%
Region N Total						
Groundwater availability total	160,381	149,009	-7.1%	187,096	168,555	-9.9%
Reuse availability total	3,901	1,128	-71.1%	3,901	1,128	-71.1%
Surface Water availability total	113,129	113,918	0.7%	104,029	106,333	2.2%

*The 2030 and 2070 planning decades are used in this comparison because they represent the earliest and latest planning decades in both the 2021 and 2026 RWPs.
 **Since reservoir sources can exist across multiple counties, the county field value, 'reservoir' is applied to all reservoir sources.

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Appendix B

Hydrologic Variance Request(s) and
TWDB Approval Letters

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Appendix B: Hydrologic Variance Request(s) and TWDB Approval Letters

Shaw, Kristi

From: Shaw, Kristi
Sent: Tuesday, December 5, 2023 3:58 PM
To: Michele Foss
Cc: tpruski@nueces-ra.org; Scott Bledsoe (wsb3@aol.com)
Subject: Region N SW Hydrologic Variance Request
Attachments: 2026RWP_SurfaceWater_HydrologicVariance_Checklist_RegionN_TWDB.docx;
Background_Variance_Request_RegionN_2026Plan.pdf

Hi Michele,

Attached is TWDB checklist submittal for Region N's surface water hydrologic variance request approved by the RWPG on May 18th. The second attachment presents supplemental background and supporting information for the request to use the Corpus Christi Water Supply Model & safe yield for determining water availability from the Corpus Christi Regional Supply system for the 2026 Region N Plan.

Please let me know if you have any questions.

Thanks,

Kristi Shaw, P.E.
Senior Professional Associate

HDR
4401 West Gate Blvd Suite 400
Austin, TX 78745
D 512.912.5118 **M** 512.576.7429
kristi.shaw@hdrinc.com
hdrinc.com/follow-us

Surface Water Hydrologic Variance Request Checklist

Texas Water Development Board (TWDB) rules¹ require that regional water planning groups (RWPG) use the most current Water Availability Models (WAM) from the Texas Commission on Environmental Quality (TCEQ) and assume full utilization of existing water rights and no return flows for surface water supply analysis. Additionally, evaluation of existing stored surface water available during Drought of Record conditions must be based on Firm Yield using anticipated sedimentation rates. However, the TWDB rules also allow, and **we encourage**, RWPGs to use more representative, water availability modeling assumptions; better site-specific information; or justified operational procedures other than Firm Yield with written approval (via a Hydrologic Variance) from the Executive Administrator in order to better represent and therefore prepare for expected drought conditions.

RWPGs must use this checklist, which is intended to save time and reduce effort, to request a Hydrologic Variance for estimating the availability of surface water sources. For Questions 4 – 10, please indicate whether the requested variance is for determining Existing Supply, Strategy Supply, or both. Please complete a separate checklist for each river basin in which variances are being requested.

Water Planning Region: N

1. Which major river basin does the request apply to? Please specify if the request only applies part of the basin or only to certain reservoirs.

Nueces Basin. Specifically, the water supply available to the City of Corpus Christi from the Choke Canyon Reservoir and Lake Corpus Christi.

2. Please give a brief, bulleted, description of the requested hydrologic variances including how the alternative availability assumptions vary from rule requirements, how the modifications will affect the associated annual availability volume(s) in the regional water plan, and why the variance is necessary or provides a better basis for planning. You must provide more-detailed descriptions in the subsequent checklist questions. Attach any available documentation supporting the request.

The Coastal Bend Regional Water Planning Group is requesting two variances:

- Use of the Corpus Christi Water Supply Model to evaluate water availability for the Corpus Christi Regional Supply System. All other run-of-river rights will be evaluated using the Nueces WAM Run #3 to estimate availability.
- Use of Safe Yield with 75,000 ac-ft reserve and City's reservoir operations policy to evaluate surface water supplies for the Corpus Christi Regional Supply System. All other rights will be evaluated using firm yield.

Background and supporting information related to this request is provided in Attachment 1 supplement.

¹ 31 Texas Administrative Code (TAC) §§ 357.10(14) and 357.32(c)

3. Was this request submitted in a previous planning cycle? If yes, please indicate which cycle and note how it is different, if at all, from the previous request?

