

# BOARD OF DIRECTORS MEETING

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March 21, 2023



## PLEDGE OF ALLEGIANCE

I pledge allegiance to the flag of the United States of America, and to the republic for which it stands, one nation under God, indivisible, with liberty and justice for all.



## PLEDGE OF ALLEGIANCE TO THE TEXAS FLAG

Honor the Texas flag; I pledge allegiance to thee, Texas, one state under God, one and indivisible.



# 2

## Public Comment



# 3

Consider Approval of the Minutes from the Meeting Held on February 21, 2023





# 4

## Consider Approval of Consent Agenda





# 5

## Consider Approval of Agreement with Hilltop Securities, Inc. for Municipal Advisory Services

*Sandy Newby, Chief Financial Officer*



# 6

## Consider Approval of TRWD Strategic Plan

Dan Buhman, *General Manager*



# 7

## Consider Approval of Contract with Tarrant County Elections Administrator's Office to Conduct an Election

Stephen Tatum, *General Counsel*





# 8

## Consider Approval of Revisions and Additions to Board Governance and Purchasing Policies

Stephen Tatum, *General Counsel*

# 9

Consider Approval of Contract Amendment with Brenntag Southwest, Inc. to Furnish and Deliver Liquid Chlorine to Richland-Chambers Lake Pump Station

Jason Gehrig, *Infrastructure Engineering Director*

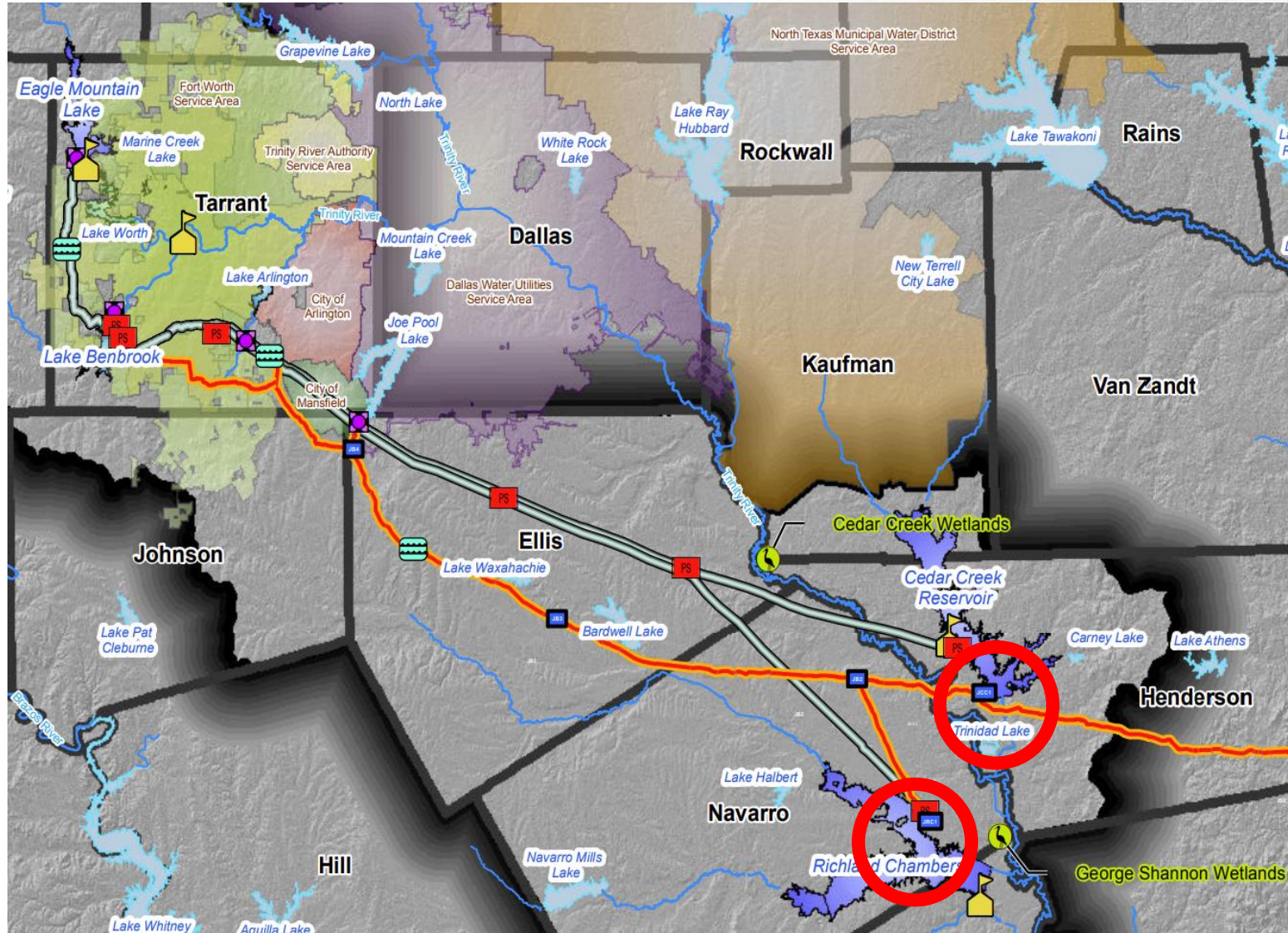
# 10

Consider Approval of Contract Renewal and Extension with Mark L. Mazzanti for Consulting Services

Dan Buhman, *General Manager*

# Chemicals Purchase

## Richland-Chambers Lake PS (Chlorine Contract Amendment)



# Chemicals Contract Amendment – Chlorine

Chlorine combines with aqueous ammonia to form chloramines for Richland-Chambers Lake PS, used for biofilm and zebra mussel control

30-ton Chlorine Cylinder



Angle Valves



Chlorinator



# Staff Update

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Recognize 50 Years of Service

*Darrell Beason, Chief Operations Officer*

# Staff Update

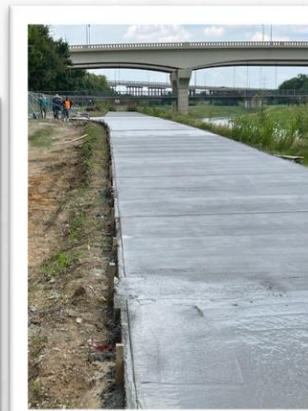
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## Recreation Update

*Darrell Beason, Chief Operations Officer*

# Completed Trail Improvements

WATER SUPPLY · FLOOD PROTECTION · RECREATION





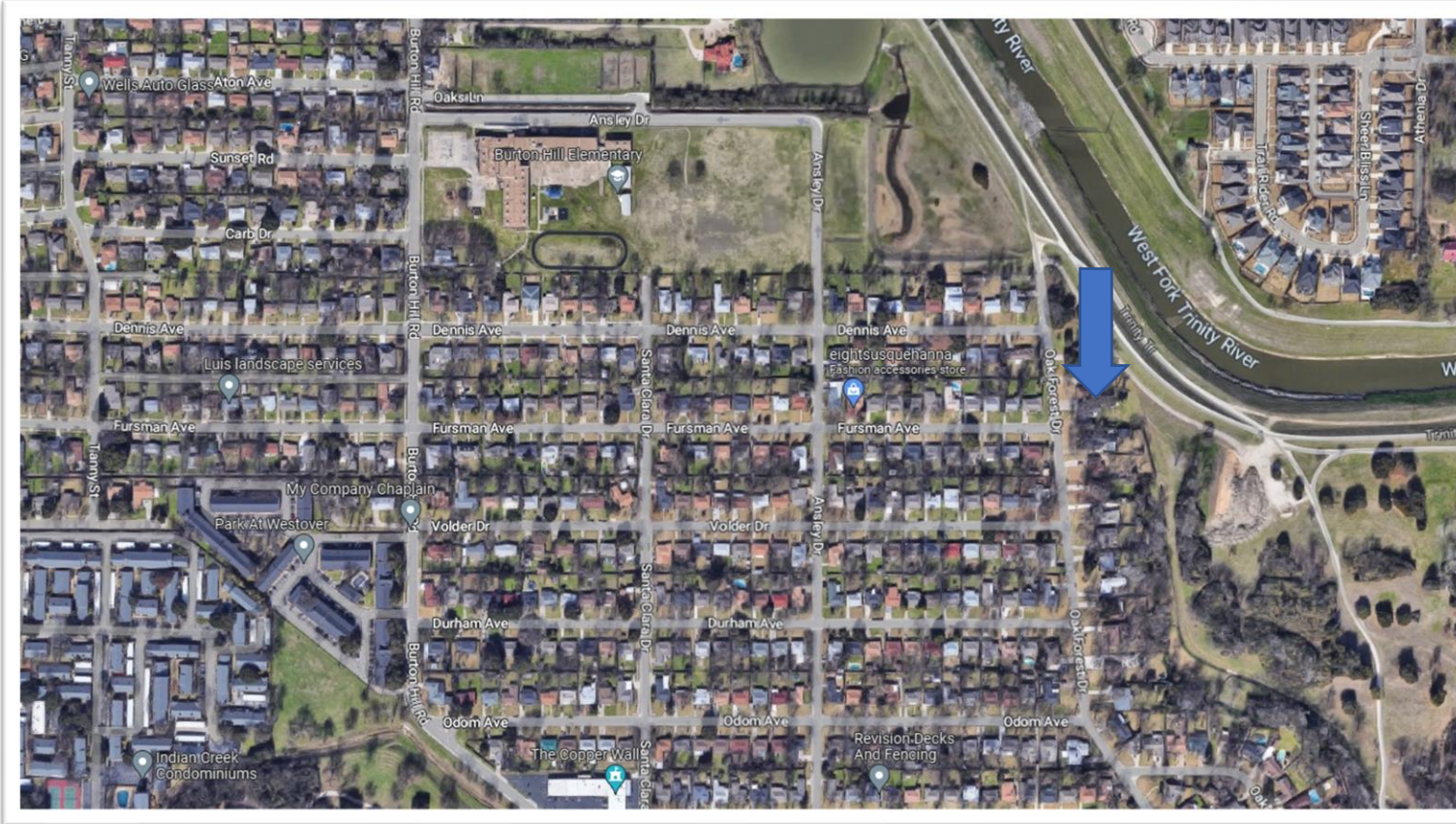
# Projects In Progress

## Trail Improvements White Settlement Rd



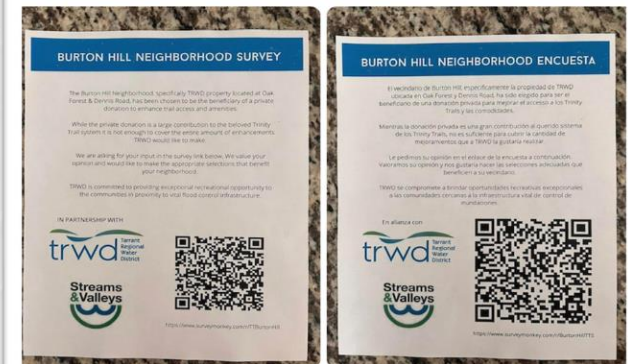
## Trailhead at Marine Creek

# Burton Hill Neighborhood Trailhead: Oak Forest Drive



TRWD and Streams & Valleys would like some feedback on our use of the Trinity Trails. They are considering some upgrades to the trailhead on Oak Forest and Dennis.

Click on this link to access the survey! Please share with neighbors that may not be... See more



You and 14 others 2 comments

Like Comment Send



### Q3 What is your favorite part about the trails?

running trees city go access location Clean nature area love Easy access  
nature neighborhood walking see nature area beautiful  
trails people safe exercise able dog

### Q4 What needs does your neighborhood have for better access to the trails?

shade Oak Forest access Nothing area trailhead Parking dogs trail  
trees good Paved think



