



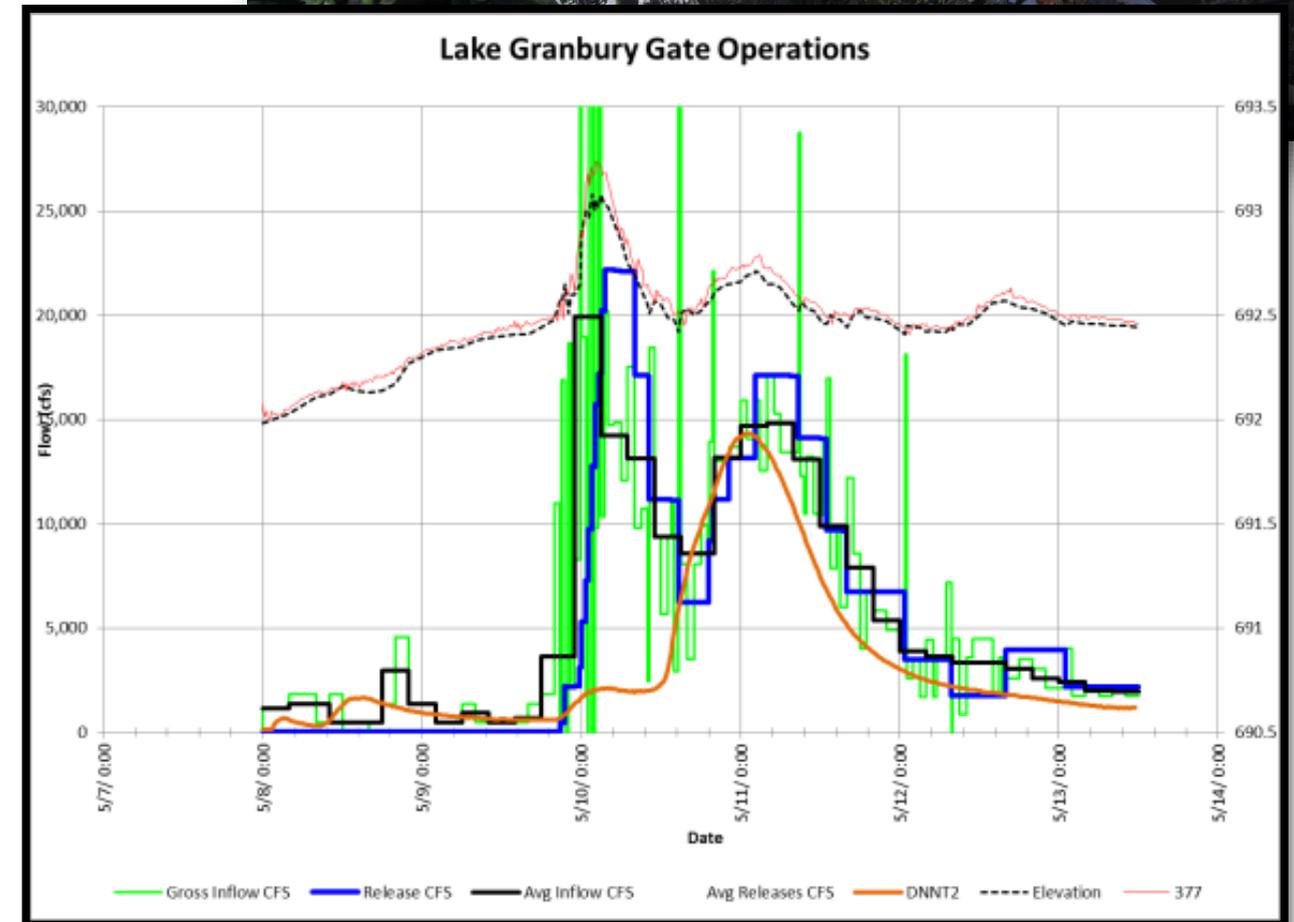
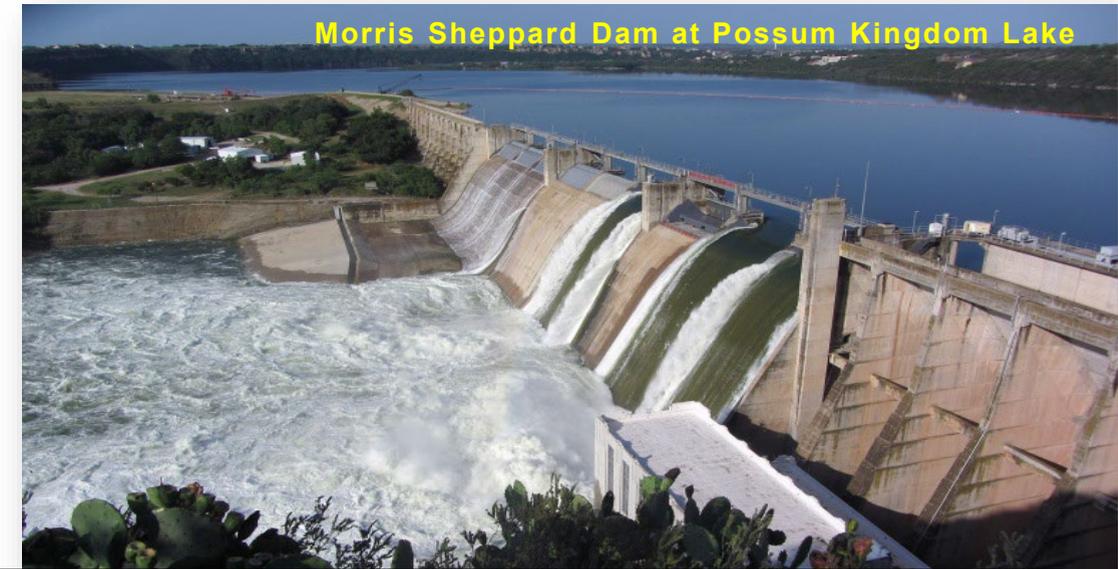
**Brazos**  
— ★ —  
**RIVER AUTHORITY**

# ***Water Services Department Overview***



# ***BRA Reservoir Operating Rules During Floods***

- Don't release based on weather forecasts
- Don't make flooding worse downstream than it would have been without the reservoir being present
- Prevent water overtopping flood gates
- Attempt to minimize flood potential on upper end of lakes
- Ensure good internal & external communication





# Brazos Basin Water Right Monitoring

## Water Services:

- **monitors water right amendment activity basin wide,**
- **assesses amendments for potential impact to BRA water rights,**
- **coordinates with TCEQ on amendment terms.**



## Pending Water Right Applications

Data files that contain information on water rights applications.

This page includes information on pending water rights applications and a list of all water rights applications with final actions taken by the TCEQ.

### [View Pending Water Rights Applications](#)

The web page below contains information on all currently pending water right applications. It is updated by close of business every Monday (or the first day of the week following a state holiday that falls on a Monday).

[View Pending Water Rights Applications](#)

### [Final Action on Water Rights Applications](#)

Once final action is taken on applications (issued, withdrawn, or returned) the application is included on a list of applications for the appropriate fiscal year. The list for the current fiscal year is updated by noon every Monday (or by noon the first day of the week immediately following a state holiday that falls on a Monday).