Yes

The previous Region N Plans (2006, 2011, 2016, and 2021 Plans) have received hydrologic variances to use the Corpus Christi Water Supply Model (formerly NUBAY model) and use of safe yield to evaluate water availability for the Corpus Christi Regional Supply System.

4. Are you requesting to extend the period of record beyond the current applicable WAM hydrologic period? If yes, please describe the proposed methodology. Indicate whether you believe there is a new drought of record in the basin.

Yes

Existing Supply

A new drought of record for the Corpus Christi Regional Water Supply System from 2007 to 2013 was identified in the 2021 Plan. The single lowest inflow year to the Lake Corpus Christi/ Choke Canyon Reservoir system occurred in 2011. The minimum 2 year (twenty-four month) inflow to the LCC/CCR system during this most recent decade occurred from October 2010 to September 2012 at an inflow of 124,000 acft, which is 32% less than the minimum 2 year inflow to the Lake Corpus Christi/ Choke Canyon system in the Nueces Basin in the 1990's of 183,000 acft that occurred from August 1994 to July 1996 and was the driver of the previous drought of record.

The hydrology update used the same methodology that was used to develop the Nueces WAM hydrology.

5. Are you requesting to use a reservoir safe yield? If yes, please describe in detail how the safe yield would be calculated and defined, which reservoir(s) it would apply to, and why the modification is needed or preferable for drought planning purposes.

Yes

Existing Supply

Similar to the 2021 Plan cycle, the annual safe yield assumes 75,000 ac-ft remains in CCR/LCC system storage during the critical month of the drought of record. The Coastal Bend Regional Water Planning Group requests use of safe yield for supply planning, instead of the firm yield with zero remaining storage during historical drought of record conditions, due to historical trends showing increasing severity with each successive drought as described in Chapter 1.10. Background and supporting information related to this request is provided in Attachment 1 supplement.

6. Are you requesting to use a reservoir yield other than firm yield or safe yield? If yes, please describe, in a bulleted list, each modification requested including how the alternative yield was calculated, which reservoir(s) it applies to, and why the modification is needed or preferable for drought planning purposes. Examples of alternative reservoir yield analyses may include using an alternative reservoir level, conditional reliability, or other special reservoir operations.

No

Choose an item.

Click or tap here to enter text.

7. Are you requesting to use a different model (such as a RiverWare or Excel-based models) than RUN 3 of the applicable TCEQ WAM? If yes, please describe the model being considered including how it incorporates water rights and prior appropriation and how it is more conservative than RUN 3 of the applicable TCEQ WAM.

Yes

Existing Supply

The Corpus Christi Water Supply Model (CCWSM) focuses on the operations of the CCR/LCC/Lake Texana/MRP Phase II System and is capable of simulating this system subject to the City of Corpus Christi's Phased Operations Plan and the 2001 Agreed Order governing freshwater inflow passage to the Nueces Estuary. It includes water rights and simulates availability through prior appropriation subject to hydrologic availability.

8. Are you requesting to use a modified TCEQ WAM? If yes, please describe in a bulleted list all modifications in detail including all specific changes to the WAM and whether the modified WAM is more conservative than the TCEQ WAM RUN 3. Examples of WAM modifications may include adding subordination agreements, contracts, updated water rights, modified spring flows, updated lake evaporation, updated sedimentation², system or reservoir operations, or special operational procedures into the WAM.

No

Choose an item.

Click or tap here to enter text.

² Updating anticipated sedimentation rates does not require a hydrologic variance under 31 TAC § 357.10(14). The Technical Memorandum will require providing details regarding the sedimentation methodology utilized. Please consider providing that information with this request.

9. Are you requesting to include return flows in the modeling? If yes, are you doing so to model an indirect reuse water management strategy (WMS)? Please provide complete details regarding the proposed methodology for determining reuse WMS availability.

No

Existing Supply

10. Are any of the requested Hydrologic Variances also planned to be used by another region for the same basin? If yes, please indicate the other Region. Please indicate if unknown.

No

Click or tap here to enter text.

11. Please describe any other variance requests not captured on this checklist or add any other information regarding the variance requests on this checklist.

Click or tap here to enter text.