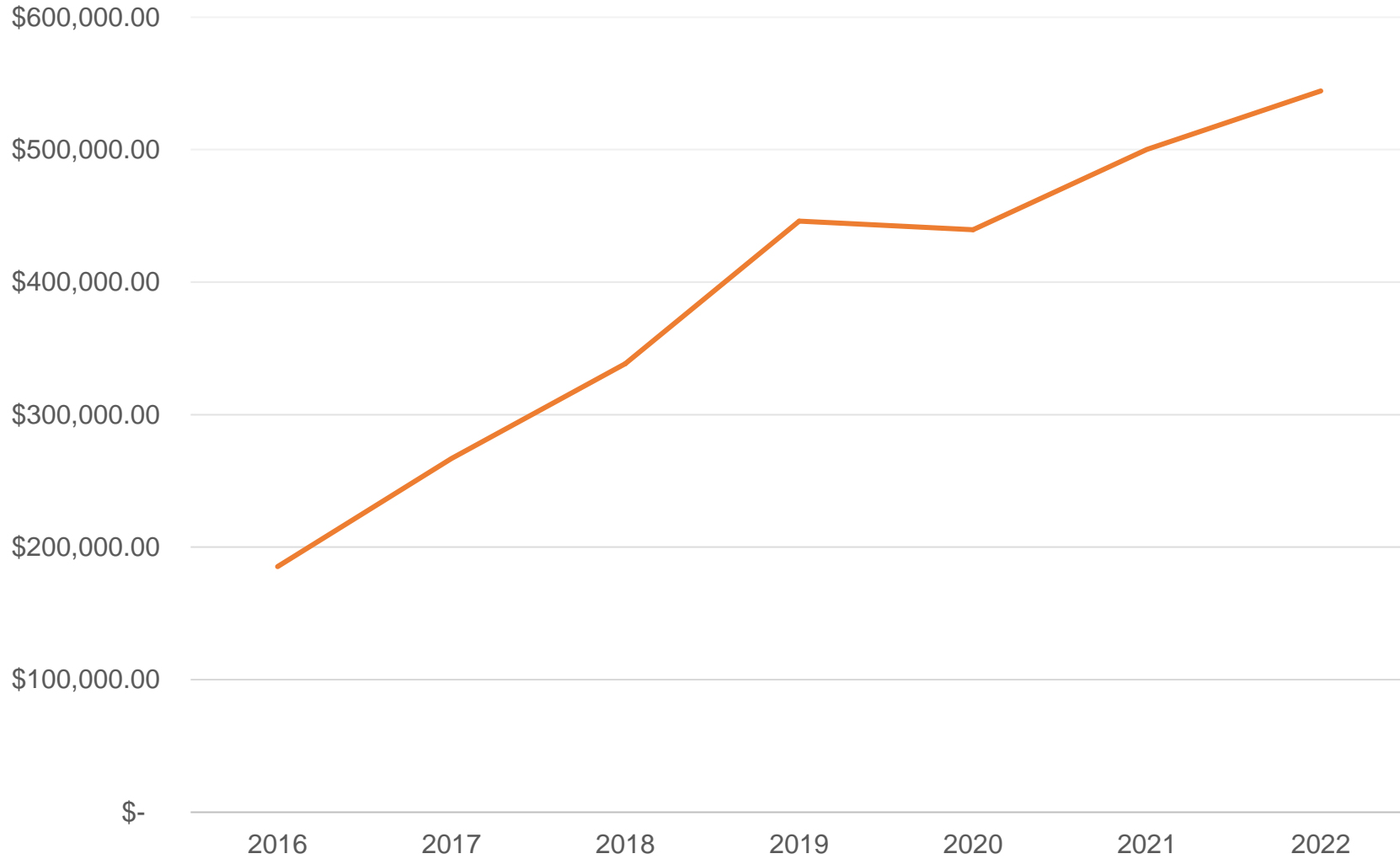
# TWIN POINTS PARK

AT EAGLE MOUNTAIN LAKE

## 2022 In Review

- 23,400 Facebook Followers
- 1200+ Multiplatform Reviews
- 114,000+ Attendance

### TWIN POINTS PARK TOTAL REVENUE TREND





# ADOPT-A-RIVER

Tarrant Regional Water District



McPHERSON FAMILY



VIVI WOMEN'S HEALTH

STEERFW TEAM LLC



BETA TAU LAMBDA CHARITABLE FOUNDATION



TACKLE BAG TEAM LLC

73

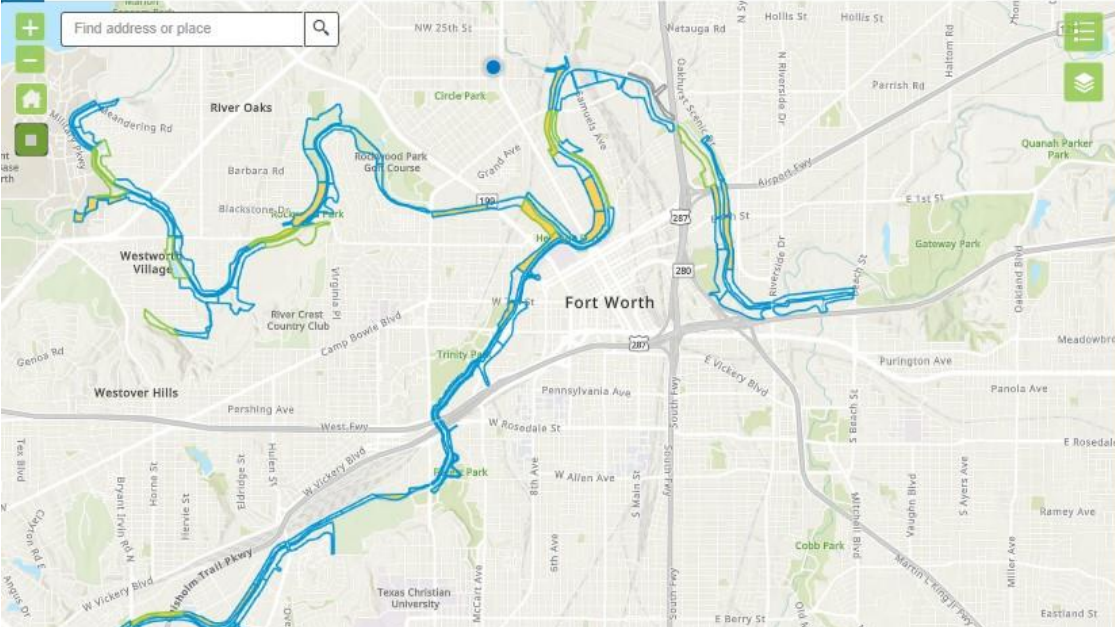
RIVER SECTIONS ADOPTED


12

RIVER SECTIONS AVAILABLE

9,327

LITTER PIECES REMOVED FROM THE TRINITY





Thank you for your interest in becoming a steward of the Trinity River! By providing the information below, you will receive Adopt-A-River related news via email and permit TRWD to use your photos for social media/marketing purposes.

Adopter Type \*

Community

Corporate

Group/Organization \*

A BIG THANK YOU TO OUR PROGRAM SPONSORS!





# 2022 ANNUAL RECAP

**19** NEW ADOPTERS JOINED THE PROGRAM

A PEAK OF **78** ADOPTED SECTIONS

**307%** YEAR-OVER-YEAR INCREASE IN PROGRAM PRODUCTIVITY

CLEANUPS REPORTED: **96**

TRASH BAGS COLLECTED: **489**

**2.5 TONS OF LITTER**  
YOU HELPED REMOVE FROM THE TRINITY RIVER!

**7,036 LITTER PIECES**  
RECORDED IN 2022 (JAN 1 - DEC 20)



# Trout Stocking the Trinity River

WATER SUPPLY · FLOOD PROTECTION · RECREATION



# Staff Update

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## Communication Assets for Panther Island and Central City Flood Control Project Update

*Natasha Hill, Director of Communications and Outreach*

# Staff Update

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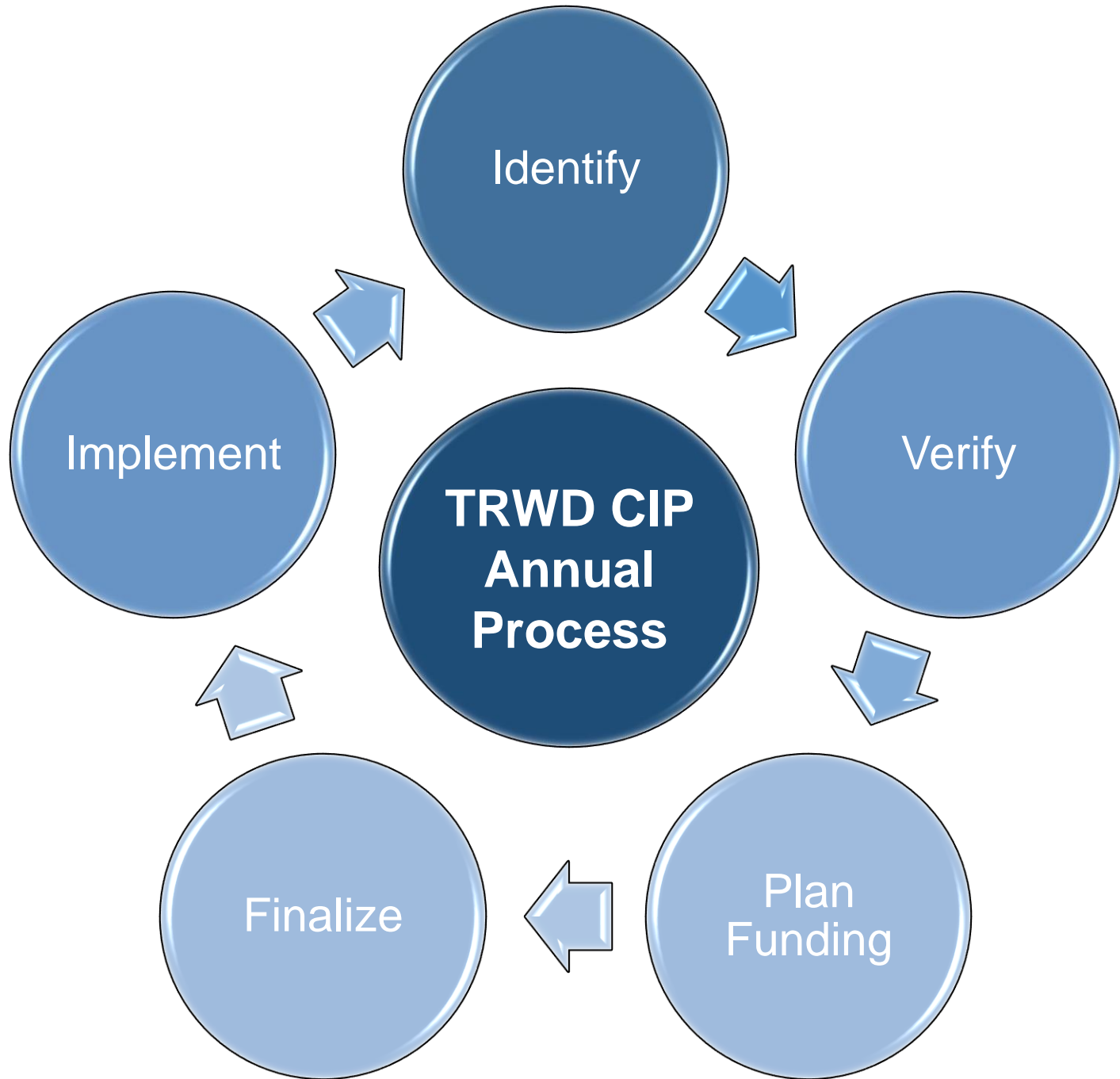
Capital Improvement Plan Update  
*Rachel Ickert, Chief Water Resources Officer*

# TRWD Capital Improvement Plan



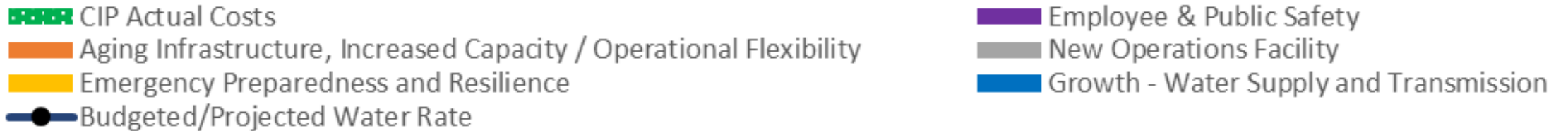
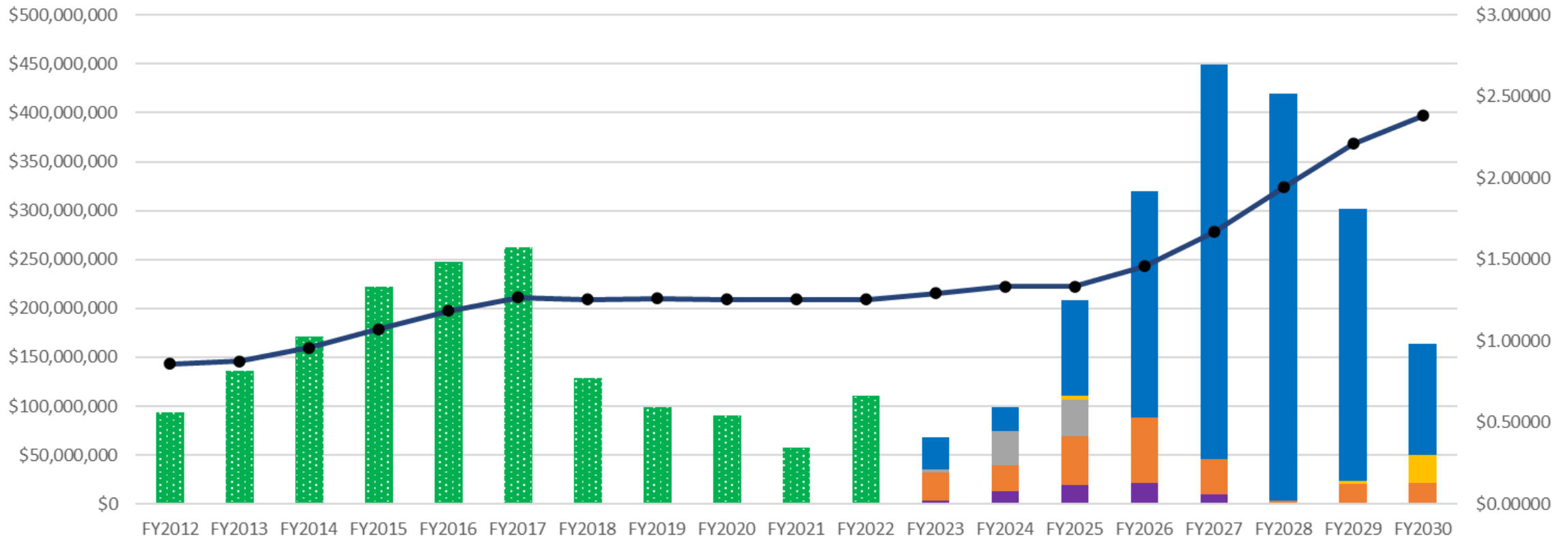
# Drivers and Project Categories

- Employee & Public Safety
- Aging Infrastructure, Increased Capacity / Operational Flexibility
- Emergency Preparedness and Resilience
- Growth - Water Supply and Transmission