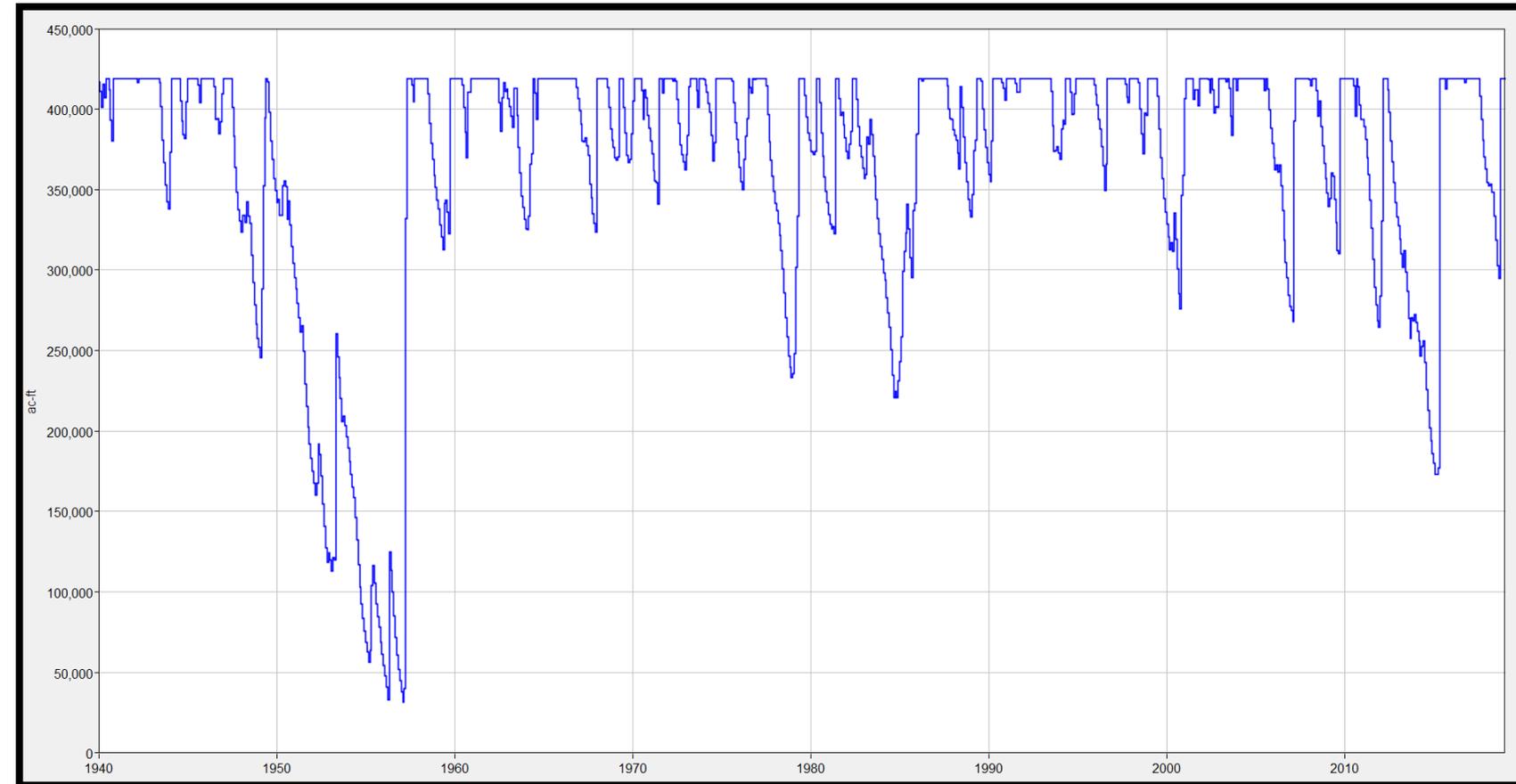
- [Final Actions on Water Right Permit Applications-Fiscal Year 2024](#)



# ***BRA Water Right and Reservoir Modeling***

## **Water Services:**

- **Models BRA water right reliability for scenarios of change in hydrology, reservoir sedimentation, or other factors,**



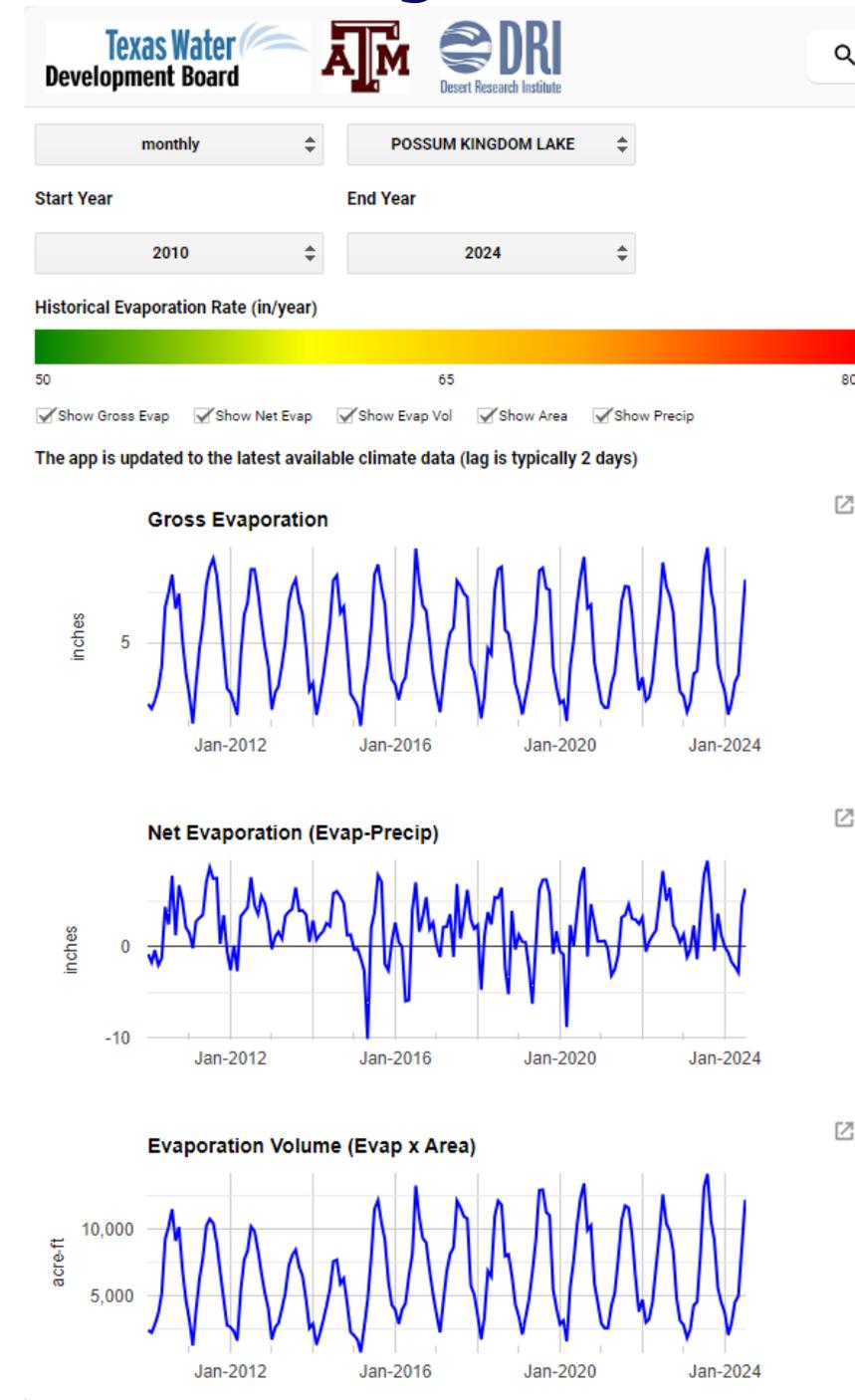
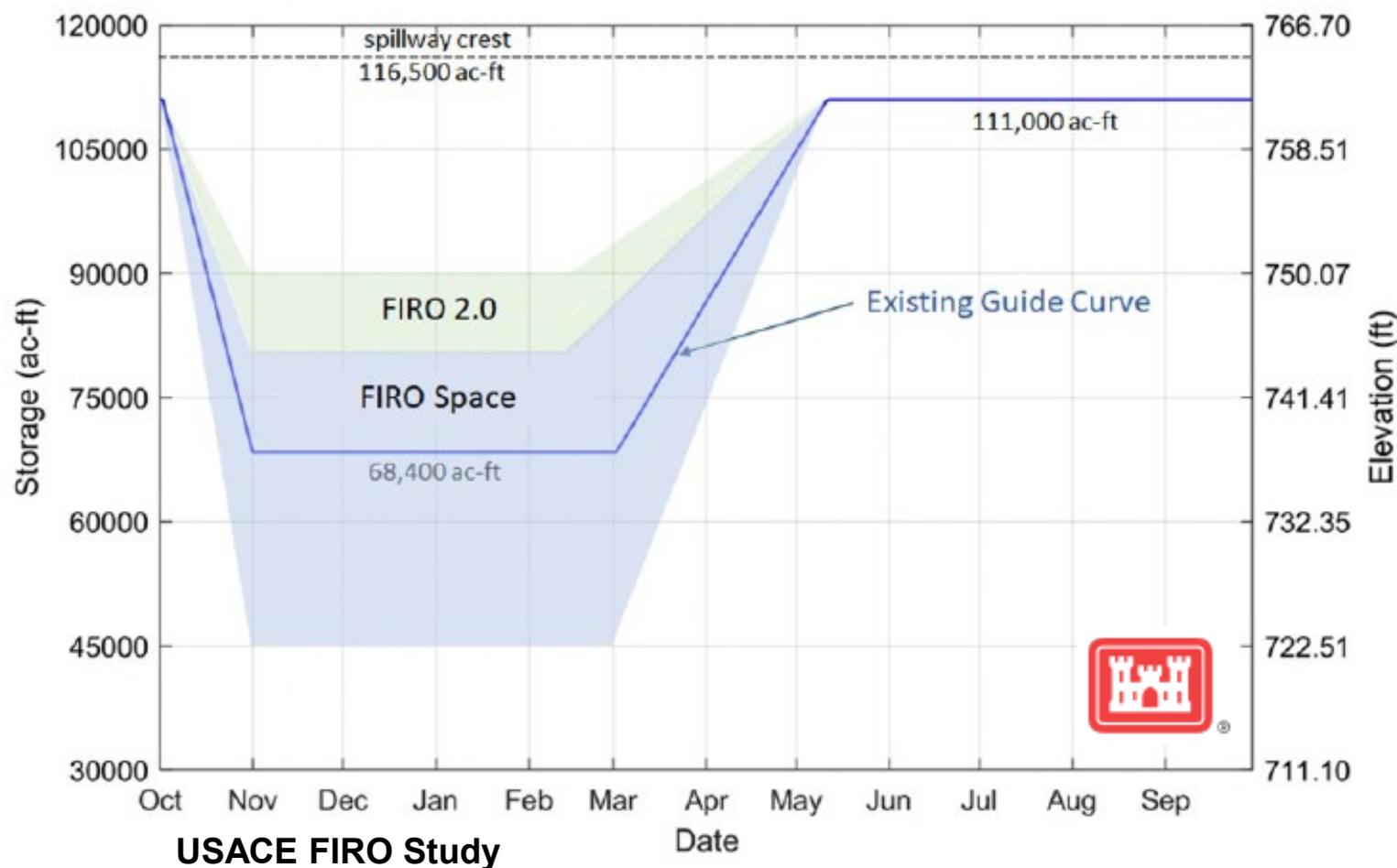
**TCEQ Brazos Basin Water Availability Model – DSS Output**