Attachment 1-

Hydrologic variance request to use the Corpus Christi Regional Water Supply Model for regional water supply availability instead of TCEQ Water Availability Model (WAM) Run # 3

At the Coastal Bend Meeting on May 18, 2023, the Coastal Bend (Region N) Regional Water Planning Group approved the submittal of a hydrologic variance request to the TWDB Executive Administrator to (1) use the Corpus Christi Water Supply Model to evaluate water availability for the Corpus Christi Regional Water Supply System and (2) use of safe yield with 75,000 acft reserve and the City's reservoir operating policies to calculate water availability from the Corpus Christi Regional Water Supply System for the 2026 Region N Water Plan.

Request for hydrologic variance for use of the Corpus Christi Water Supply Model to Evaluate Water Availability for the Corpus Christi Regional Water Supply System-

Background: The TWDB guidelines¹ state that planning groups must use the unmodified TCEQ Water Availability Model (WAM) Run # 3 for determining current and future water supplies *unless a hydrologic variance approval is granted by the TWDB Executive Administrator for variations in modeling requirements*. TCEQ's WAM Run # 3, includes all water rights at full authorizations and no return flows.

The TCEQ Nueces Basin WAM Run # 3 does not accurately simulate the City's system operation policy within permit allowances nor does it reflect all aspects of the TCEQ 2001 Agreed Order. Furthermore, the hydrology ends in 1996 and doesn't cover the recent drought of record. WAM Run #3 is not reasonable for drought planning purposes or to reflect conditions expected in near term, actual drought conditions.

The previous Region N Plans (2006, 2011, 2016, and 2021 Plans) have received hydrologic variances to use the Corpus Christi Water Supply Model (formerly NUBAY model) to evaluate water availability for the Corpus Christi Regional Supply System. Since the original model developed in 1990, the Texas Water Development Board, U.S. Army Corp of Engineers, and City of Corpus Christi have made significant investments in the Corpus Christi Water Supply Model to simulate water availability for the regional water supply system, which spans multiple river basins.

All other run-of-river rights will be evaluated using the Nueces WAM Run #3 to estimate yields.

Supporting Information for Use of the Corpus Christi Water Supply Model to Evaluate Water Availability for the Corpus Christi Regional Water Supply System:

All previous Region N Plans have used the Corpus Christi Water Supply Model (formerly NUBAY model) to determine water availability for the City's Regional Water Supply System.

The Corpus Christi Regional Water Supply Model includes:

- Hydrology through 2015 for total model period of 82 years (1934 to 2015), to include the most recent drought of record
- New TWDB volumetric survey data for Lake Corpus Christi and Choke Canyon Reservoir with updated sedimentation rates

¹ First Amended General Guidelines for Development of the 2026 Regional Water Plans, October 2022.

- Integrated recent hydrology for Lake Texana and Colorado River (for Mary Rhodes Phase II supplies)
- Includes all provisions of the TCEQ 2001 Agreed Order
- Simulates current contracted supplies from Lake Texana, which includes the LNRA exercised call-back for local water users in Jackson County pursuant to City of Corpus Christi contract terms
- Operational flexibility to exercise water supply calls on the Garwood water right on the Colorado River at a variable rate according to diversion rate and priority date of the rights and based on MRP Phase II system capacities.
- Other updates

Request for hydrologic variance for use of Safe Yield of 75,000 acft reserve and City’s Reservoir Operations Policy to Evaluate Surface Water Supplies for the Corpus Christi Regional Supply System-

Background: The TWDB guidelines² state that planning groups must use firm yield *unless a hydrologic variance approval is granted by the TWDB Executive Administrator for variations in modeling requirements.*

Firm yield is defined as the maximum water volume a reservoir can provide each year under a repeat of a drought of record, using anticipated sedimentation rates and assuming all senior rights are utilized and no return flows are included such that the reservoir storage draws down to zero or some other defined dead pool storage with no shortages.

Safe yield is a provision for climate and growth uncertainty and has been used in previous Region N plans and City of Corpus Christi water planning. Safe yield is defined as the maximum amount of supply that can be diverted from a reservoir system such that a *specified reserve amount remains* in storage during the modeled critical drought. A description of the City’s existing reservoir operating policy and safe yield assumptions from the 2021 Region N Plan is included in Section 3.1:

https://www.twdb.texas.gov/waterplanning/rwp/plans/2021/N/RegionN_2021RWP.pdf?d=3050.7000000029802

The previous Region N Plans (2006, 2011, and 2016) have received hydrologic variances to use safe yield and the City’s reservoir system operations policy for water supply planning for the Corpus Christi Regional Water Supply System.