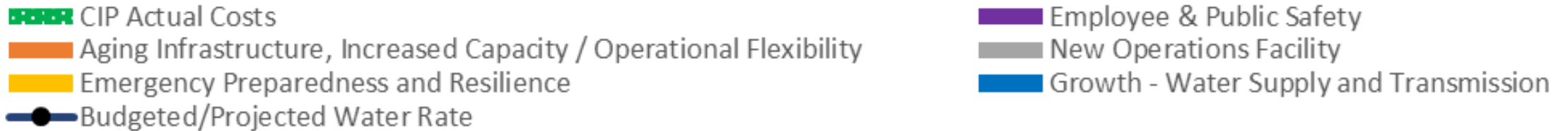
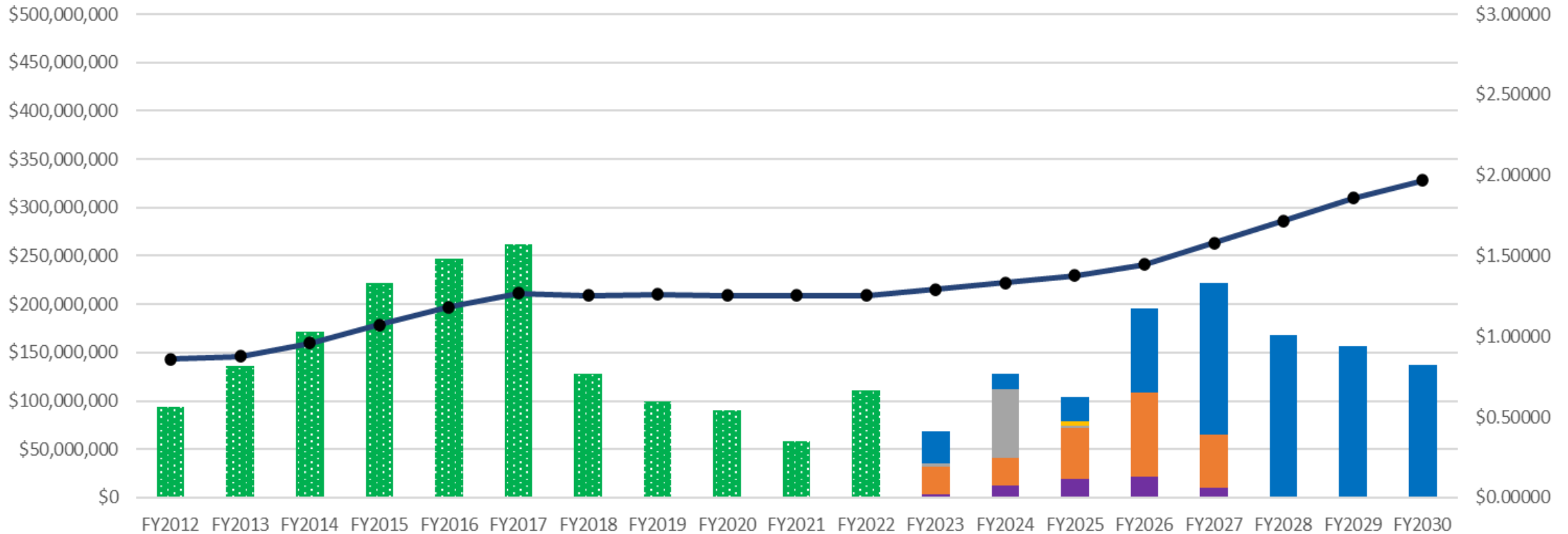


# Capital Improvements by Year

## Aggressive Schedule

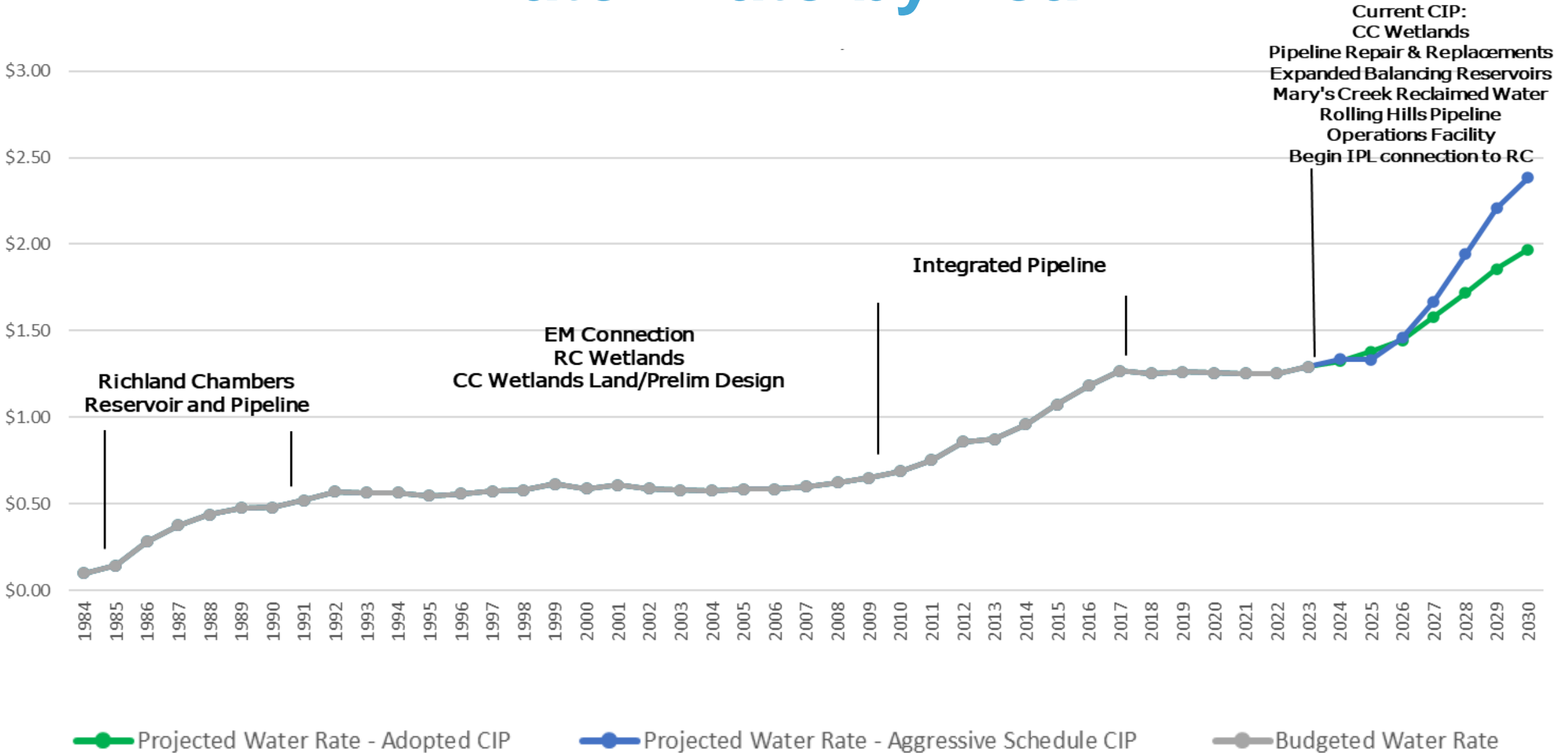


# Capital Improvements by Year Adopted CIP





# Water Rate by Year



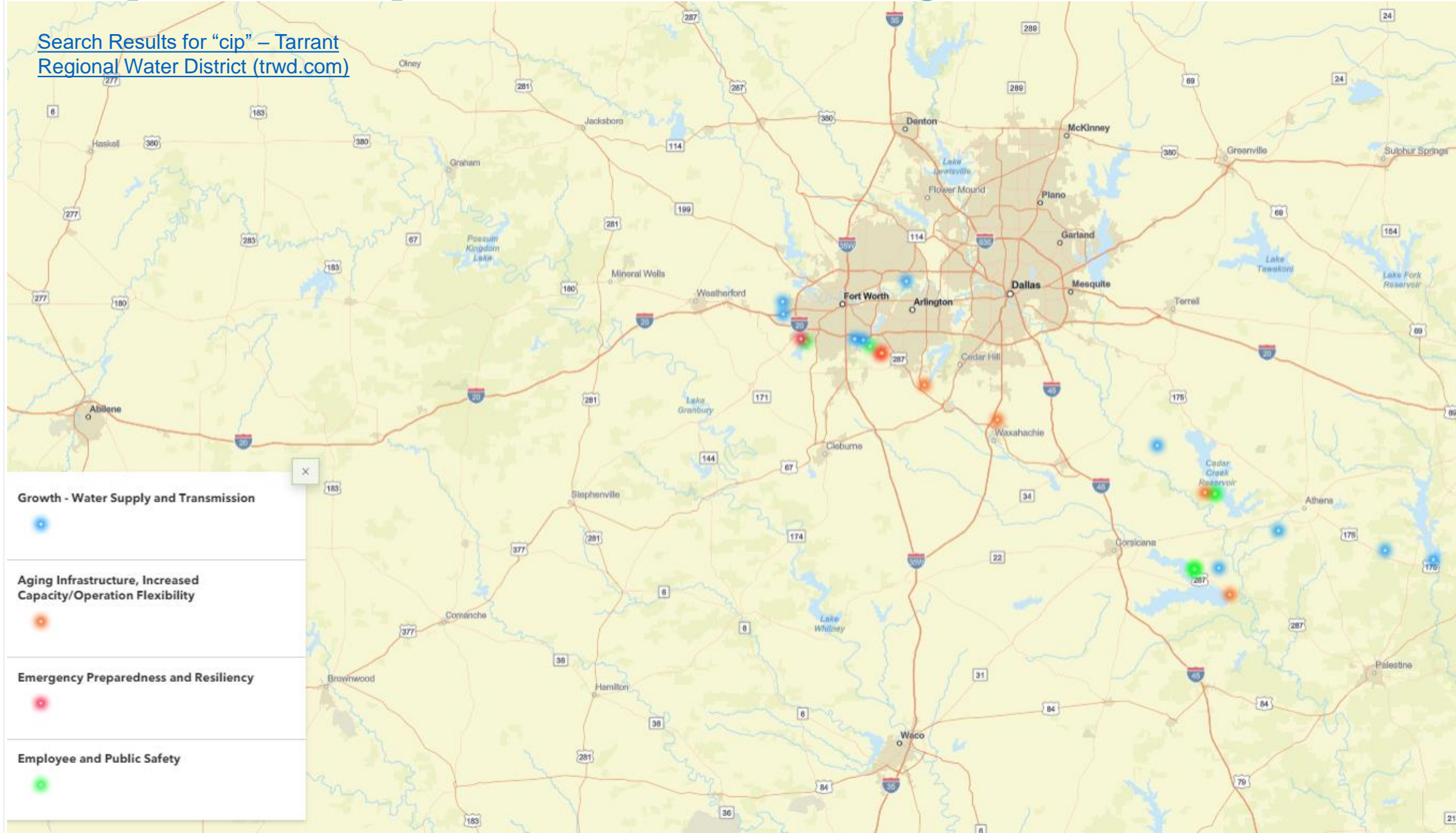
# Capital Improvement Projects

WATER SUPPLY · FLOOD PROTECTION · RECREATION



# Capital Improvement Projects

Search Results for "cip" – Tarrant Regional Water District ([trwd.com](http://trwd.com))



# Cedar Creek Wetlands



\$460 M

In operation  
by 2032

150+ MGD  
supply  
capacity

# Lake Palestine Pump Station & Pipeline

(Funded 100% by Dallas Water)