- **Maintains reservoir survey datasets and elevation-area-capacity data.**



# Participation in Basin Research Projects

- Water Services participates as a stakeholder in research projects that could impact System operations or yield.



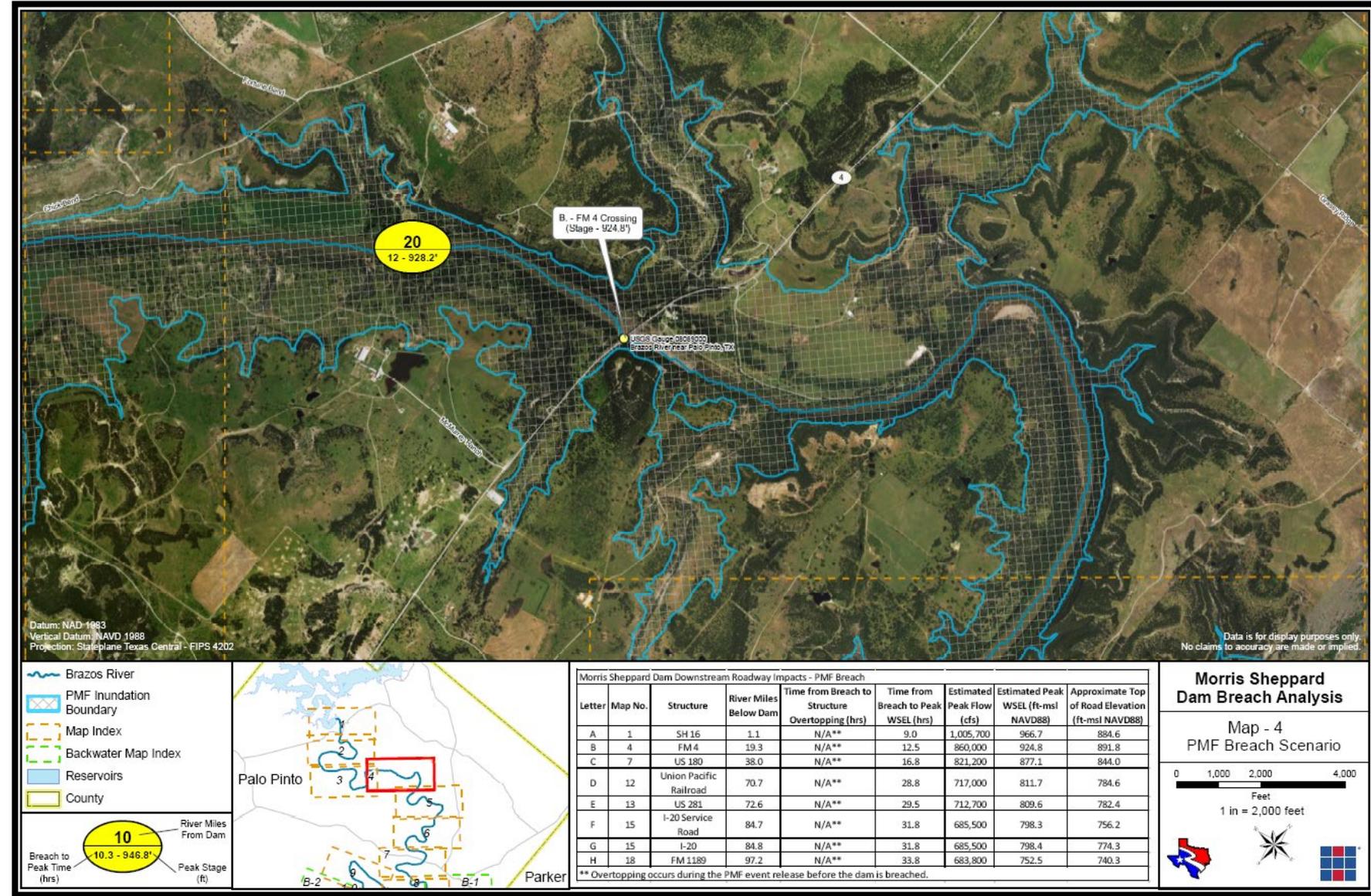
TWDB Evaporation Study



# Hydrology & Hydraulics Analyses

## Water Services:

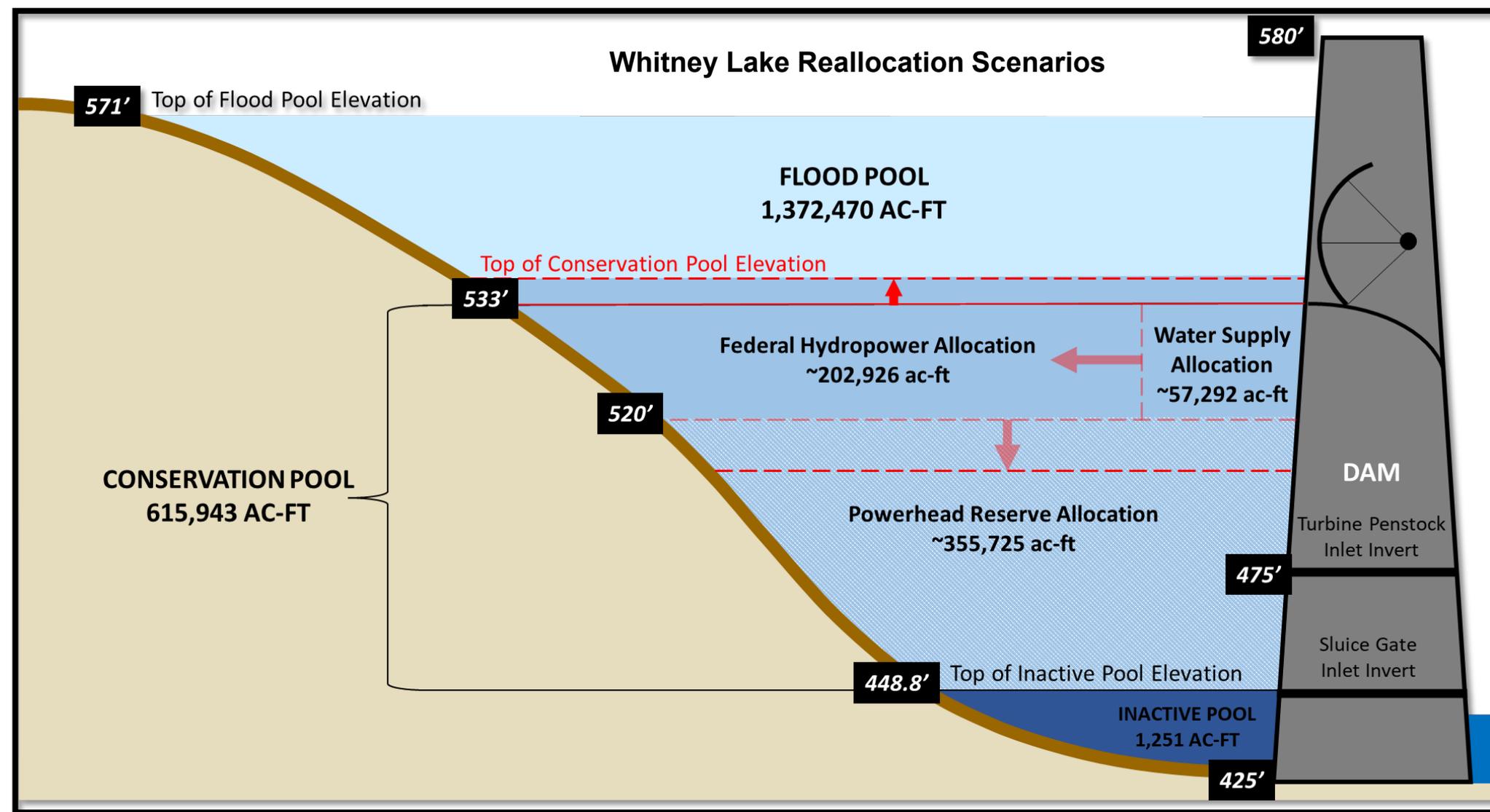
- manages projects that evaluate inundation downstream of BRA reservoirs, probable maximum flood magnitude, & dam breach scenarios