Supporting Information for Use of Safe Yield and City’s Reservoir Operations Policy: The City’s regional water supply system includes water supplies from the Nueces, Lavaca/Navidad, and Colorado basins. The City operates the reservoirs as a system and receives roughly half of its water supplies to meet current water demands from the Choke Canyon Reservoir/Lake Corpus Christi system and the other half from the east (i.e. Mary Rhodes Pipeline supplies originating from Lake Texana and Colorado River). The City operates their reservoirs and run-of-the-river rights on the Colorado River within the four corners of their permits and in conjunction with their contract with Lavaca Navidad River Authority (LNRA) for Lake Texana supplies, with the aggregated system yield being greater than individual reservoir yields when supplies are considered separately.

² First Amended General Guidelines for Fifth Cycle of Regional Water Plan Development, April 2017.

A significant amount of water supplied to the region is provided by Lake Texana in Region P and the Colorado River (Mary Rhodes Phase II) in Region K which helps mitigate drought impacts in the Nueces Basin. For example, on September 27, 2013, while the combined storage in Choke Canyon Reservoir and Lake Corpus Christi was at 33% of capacity, storage in Lake Texana was at 81.9% of capacity. Often, drought occurs at different times and at different levels of severity in the Nueces, Lavaca-Navidad, and Colorado River basins. This frequent situation gives the City flexibility in operating the CCR/LCC/Texana/MRP Phase II system to optimize water supplies³. The DOR for the Lavaca-Navidad and Colorado River basins are December 1952 to April 1957 and October 2007 to April 2015, respectively.⁴

The City's regional water supply system is prone to severe drought. Average annual inflows to Lake Corpus Christi and Choke Canyon System is lower with each successive drought. With the Corpus Christi Water Supply Model update in the 2021 Region N Plan cycle to include recent hydrology through 2015, a new drought of record was confirmed. In terms of severity and duration, the drought from 2007-2013 is considered to be a new DOR for the Region N planning area. Although the LCC/CCR system has not yet returned to full capacity, rainfall events in October 2013 and June 2015 ameliorated the severity of drought during this time and replenished stored water levels. The combined CCR/LCC system has not been full since September 2007 and system storage as of February 2020 is approximately 52%, hence, it is important to understand that estimates of firm or safe yield reported herein represent maximums.

The 2021 Region N Plan indicated that the critical drawdown was 73 months from October 2007 to October 2013 during which time the reservoirs went from full to a minimum storage of 32.6% before inflows restored lake storage. From 2010-2012, inflows into LCC and CCR were 32% less (or 59,000 ac-ft less) than the inflows from 1994-1996 into LCC and CCR. For additional comparison, the 2010-2012 inflows were almost 50% less (or 98,200 ac-ft less) than the inflow into LCC and CCR from 1954-1956. Annual inflow to the CCR/LCC System for the model period from 1934 to 2015 is shown in Figure 1. The 3-year moving average shows the severity and duration of the recent drought relative to other droughts since the 1930s, and includes the recovery in 2013 and 2015.

In the previous 2021 Region N Plan, the Corpus Christi Water Supply Model was used to estimate firm yield of the system for 2020 and 2070 sediment conditions, which is the maximum amount of water volume that can be provided under a repeat of drought of record (DOR) conditions assuming that all senior water rights will be totally utilized and all permit conditions met. In this case, this is the yield that would be available such that reservoir active storage would be equal to zero during the worst month of the drought of record. Figure 2 shows a storage trace for the LCC/CCR system under a hypothetical 2020 firm yield demand of 194,000 ac-ft/yr. The critical month of the DOR is September 2013.

Figure 3 shows the CCR/LCC system trace based safe yield to maintain a reserve in storage during the worst, historical drought of record that occurred from 2007 to (at least) 2013. The storage trace for the LCC/CCR system is similar to Figure 2 except that a 75,000 ac-ft reserve is maintained during the critical month of the DOR (September 2013) resulting in a 2020 safe yield of 178,000 ac-ft/yr. The safe yield maintains the 75,000 ac-ft reserve through the planning period (2020-2070) and declines to 167,000 ac-ft/yr by 2070 due to sedimentation.