\$640 M remaining

In operation by 2027

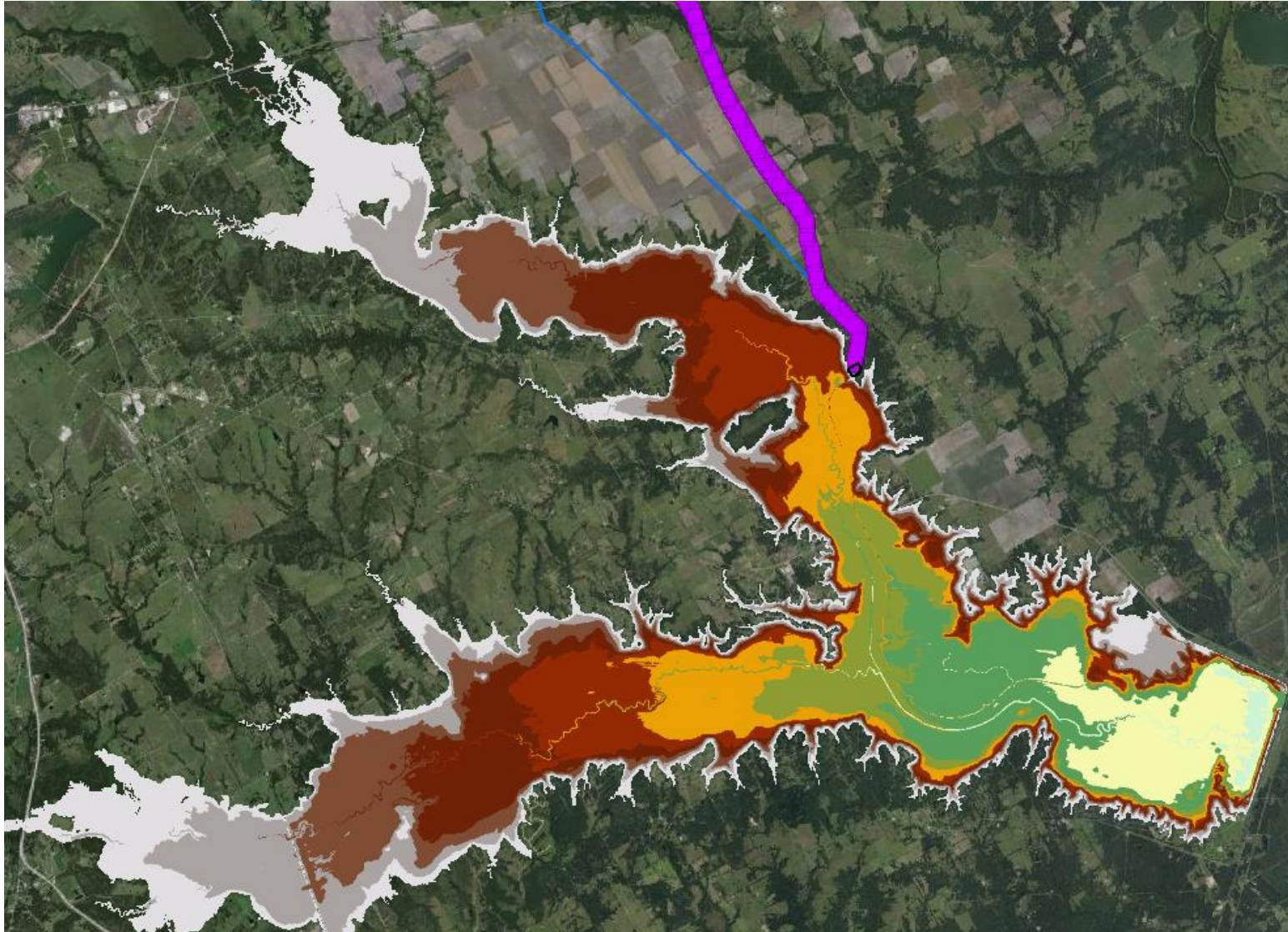
150 MGD pumping capacity

84" pipeline



# Richland Chambers Lake Pump Station (JRC1) and Pipeline

WATER SUPPLY · FLOOD PROTECTION · RECREATION



**\$450 M**

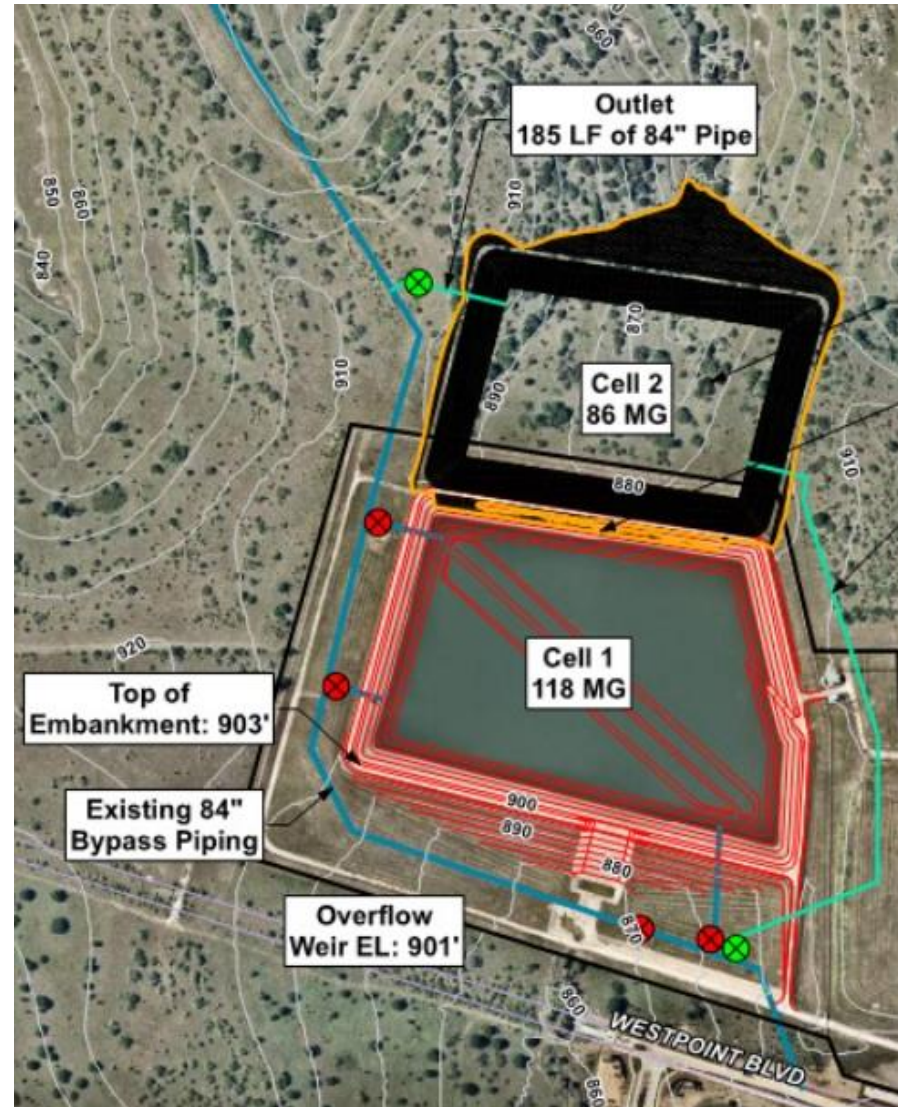
**In operation  
by 2035**

**250 MGD  
pumping  
capacity**

**96" pipeline**

Growth – New Water Supplies & Transmission  
Emergency Preparedness and Resilience

# Eagle Mountain Balancing Reservoir Expansion



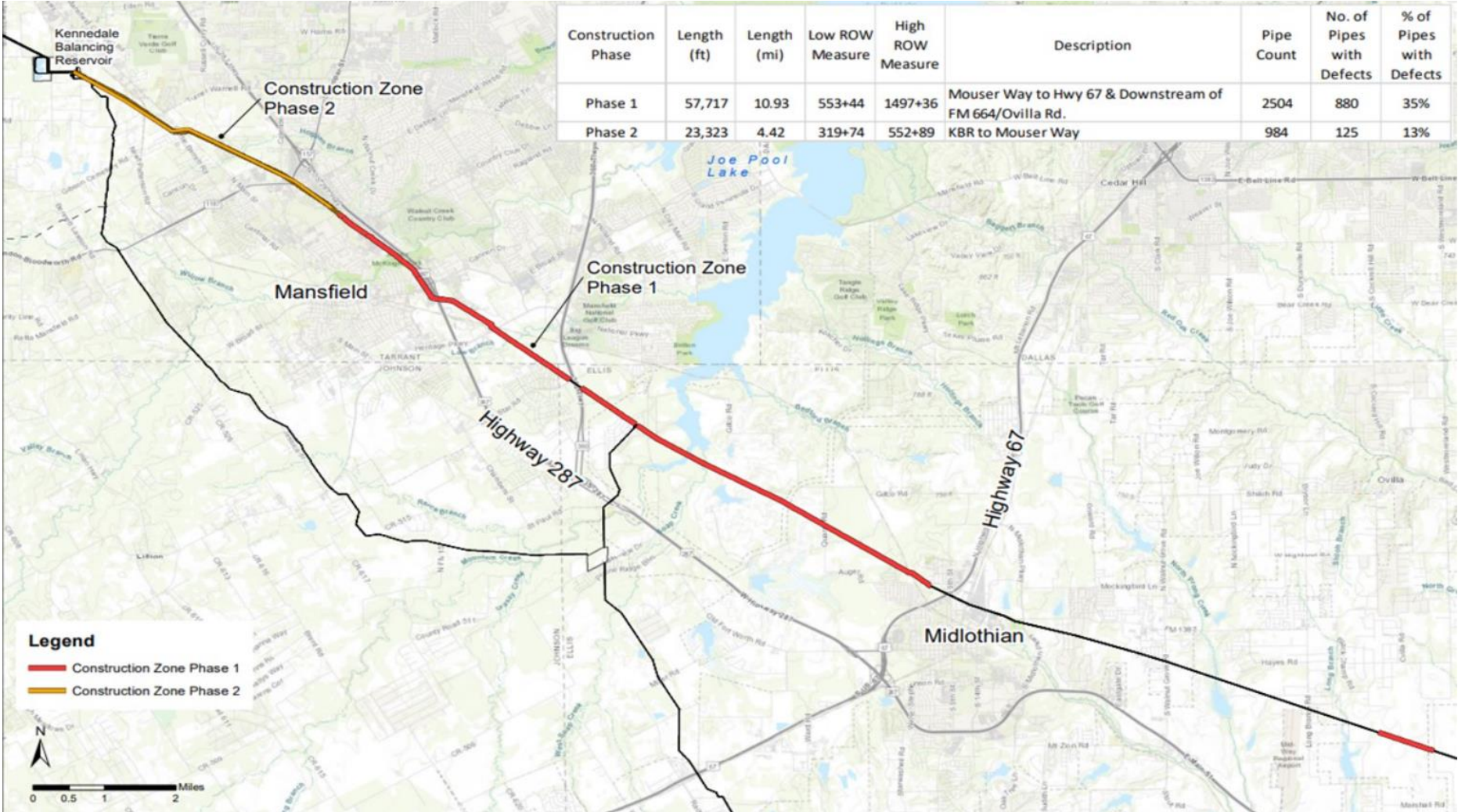
\$37 M

86 MG  
additional  
storage  
in 2nd cell

# Cedar Creek Section Two 72" Pipeline Replacement

Phase 1: 11 miles of 90"/102", Phase 2: 4.5 miles of 102"