# Water Availability & Reallocation Studies

## Water Services:



- manages projects and evaluates opportunities that may augment BRA water rights and supply including reallocation studies.



# Regional Water and Flood Planning

**BRAZOS G**  
WATER PLANNING GROUP

**Brazos**  
River Authority

2021 Brazos G  
Regional Water Plan

Volume I  
Executive Summary and  
Regional Water Plan

October 2020

HDR FREESE NICHOLS SUSAN ROTH

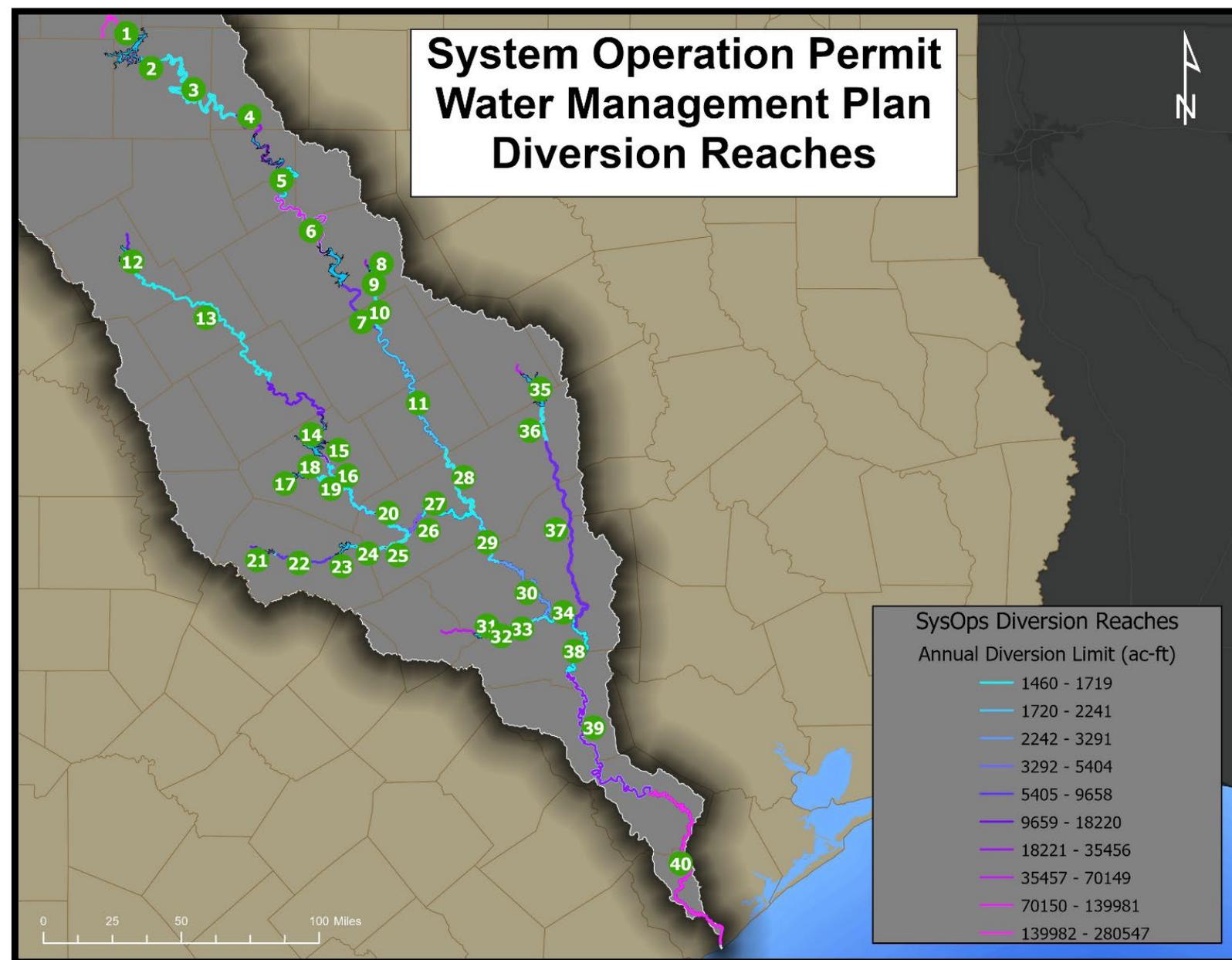
**REGION 8**  
**2023 LOWER BRAZOS**  
**REGIONAL FLOOD PLAN** HALFF