³ Subject to permitted or contracted supply amounts.

⁴ <https://www.lcra.org/download/2020-water-management-plan/?wpdmdl=11923> p. 3-2

Safe yield supply from the City's Regional Water Supply System is requested to serve as the basis of the needs analysis for entities relying on surface water supplies from the City and the City's wholesale customers (San Patricio Municipal Water District and South Texas Water Authority).

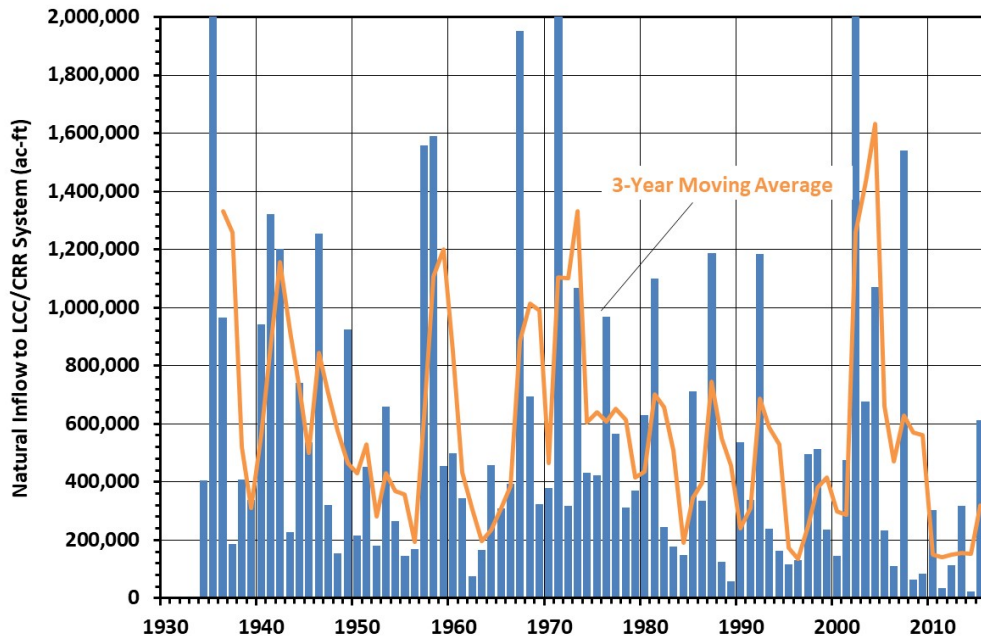


Figure 1
Annual Natural Inflow to the CCR/LCC System

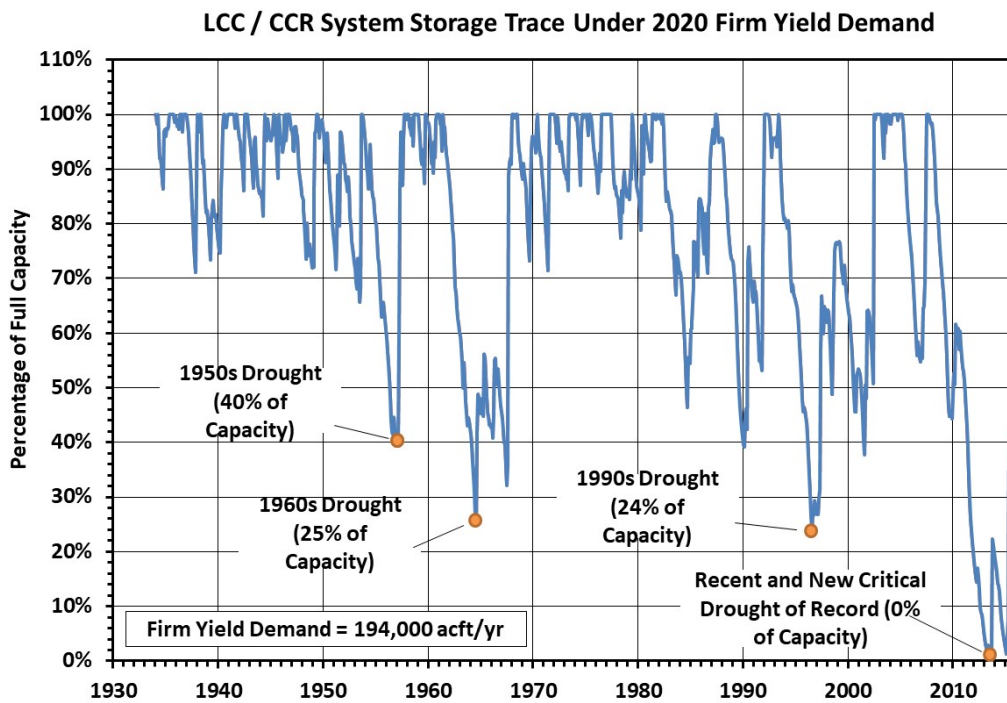


Figure 2
CCR/LCC System Storage Trace- 2020 Firm Yield of 194,000 ac-ft/yr