WATER SUPPLY · FLOOD PROTECTION · RECREATION



Phase 1:  
\$110 M

Phase 2:  
\$47M

Completed  
by 2027

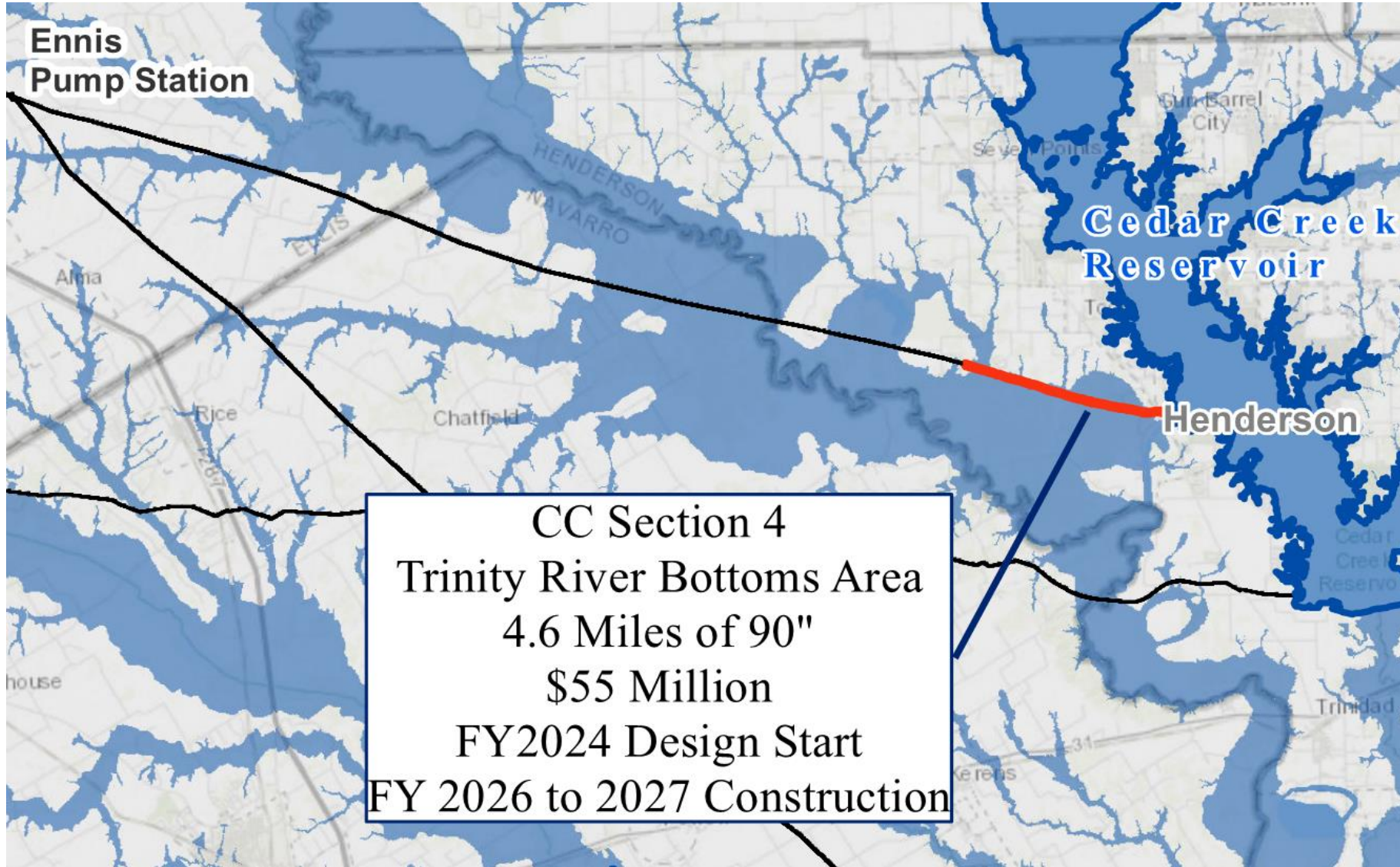




Aging Infrastructure, Increased Capacity / Operational Flexibility

# Cedar Creek Section Four 72" Pipeline Replacement

5 miles of 90" Pipe near Cedar Creek Lake Pump Station

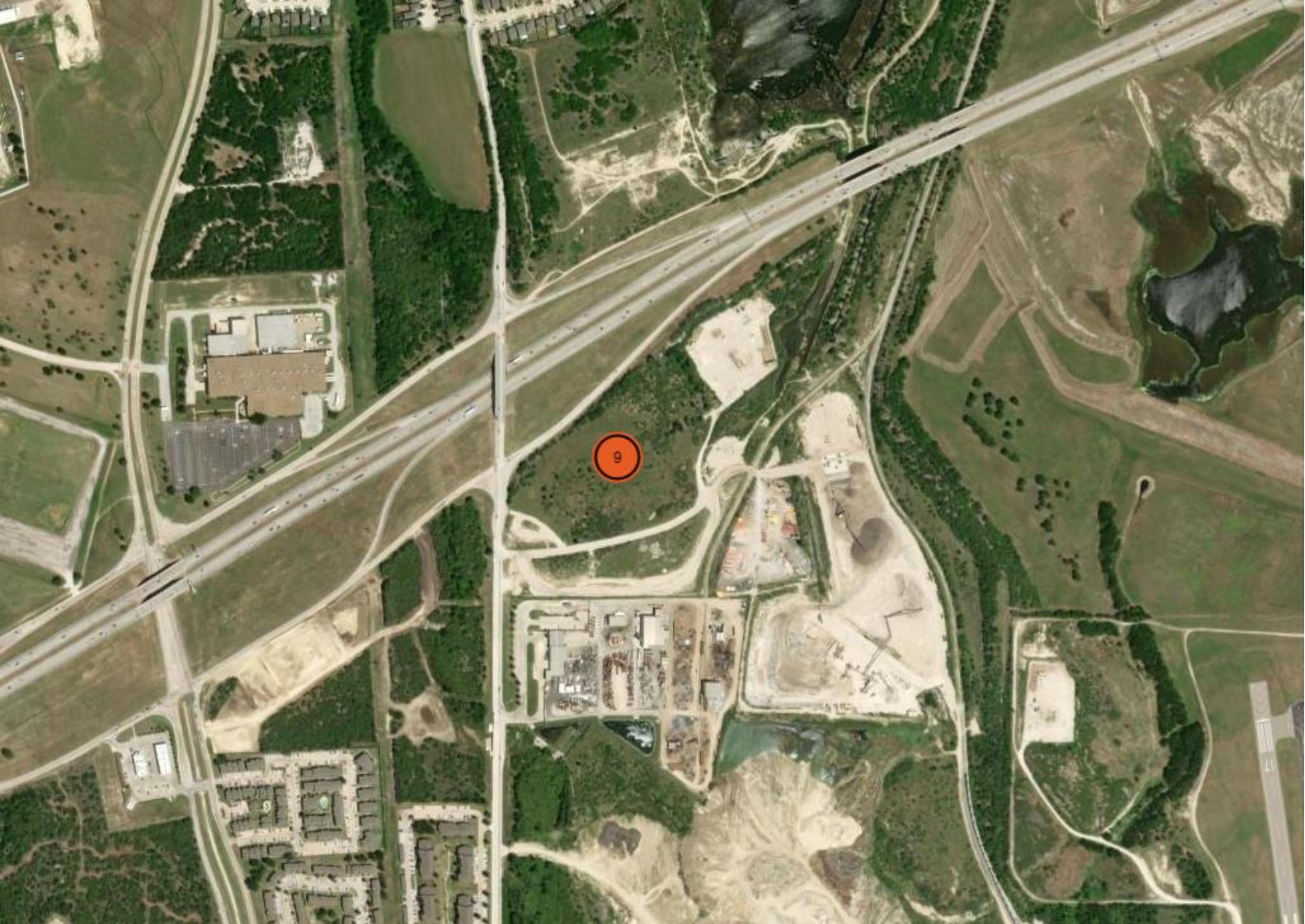


CC Section 4  
Trinity River Bottoms Area  
4.6 Miles of 90"  
\$55 Million  
FY2024 Design Start  
FY 2026 to 2027 Construction

\$55M

Completed  
by 2028

# Operations Facility



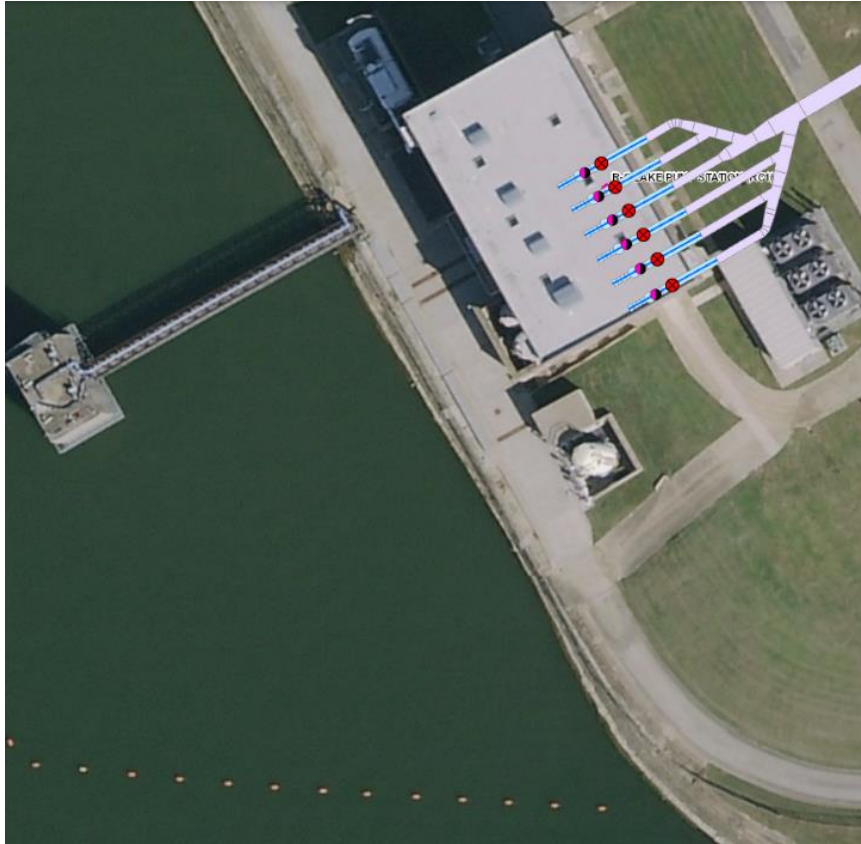
Existing facility over 60 years old

25 acre site off Loop 820 North and Old Decatur Road

Completed by 2026

Employee and Public Safety  
Emergency Preparedness and Resilience

# Multiple Chemical Feed System Upgrades



**\$12.5M chlorine to sodium hypochlorite conversion at Richland-Chambers Lake PS**



**\$2.5M copper ion addition for zebra mussel control at Benbrook Lake PS**

Employee and Public Safety

Aging Infrastructure, Increased Capacity / Operational Flexibility

# Electrical Buildings for Richland Chambers & Cedar Creek Lake Pump Stations



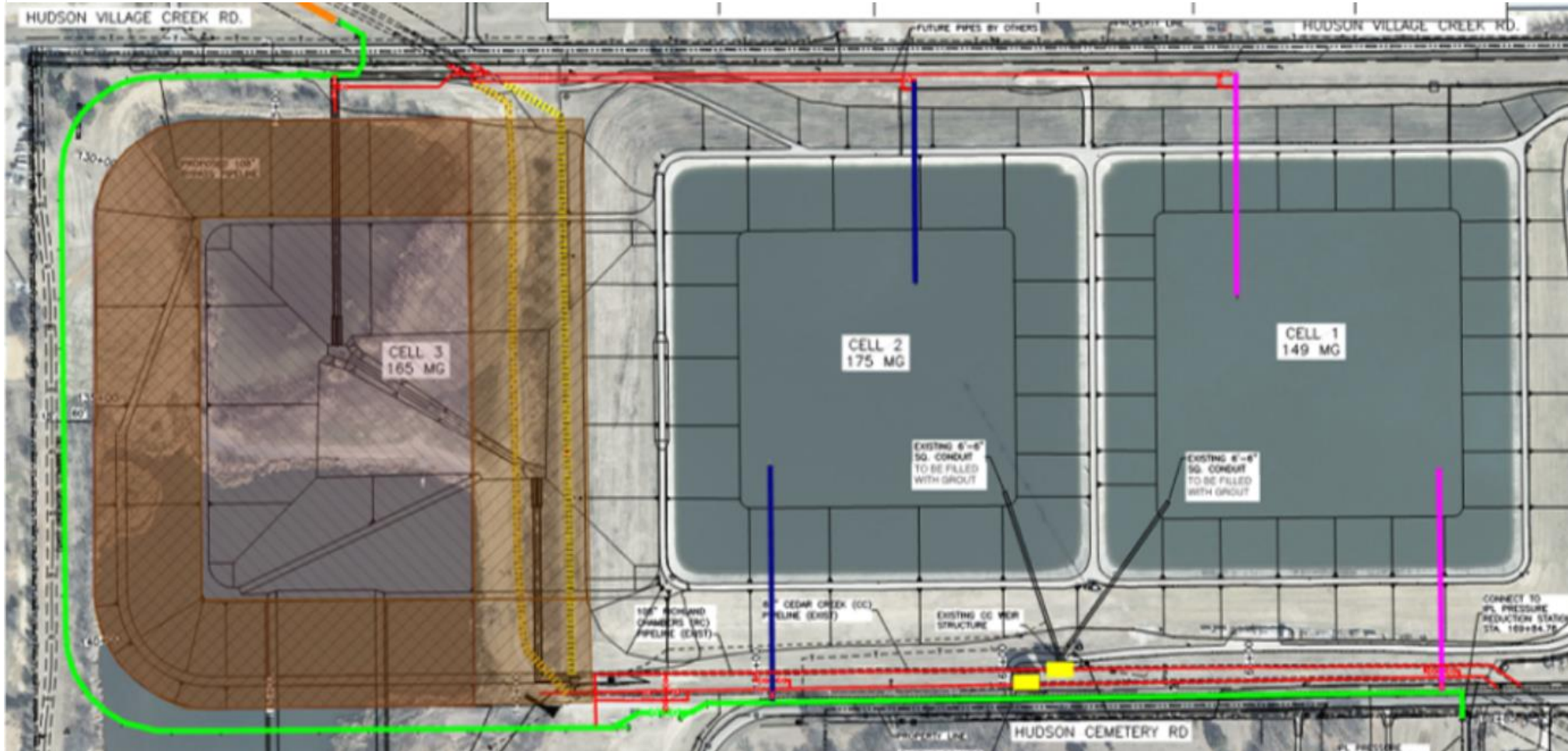
Replacement of outdated 4,160 volt equipment

Addition of variable frequency drives for pump speed adjustment

\$23M for RC;  
\$20M for CC

Completed by 2027

# Kennedale Balancing Reservoir Expansion (3rd Cell)



**\$50 M**

**165 MG  
additional  
storage  
in 3rd cell**

# Capital Improvement Projects Schedule







WATER SUPPLY · FLOOD PROTECTION · RECREATION

Project Name	Estimated Cost	2023	2024	2025	2026	2027	2028	2029	2030	2031-2035
Richland Chambers Lake Pump Station (RC1) Backup Hypochlorite Facility and Actuators Install	\$2,200,000	█	█							
Cedar Creek Lake Pump Station (CC1) Chlorine demolition & Caustic Soda improvements	\$1,700,000	█	█							
Arlington Outlet & Benbrook Outlet: Dechlorination Facility Improvements/Upgrade	\$2,900,000	█	█							
Benbrook Lake Pump Station (BB1) Copper Ion Addition for Zebra Mussel Control	\$2,500,000	█	█							
Aquifer Storage and Recovery Demonstration Well	\$8,000,000	█	█							
Kennedale Balancing Reservoir Phase 3 Expansion (KBR Cells 1 & 2 Modifications)	\$41,000,000	█	█							
Waxahachie Pump Station (RC3H) Electrical Room Cooling Replacement	\$4,500,000	█	█	█						
Operations Facility	\$76,000,000	█	█	█						
Mary's Creek Pump Station and Pipeline	\$30,000,000	█	█	█	█					
IPL Section 19-1 Pipeline (Dallas Water Utilities)	\$150,000,000	█	█	█	█					
IPL Section 19-2 Pipeline (Dallas Water Utilities)	\$325,000,000	█	█	█	█					
IPL Lake Palestine Pump Station (LP1) (Dallas Water Utilities)	\$166,000,000	█	█	█	█	█				
Eagle Mountain Balancing Reservoir 2nd Cell	\$37,000,000	█	█	█	█	█				
Cedar Creek Pipeline Section 2 Replacement Capacity Expansion (11 miles of 90" and 102")	\$110,000,000	█	█	█	█	█				



# Capital Improvement Projects Schedule

Project Name	Estimated Cost	2023	2024	2025	2026	2027	2028	2029	2030	2031-2035
Cedar Creek Constructed Wetlands Water Supply	\$460,000,000	Design / Permitting		Construction						
Eagle Mountain Old Service Spillway Dam Gates Structure Upgrades	\$3,300,000		Design / Permitting	Construction						
Electrical Resilience/Benbrook Pump Stations Backup Power	\$5,200,000		Design / Permitting	Construction						
Richland Chambers North Dam Embankment Phase 2 (Seepage Mitigation Improvements)	\$4,500,000		Design / Permitting	Construction						
Richland Chambers Lake Pump Station (RC1) Sodium Hypochlorite Conversion from Existing Chlorine	\$12,500,000		Design / Permitting	Construction						
Richland Chambers Lake Pump Station (RC1) Electrical/Variable Frequency Drives Building	\$23,000,000		Design / Permitting	Construction						
Cedar Creek Lake Pump Station (CC1) Electrical/Variable Frequency Drives Building	\$20,000,000		Design / Permitting	Construction						
Cedar Creek Pipeline Section 2 Replacement Capacity Expansion, Phase. 2 - (102" Mouser Way to Kennedale Balancing Reservoir)	\$47,000,000		Design / Permitting	Construction						
Cedar Creek Pipeline Section 4 Upgrade (5 miles of 90" from Cedar Creek Lake Pump Station (inc discharge piping) downstream)	\$55,000,000		Design / Permitting	Construction						
Section 1D & 1 E Pipeline (108" from Rolling Hills Pump Station to Arlington Outlet)	\$53,000,000			Design / Permitting		Construction				
IPL - Section 16 Pipeline and JRC1 Lake Pump Station on Richland Chambers Reservoir	\$450,000,000					Design / Permitting		Construction		
Kennedale Balancing Reservoir Phase 4 Expansion (new 3rd Cell)	\$50,000,000								Construction	

	Growth - Water Supply and Transmission		Design / Permitting
	Aging Infrastructure, Increased Capacity/Operation Flexibility		Construction
	Emergency Preparedness and Resilience		
	Employee and Public Safety		

Note: The above represents TRWD's current CIP scheduling as of March 2023; however timing of projects are subject to change.