# Maintaining the Water Management Plan

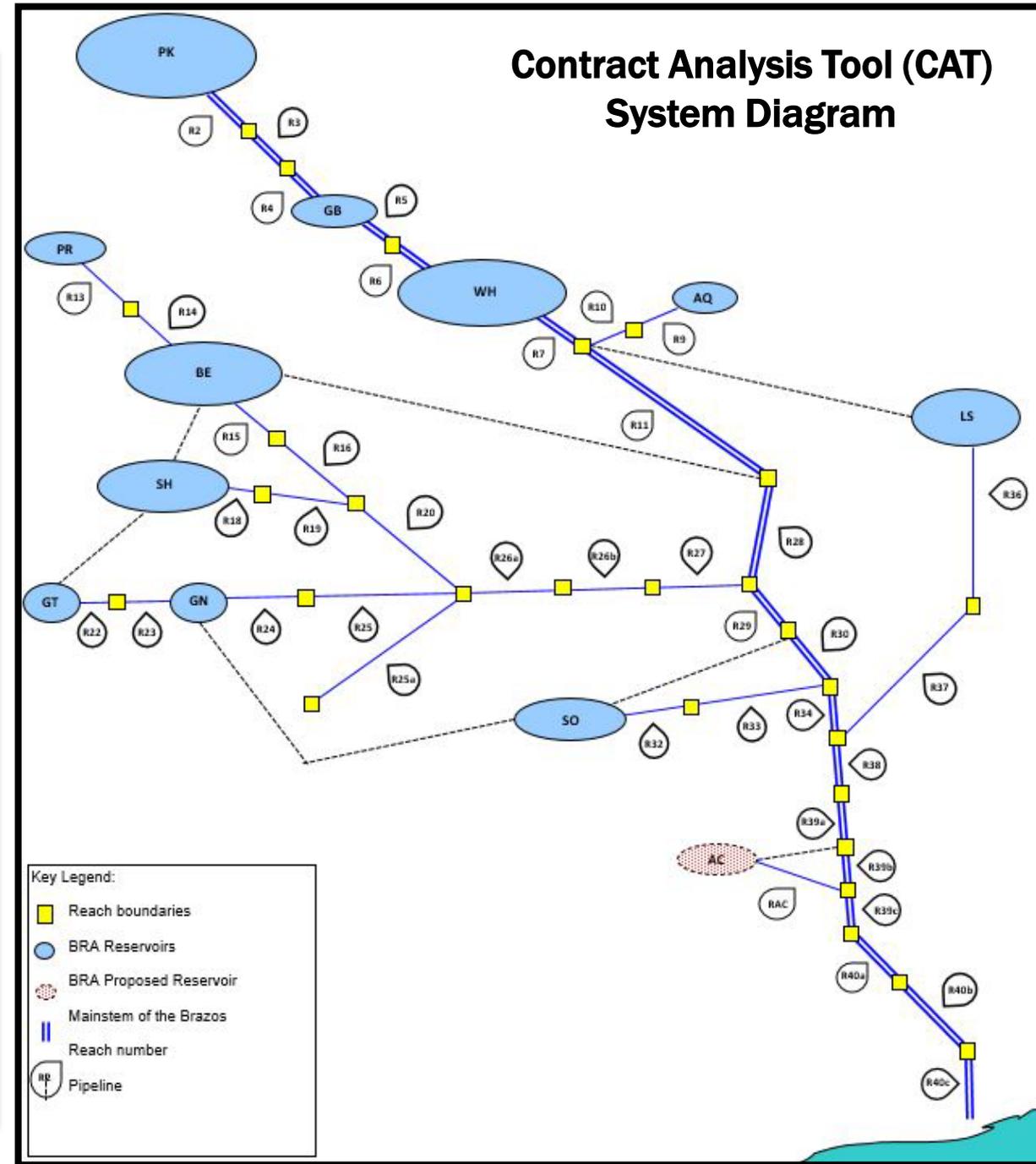
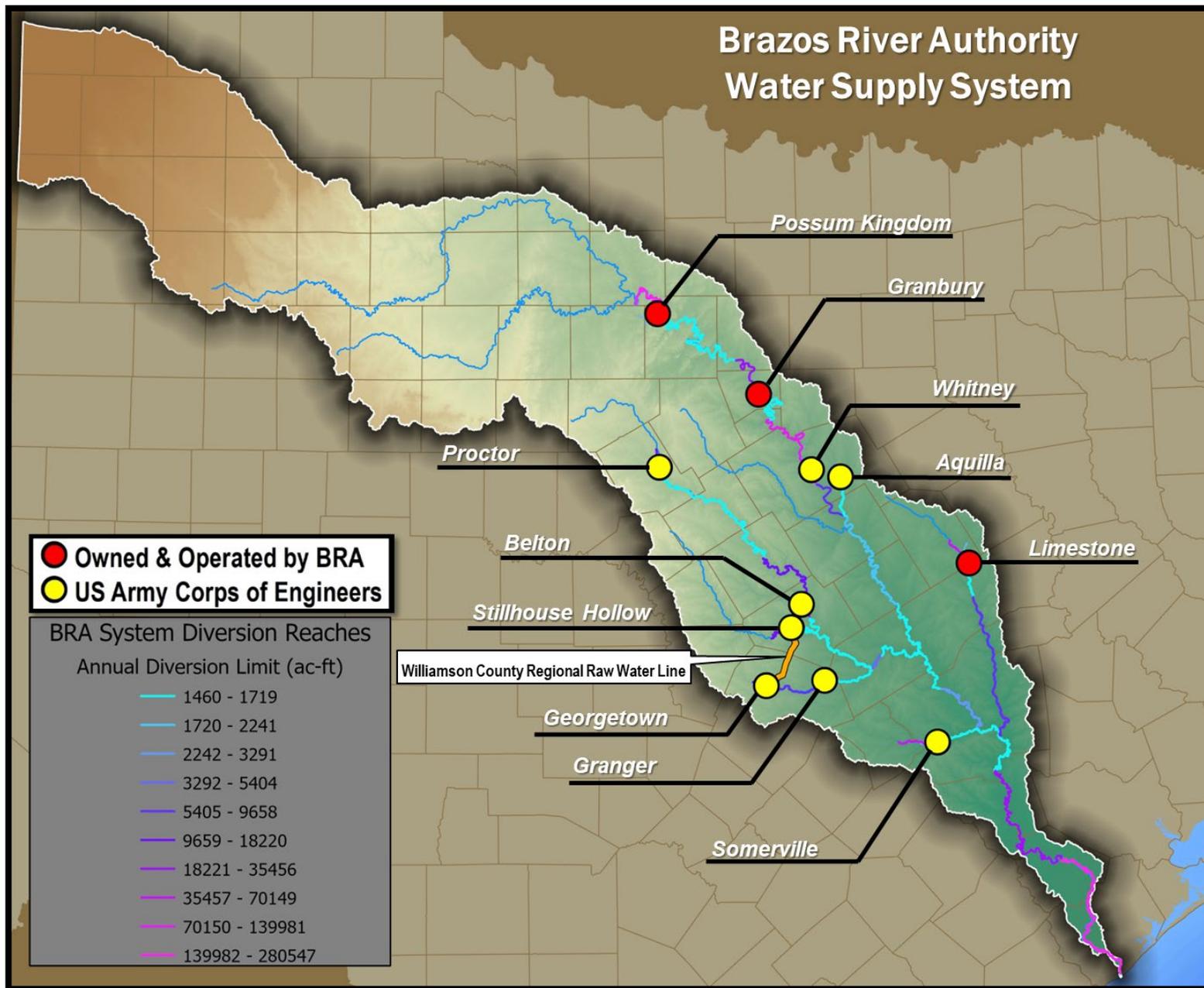
## Water Services:

- maintains compliance with water right authorizations and the SysOps Water Management Plan (WMP),
- manages updates and amendments to BRA water rights and the WMP.





# Managing System Supply





# Contracts/Customers Management

## Contract Analysis Tool

- Purpose
  - Future water sale contract decisions
  - Water supply planning
  - Other operational decisions
- BBM (WRAP) model determines water available to BRA
- CAT model distributes available water to existing and future customers

## CAT Interface

Type 1 Variables - Data of interest for contract analysis. (Changes with each run.)

Run Name	Test Run
User	JSA
Date	3/1/2018
Description	Test Run using STS setup
Output File	T:\Contracting Tool\Model\Test Models\CATalpha4.xlsb
Master File	C:\NoFileYet.xlsb
WRAP Database File	T:\Contracting Tool\WRAP\WH Sr New Hydro\wh_sr_NewHyd_C

Verify Data      Run CAT

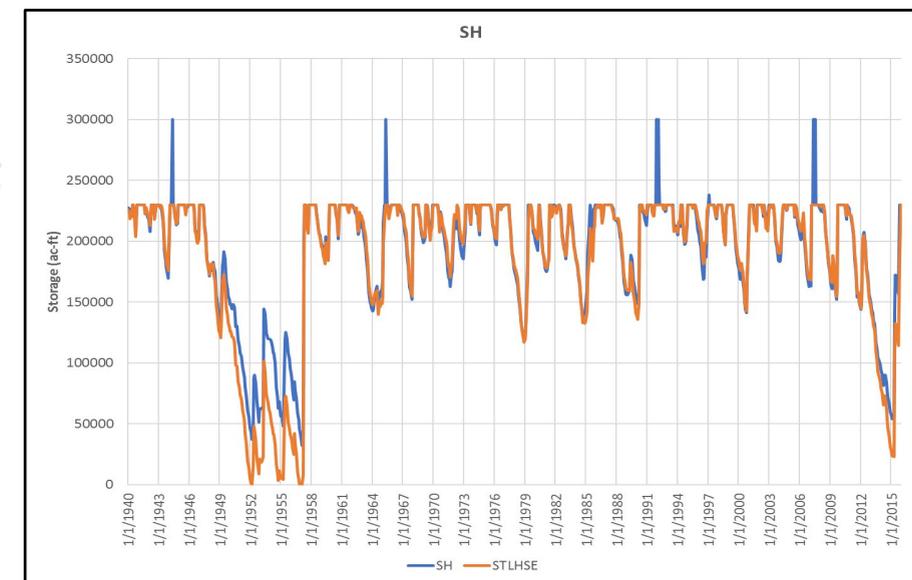
Create CAT      Go to Output Dialogue

### Raw data output

Reach 9 - Lake Aquilla dam to Aquilla gage										
Index	6	Name								
		Up AQ								
		Down R10								
		Delivery to Down	0.999							
			4,015,707							
Totals			4,015,707	0	0	0	0	4,015,707	983,407	4,995,0
Minimum	2		0	0	0	0	0	0	0	0
Maximum	2		92,231	0	0	0	0	92,231	22,172	114,3