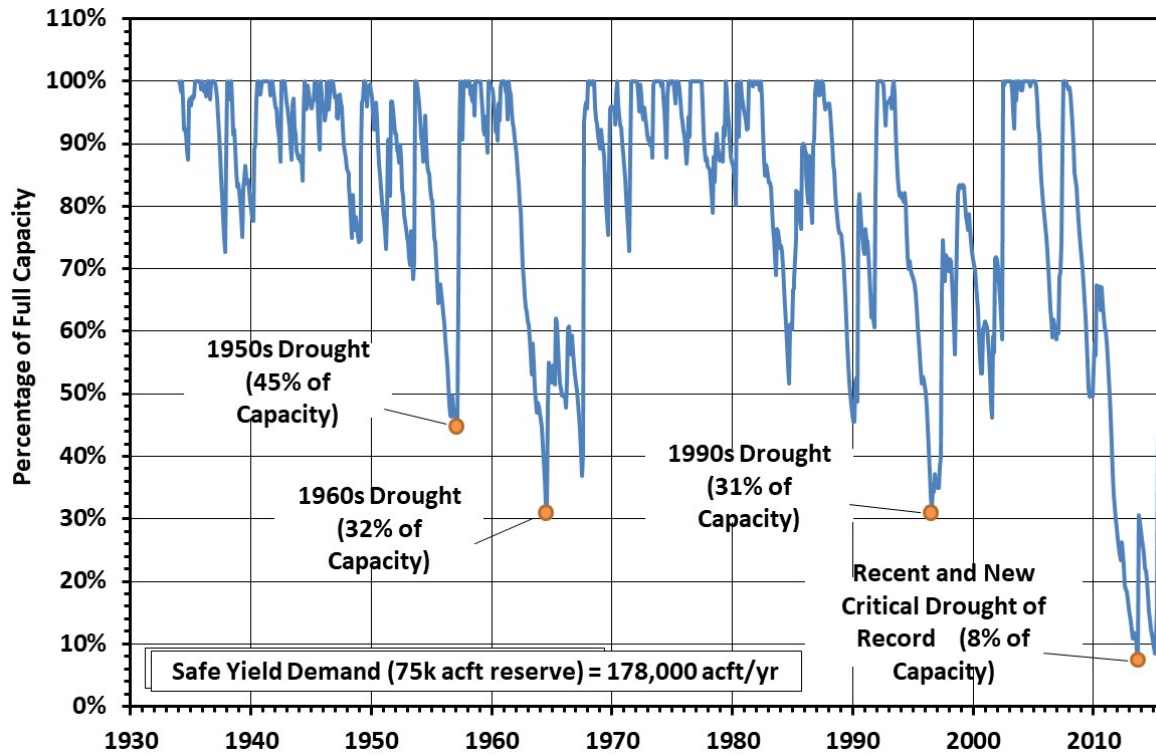


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CCR/LCC System Storage Trace- 2020 Safe Yield of 178,000 ac-ft/yr

TO: Michele Foss, Regional Water Planner, Regional Water Planning

FROM: Nelun Fernando, Ph.D., Manager, Water Availability

DATE: January 3, 2024

SUBJECT: Recommendations on Region N's hydrologic variance request for the 2026 Regional Water Plan

This memorandum summarizes my review recommendations on the hydrologic variance request submitted for assessing current surface water availability in Region N's 2026 regional water plan.