Note: IPL Section 19 Pipeline and LP1 Pump Station projects are funded 100% by City of Dallas.



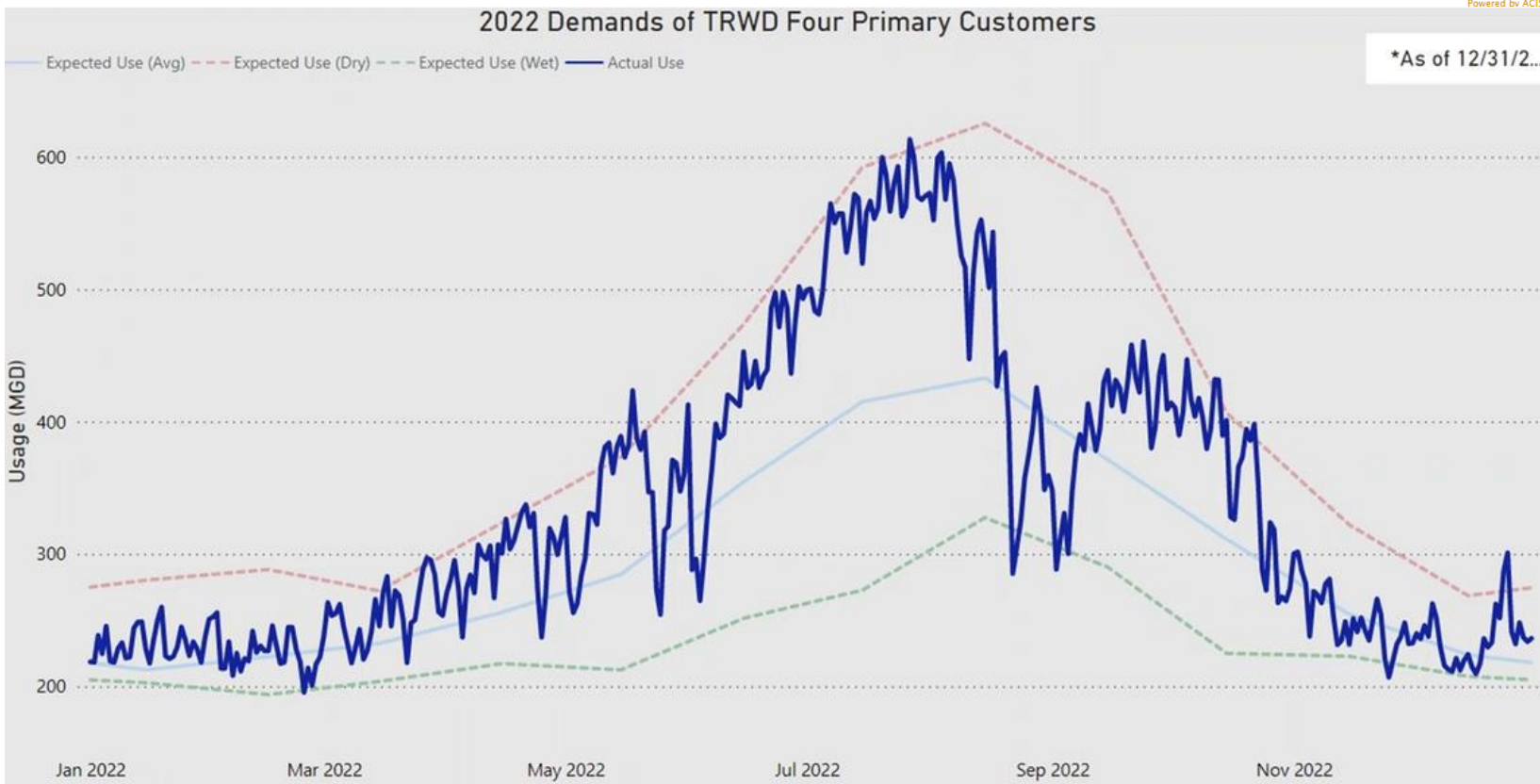
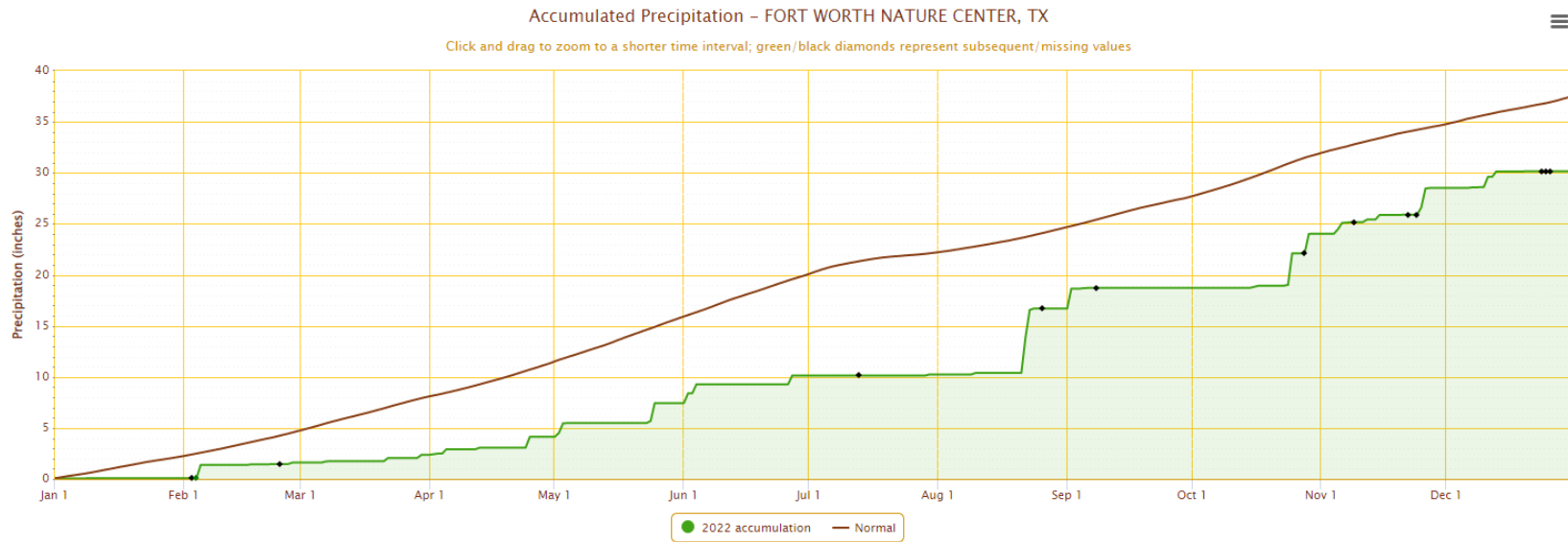
# Staff Update

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## Water Resources Update

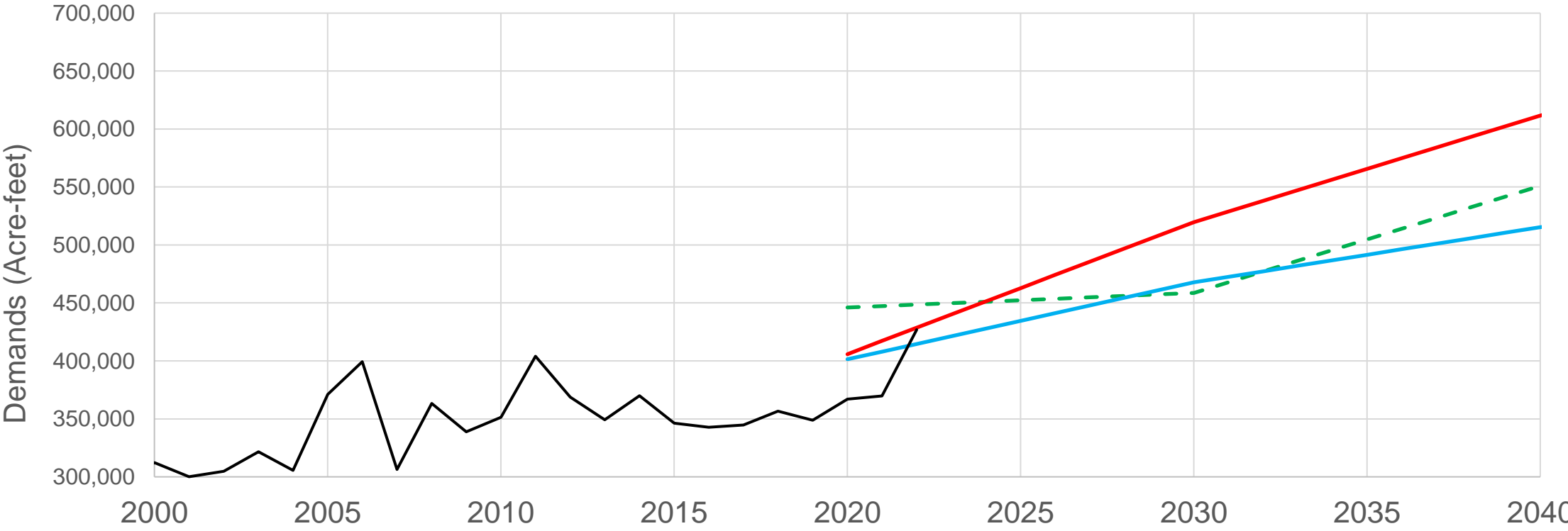
*Rachel Ickert, Chief Water Resources Officer*





# TRWD Total Usage and Projected Dry Year Demands

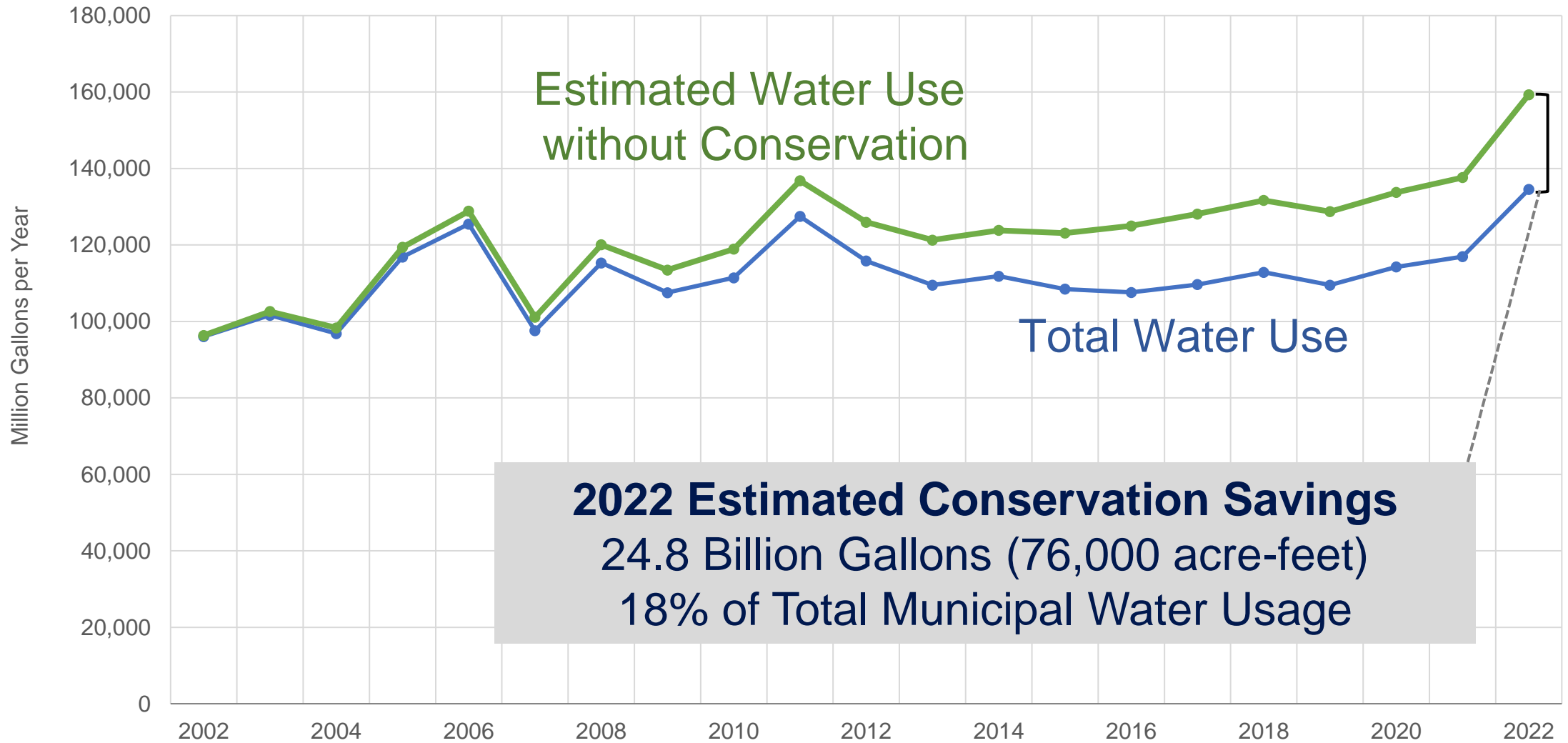
WATER SUPPLY · FLOOD PROTECTION · RECREATION