Date	Timestep	Month	Pass	ac-ft Reach Inflow	ac-ft Total Demand	ac-ft Diversion Shortage	ac-ft Diversion	ac-ft Remaining Flow	ac-ft Incremental Available Flow	ac-ft Total Outflows
1/31/1940	1	1	2	0	0	0	0	0	29	0
2/29/1940	2	2	2	0	0	0	0	0	0	0
3/31/1940	3	3	2	0	0	0	0	0	0	0
4/30/1940	4	4	2	460	0	0	0	460	0	4
5/31/1940	5	5	2	0	0	0	0	0	0	0
6/30/1940	6	6	2	11890	0	0	0	11890	2947	148
7/31/1940	7	7	2	8752	0	0	0	8752	2415	111

Output tables and graphics





# Water Accounting

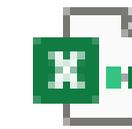
## BRA Water Accounting Plan

- **Background**

- Requirement of the System Operations Permit
- Incorporated into BRA's Conformed Water Management Plan
- Consists of five workbooks 

- **Purpose**

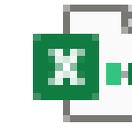
- Method for accounting for and report water diversions and water use
- Tracking return flows, streamflow and releases
- Determining reservoir inflow
- Tracks E-flow requirements and achievement



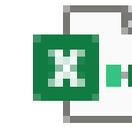
IFCalcs



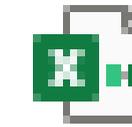
Reaches



Reference



Reservoirs



Summary

- Entries made regularly by BRA staff
- Available for public inspection





# Reservoir Data Management

## Reservoir Data

- Raw Water Storage
- Evaporation
- Rainfall
- Reservoir Releases
- Lakeside Withdrawals
- Reservoir Inflow

**Water Services**

Welcome | Contracts | Water Use Approval | Releases | Res Status Approval | Projects | My Account | Help | Admin Site | Maps

Granbury | Limestone | Possum Kingdom | All Days | Daily Status | USACE Export Files

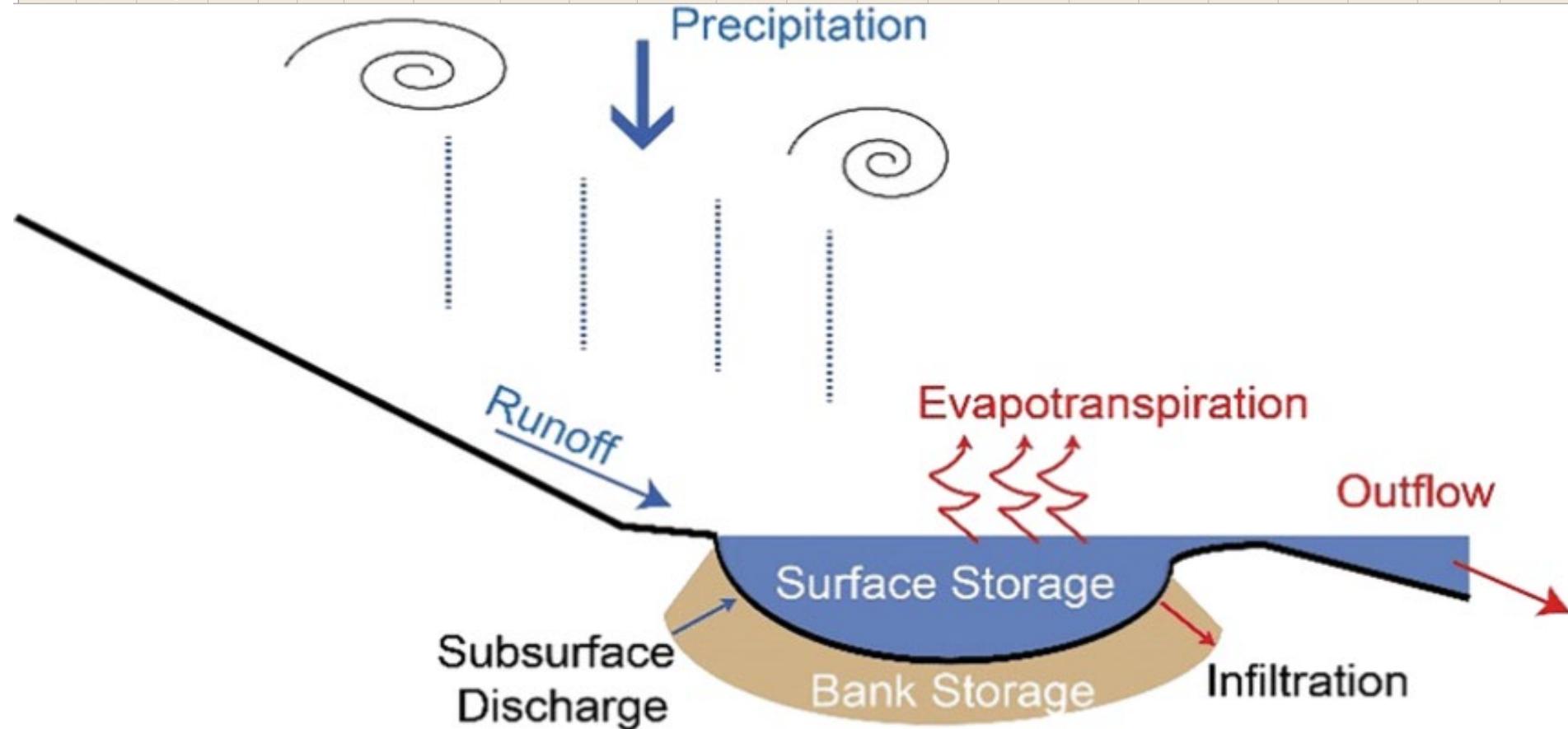
Current Login: chris | Logout

**All Days Report**

Select begin and end dates then click Search.

Begin Date: 8/12/2024 | End Date: 9/12/2024 | Search | Export to Excel | Export to CSV