1. Use the Corpus Christi Water Supply Model to evaluate existing supplies from Lake Corpus Christi and Choke Canyon Reservoir for the Corpus Christi Regional Water Supply System.

Recommendation: Approve request.

Justification: The Corpus Christi Water Supply Model includes the operations of Choke Canyon Reservoir, Lake Corpus Christi, accounts for contracted supplies from Lake Texana, and the Mary Rose Pipeline Phase II System, and is capable of simulating the system's performance subject to the City of Corpus Christi's Phased Operations Plan and the 2001 Agreed Order governing freshwater inflow passage to the Nueces Estuary. Furthermore, the variance request was implemented in the 2006, 2011, 2016, and 2021 regional water plans.

2. Use of Safe Yield with 75,000 ac-ft reserve to evaluate existing surface water supplies for the Corpus Christi Regional Supply System.

Recommendation: Approve request.

Justification: The use of safe yield allows reservoir operators to maintain a supply in reserve and is a means of extending supply in the event of a drought worse than the drought of record. Furthermore, the same variance request was implemented in the 2021 regional water plan.

3. Use of hydrology updated through 2015, which includes the new drought of record from 2007 through 2013, to evaluate existing supply.

Recommendation: Approve request.

Justification: The 2021 Region N water plan identified 2007 through 2013 as a new drought of record within the Nueces River Basin. The extended hydrology covers the new drought of record.

Additional resources for consideration:

The TWDB has developed auxiliary extended naturalized flows and reservoir evaporation through December 2021 for the Nueces Water Availability Model (WAM). Extended naturalized flow data are available at https://www.twdb.texas.gov/surfacewater/data/ExtendedNatFlow/Data/CRUN3_extended.txt and net reservoir evaporation data are available at https://www.twdb.texas.gov/surfacewater/data/ExtendedNatFlow/Data/CRUN3_eva.txt.

January 8, 2024

Messrs. Scotty Bledsoe and Pancho Hubert
Co-Chairs
Coastal Bend (Region N) Regional Water Planning Group
c/o Nueces River Authority
500 IH69, Suite 805
Robstown, TX 78380

Dear Messrs. Bledsoe and Hubert:

I have reviewed your request dated December 5, 2023, for approval of alternative water supply assumptions to be used in determining existing surface water availability. This letter confirms that the TWDB approves the following assumptions:

1. Use of the Corpus Christi Water Supply Model, including extending the hydrology through 2015, to evaluate existing supplies from Lake Corpus Christi and Choke Canyon Reservoir for the Corpus Christi Regional Water Supply System.
2. Use of Safe Yield with 75,000 ac-ft reserve to evaluate existing surface water supplies for the Corpus Christi Regional Supply System.

Although the TWDB approves the use of a safe yield with 75,000 ac-ft reserve for developing estimates of current water supplies, firm yield for each reservoir must still be reported to TWDB in the online planning database and plan documents.

For the purpose of evaluating potentially feasible water management strategies, the TCEQ WAM Run 3 is to be used, unless a separate hydrologic variance for water management strategy availability is submitted and approved by the TWDB.

While the TWDB authorizes these modification to evaluate existing water supplies for development of the 2026 Region N Coastal Bend RWP, it is the responsibility of the RWPG to ensure that the resulting estimates of water availability are reasonable for drought planning purposes and will reflect conditions expected in the event of actual drought conditions; and in all other regards will be evaluated in accordance with the most recent version of regional water planning contract Exhibit C, *General Guidelines for Development of the 2026 Regional Water Plans*.

Please do not hesitate to contact Michele Foss of our Regional Water Planning staff at 512-463-9225 or mfoss@twdb.texas.gov if you have any questions.

Messrs. Scotty Bledsoe and Pancho Hubert

January 8, 2024

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Sincerely,

Matt Nelson

Deputy Executive Administrator

c: Travis Pruski, Nueces River Authority
 Kristi Shaw, HDR
 Michele Foss, Water Supply Planning
 Sarah Lee, Water Supply Planning
 Nelun Fernando, Ph.D., Surface Water