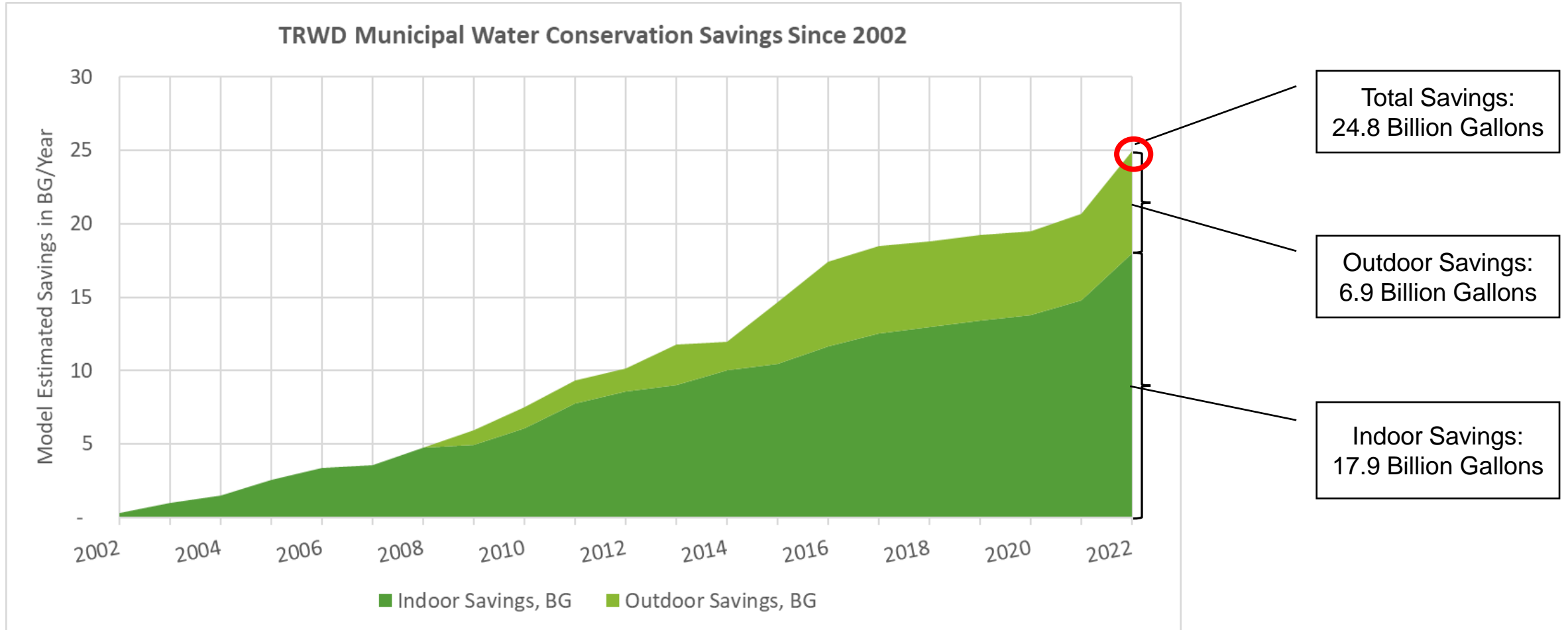
- Region C
- Suburban Sprawl with Stressors
- Baseline
- Historical Usage



# Municipal Conservation Savings



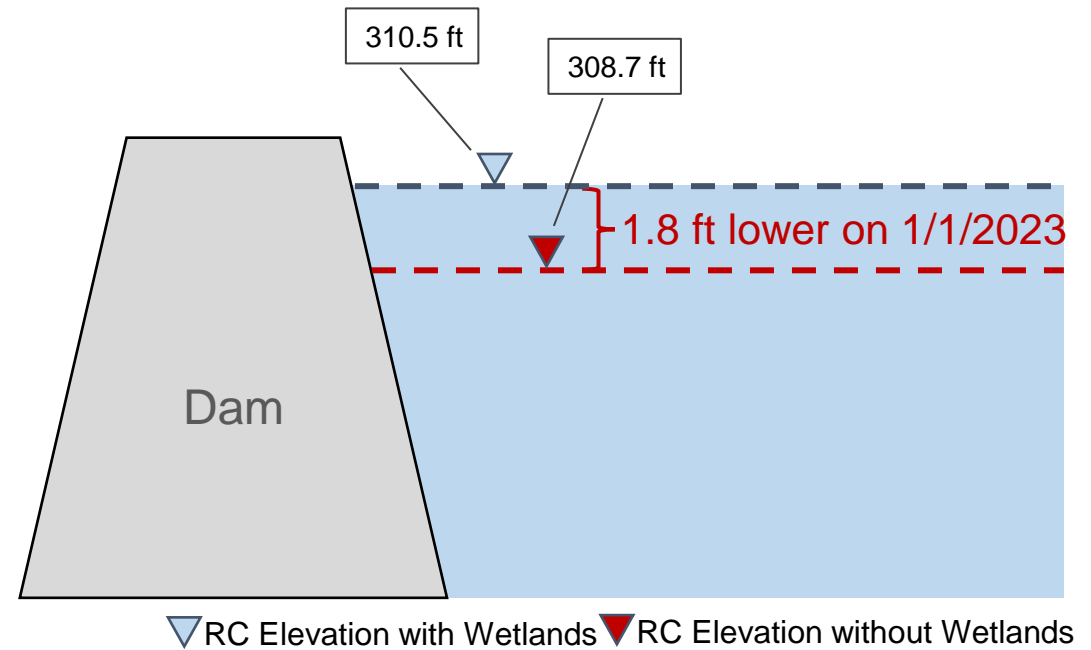
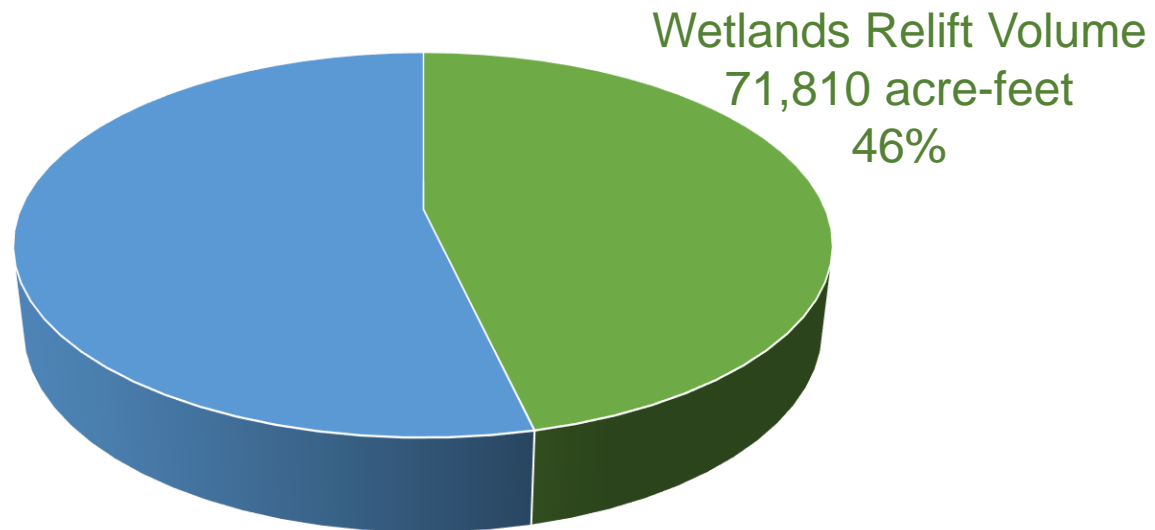
# Municipal Conservation Savings



\*BG = Billion Gallons

# 2022 Reclaimed Water Overview

Water Pumped from Richland-Chambers in 2022  
Total 154,837 acre-feet



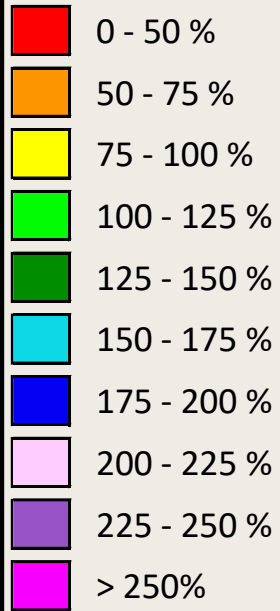
The volume of water from the George Shannon Wetlands could have filled:

- Lake Worth **over two times** (LW full: 34,341 AF)
- Lake Arlington **almost two times** (LA full: 40,188 AF)

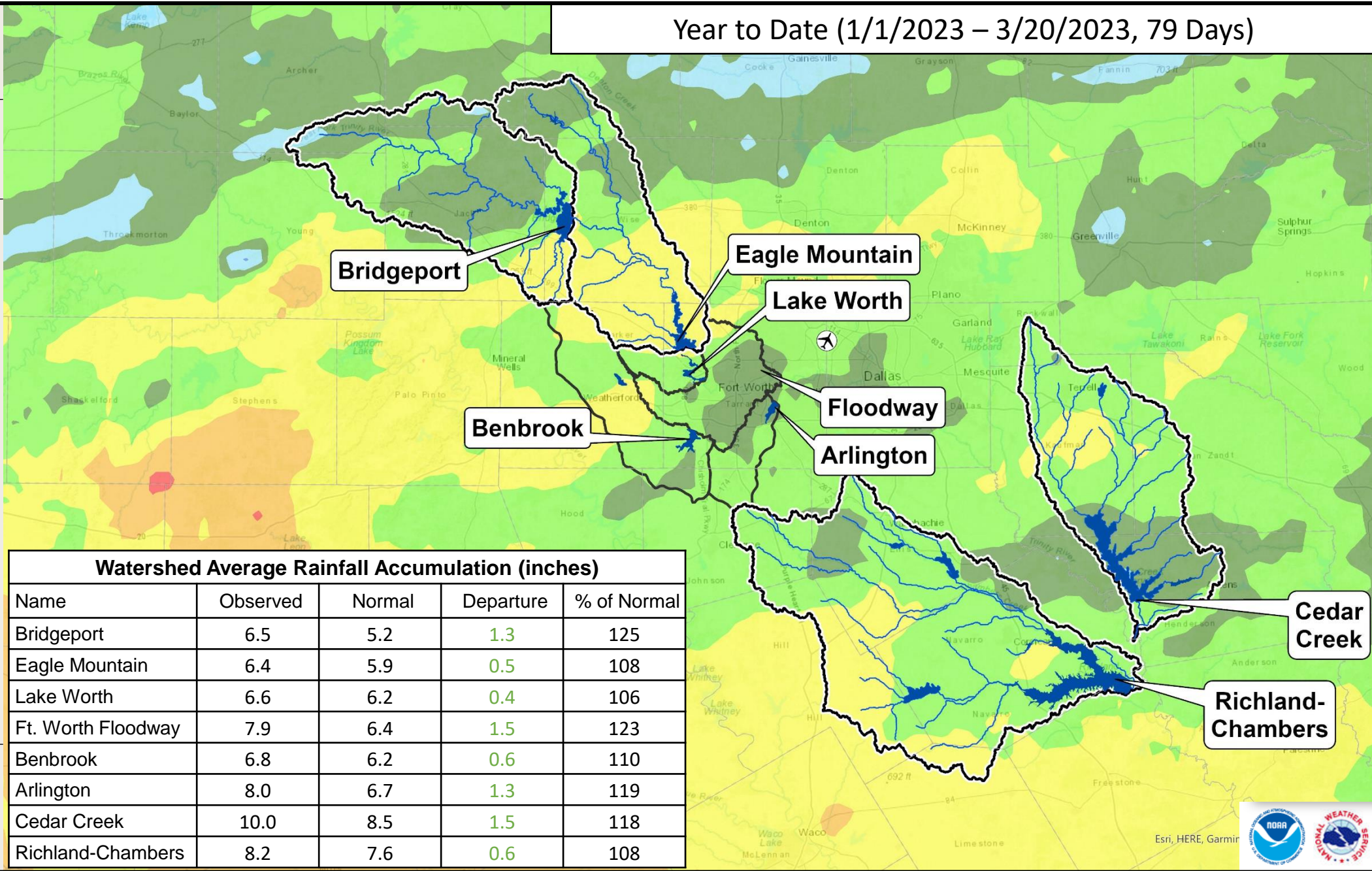
# Percent of Normal Rainfall



## LEGEND



Year to Date (1/1/2023 – 3/20/2023, 79 Days)