Report Date	Measure Date	Reservoir Name	Rainfall (in)	Evap (in)	Evap (dsf)	Lakeside Pump (dsf)	Downstream Pump (dsf)	Release Turbine (dsf)	Release Other (dsf)	Rel 0800 - Rpt date (cfs)	HW Elev 0000(ft-mst)	HW Elev 0600(ft-mst)	HW Elev 1600(ft-mst)	HW Elev 2400(ft-mst)	HW Elev 3200(ft-mst)	TW Elev 0000(ft-mst)	TW Elev 0600(ft-mst)	TW Elev 1600(ft-mst)	TW Elev 2400(ft-mst)	TW Elev 3200(ft-mst)	Unadjusted Inflow (dsf)	Change in Storage (af)	
8/12/2024	8/11/2024	Granbury	0.00	0.26	61.100	96.711			19.292	19.287	692.22	692.22	692.19	692.17	692.17						-27.057	-404.950	
8/13/2024	8/12/2024	Granbury	0.00	0.28	65.654	92.022			19.285	19.281	692.17	692.17	692.14	692.13	692.13							13.634	-323.960
8/14/2024	8/13/2024	Granbury	0.00	0.29	67.859	93.031			19.278	19.274	692.13	692.13	692.09	692.08	692.08							-23.992	-404.950
8/15/2024	8/14/2024	Granbury	0.00	0.29	67.708	102.912			19.271	19.265	692.08	692.08	692.04	692.04	692.02							26.564	-323.960
8/16/2024	8/15/2024	Granbury	0.00	0.32	74.564	93.232			19.265	19.262	692.02	692.02	692.01	692.00	692.00							23.734	-323.960
8/17/2024	8/16/2024	Granbury	0.00	0.35	81.435	98.274			19.260	19.258	692.00	692.00	691.97	691.97	691.97							81.979	-232.050
8/18/2024	8/17/2024	Granbury	0.00	0.28	65.058	88.191			19.256	19.252	691.97	691.97	691.94	691.94	691.93							55.514	-232.050
8/19/2024	8/18/2024	Granbury	0.00	0.32	74.261	93.232			19.252	19.246	691.94	691.93	691.93	691.91	691.89							69.755	-232.050
8/20/2024	8/19/2024	Granbury	0.00	0.34	78.762	96.308			19.246	19.242	691.91	691.89	691.89	691.87	691.86							38.329	-309.400
8/21/2024	8/20/2024	Granbury	0.00	0.34	78.628	96.610			19.241	19.234	691.87	691.86	691.84	691.85	691.81							116.486	-154.700
8/22/2024	8/21/2024	Granbury	0.00	0.34	78.470	96.207			19.234	19.229	691.85	691.81	691.80	691.79	691.77							-40.069	-464.100
8/23/2024	8/22/2024	Granbury	0.00	0.34	78.318	96.308			19.228	19.221	691.79	691.77	691.77	691.74	691.72							-1.130	-386.750
8/24/2024	8/23/2024	Granbury	0.00	0.34	78.123	96.509			19.220	19.215	691.74	691.72	691.71	691.69	691.68							-1.131	-386.750
8/25/2024	8/24/2024	Granbury	0.00	0.34	77.947	96.509			19.213	19.209	691.69	691.68	691.65	691.65	691.64							37.683	-309.400

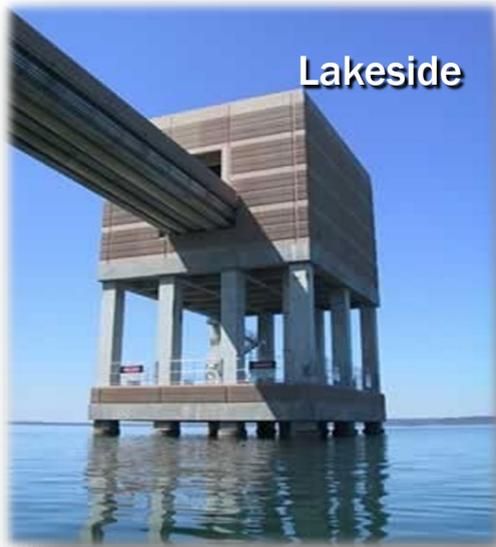




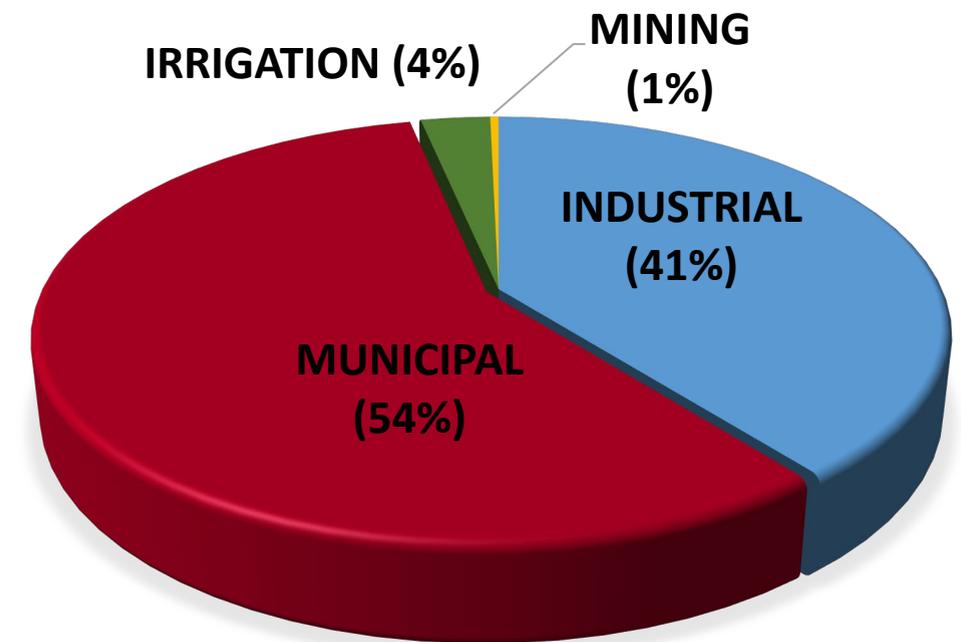
# Contracts/Customers Management

## Long Term Agreements

- Contracts and commitments total about 750,000 acre-feet/year
- 170 contracts
  - 121 divert directly from lake
  - 49 divert downstream of reservoirs



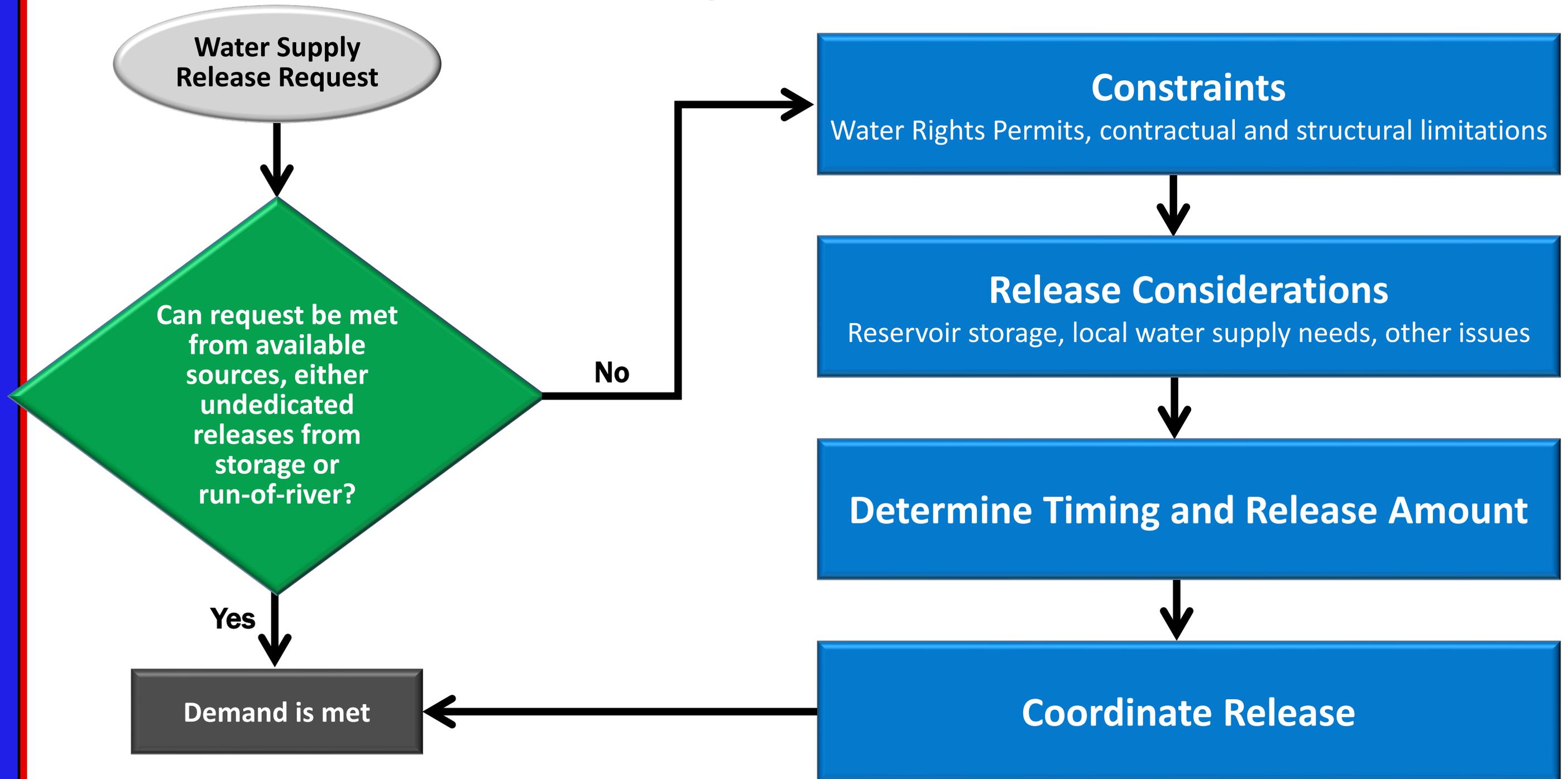
LONG-TERM CONTRACTS BY TYPE







# Drought Management Water Supply Release Guidance



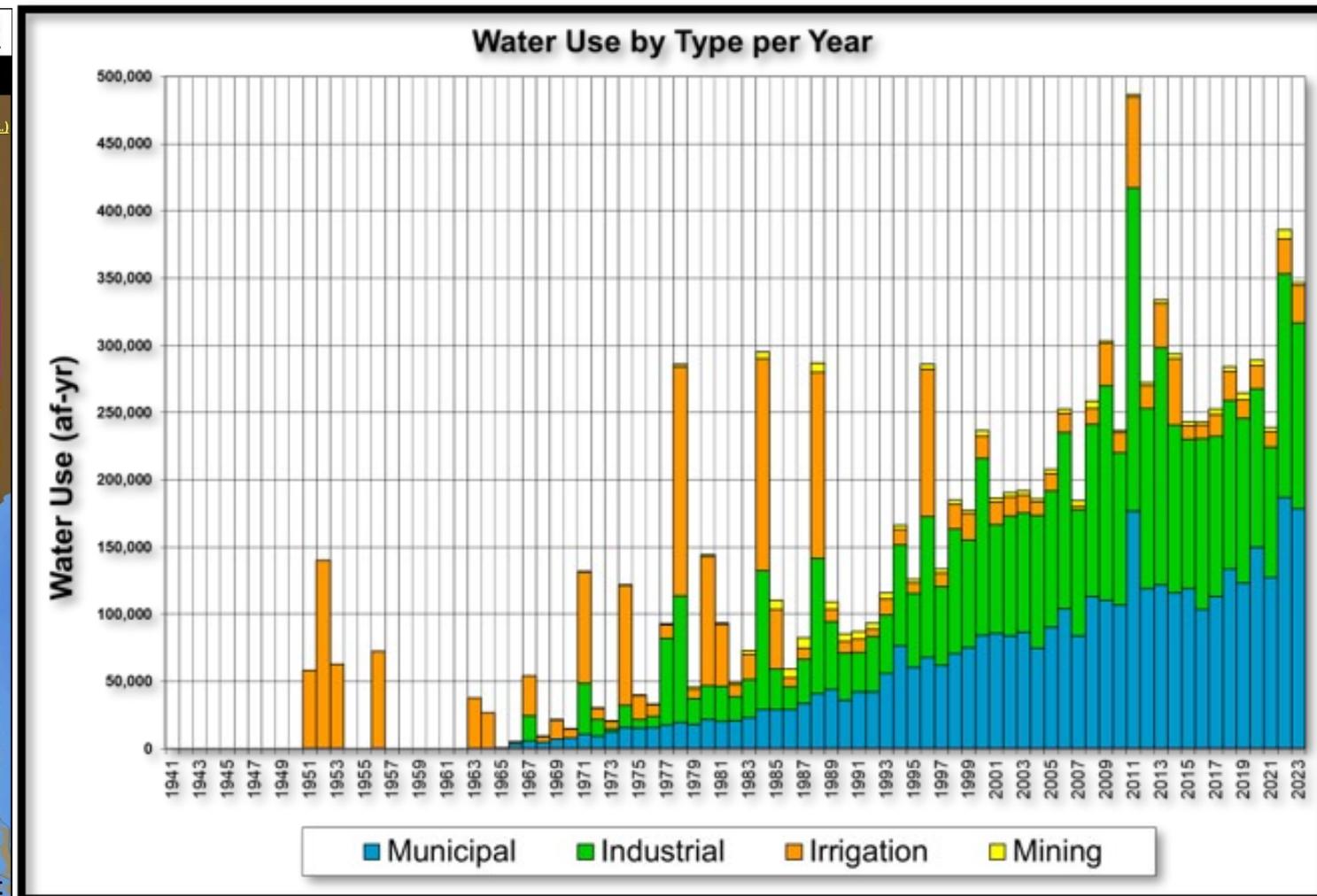
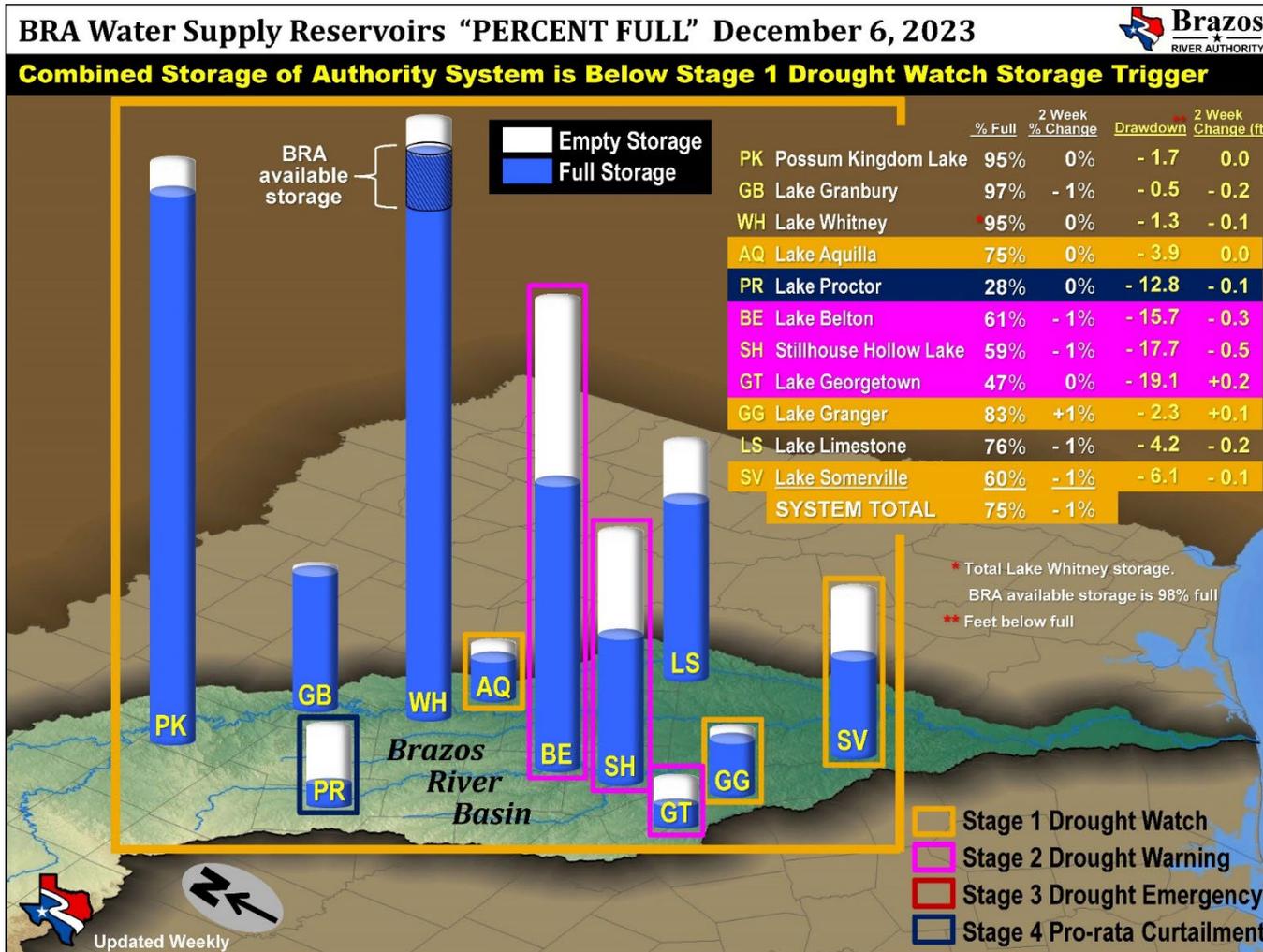


# Drought Contingency Plan & Water Conservation Plan

Brazos River Authority

## Drought Contingency Planning

## Water Conservation Planning and Reporting





**Brazos River Authority**



**That's it  
for Water Services**