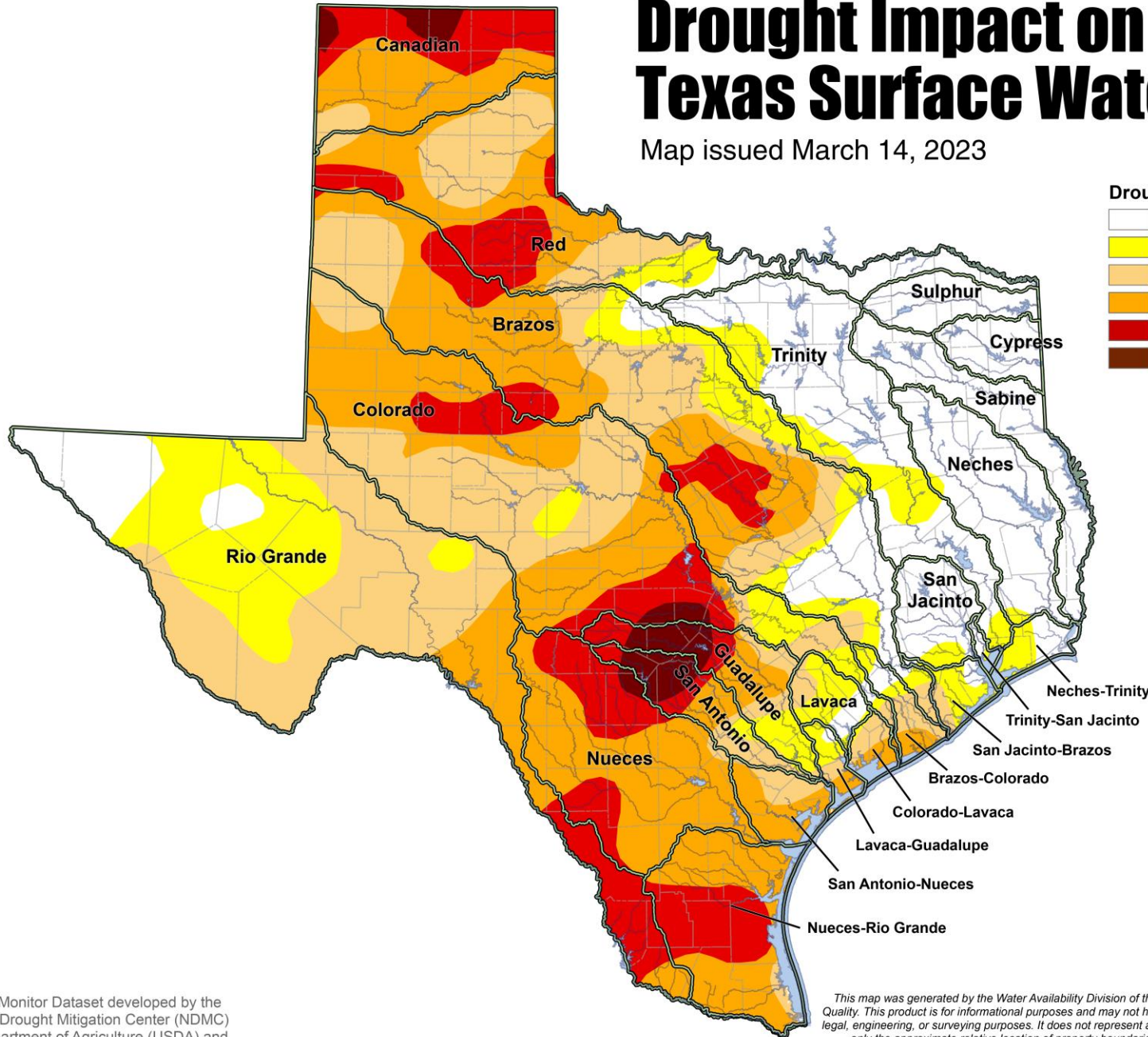
Watershed Average Rainfall Accumulation (inches)				
Name	Observed	Normal	Departure	% of Normal
Bridgeport	6.5	5.2	1.3	125
Eagle Mountain	6.4	5.9	0.5	108
Lake Worth	6.6	6.2	0.4	106
Ft. Worth Floodway	7.9	6.4	1.5	123
Benbrook	6.8	6.2	0.6	110
Arlington	8.0	6.7	1.3	119
Cedar Creek	10.0	8.5	1.5	118
Richland-Chambers	8.2	7.6	0.6	108

Precipitation totals are obtained from NOAA's NWS. The totals displayed are estimated by the WGRFC. The data is processed and displayed using ESRI ArcGIS.



# Drought Impact on Texas Surface Water

Map issued March 14, 2023



### Drought Severity Index

- No Drought
- D0 - Abnormally Dry
- D1 - Drought - Moderate
- D2 - Drought - Severe
- D3 - Drought - Extreme
- D4 - Drought - Exceptional

**March 14, 2023**

(Released Thursday, Mar. 16, 2023)

Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	22.03	77.97	64.71	41.59	14.21	1.84
<b>Last Week</b> <i>03-07-2023</i>	20.52	79.48	64.01	35.54	13.41	1.84
<b>3 Months Ago</b> <i>12-13-2022</i>	24.95	75.05	52.09	26.55	7.01	1.39
<b>Start of Calendar Year</b> <i>01-03-2023</i>	28.84	71.16	49.90	26.60	7.41	1.60
<b>Start of Water Year</b> <i>09-27-2022</i>	14.96	85.04	61.36	31.61	8.82	1.06
<b>One Year Ago</b> <i>03-15-2022</i>	3.69	96.31	91.22	70.13	41.20	8.63

### Intensity:

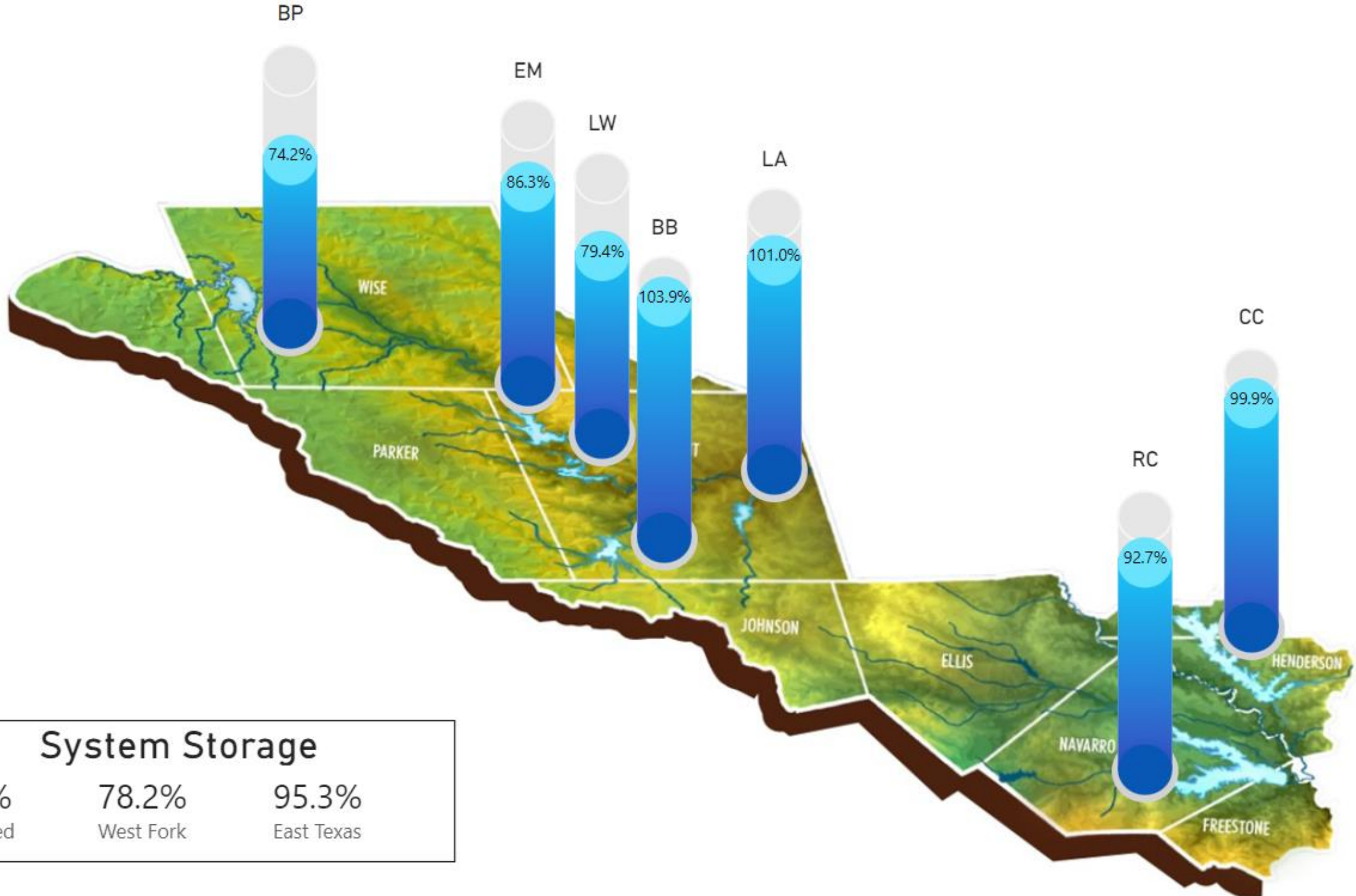
- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

### Author:

Brad Rippey  
U.S. Department of Agriculture



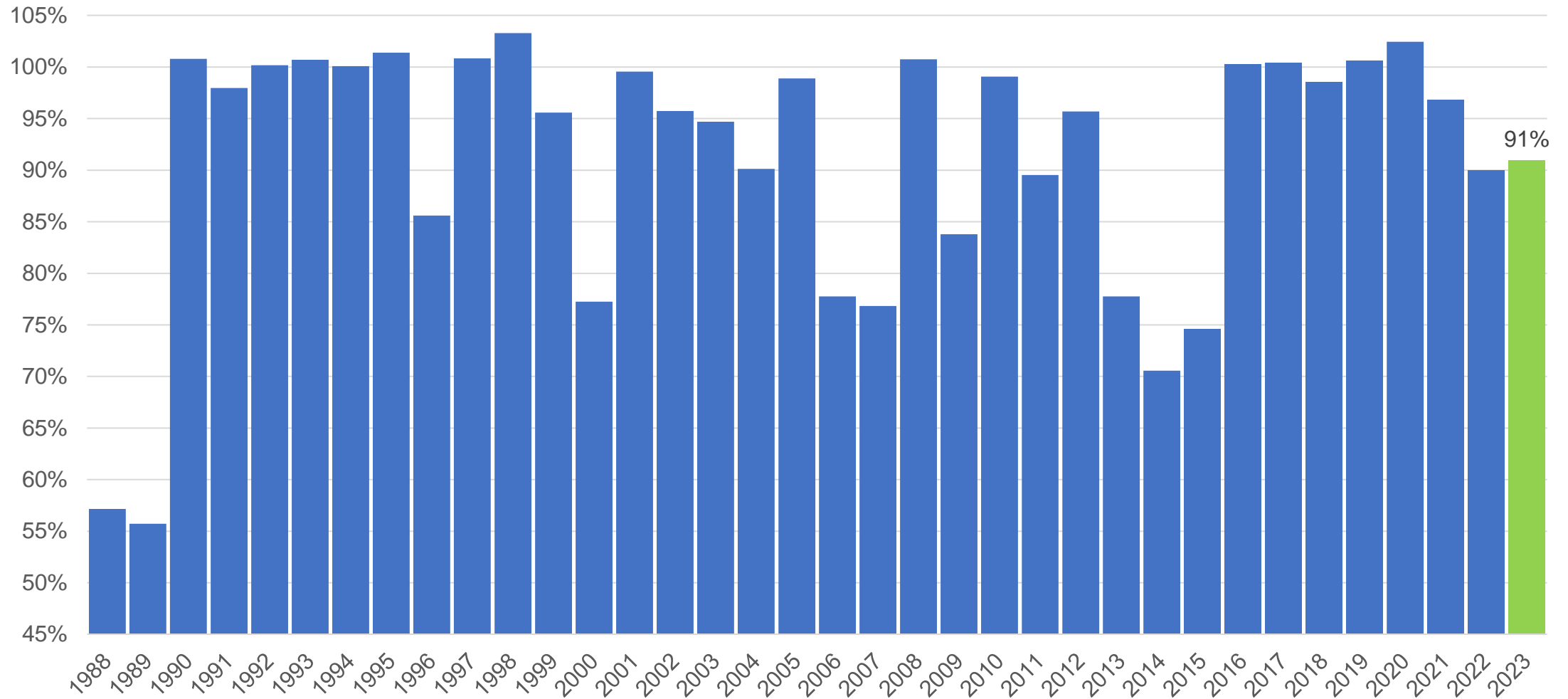


### System Storage

91.2%	78.2%	95.3%
Combined	West Fork	East Texas



# Percent of Total Storage on March 20

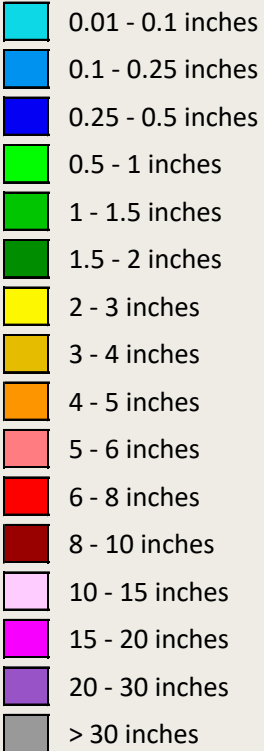


\*1988 – All four TRWD reservoirs operational

# Rainfall Forecast



## LEGEND



**Note on QPF** - QPFs depict the amount of liquid precipitation expected to fall during a specified time period in the future. Because precipitation can vary significantly over short distances, QPFs are reported as the expected "areal average" on a 20-kilometer (12.4 mile) grid. Several factors contribute to QPF estimates, including the current state of the atmosphere, modeled pressure systems, satellite trends, and manual adjustments made by forecasters.

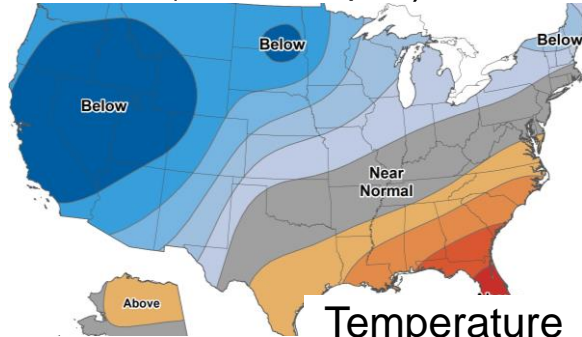
22MAR2023 (WED) – 26MAR2023 (SUN) Duration: 5 Days



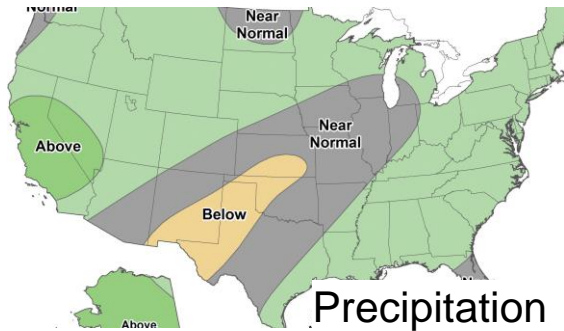
## Main Takeaway

- \*Rain returns Thursday
- \*It has rained the past three Thursdays
- \*Normal conditions to close out the month

**8 to 14 Day Outlook**  
Near normal temperatures and rainfall.  
(Mar 27– Apr 2)

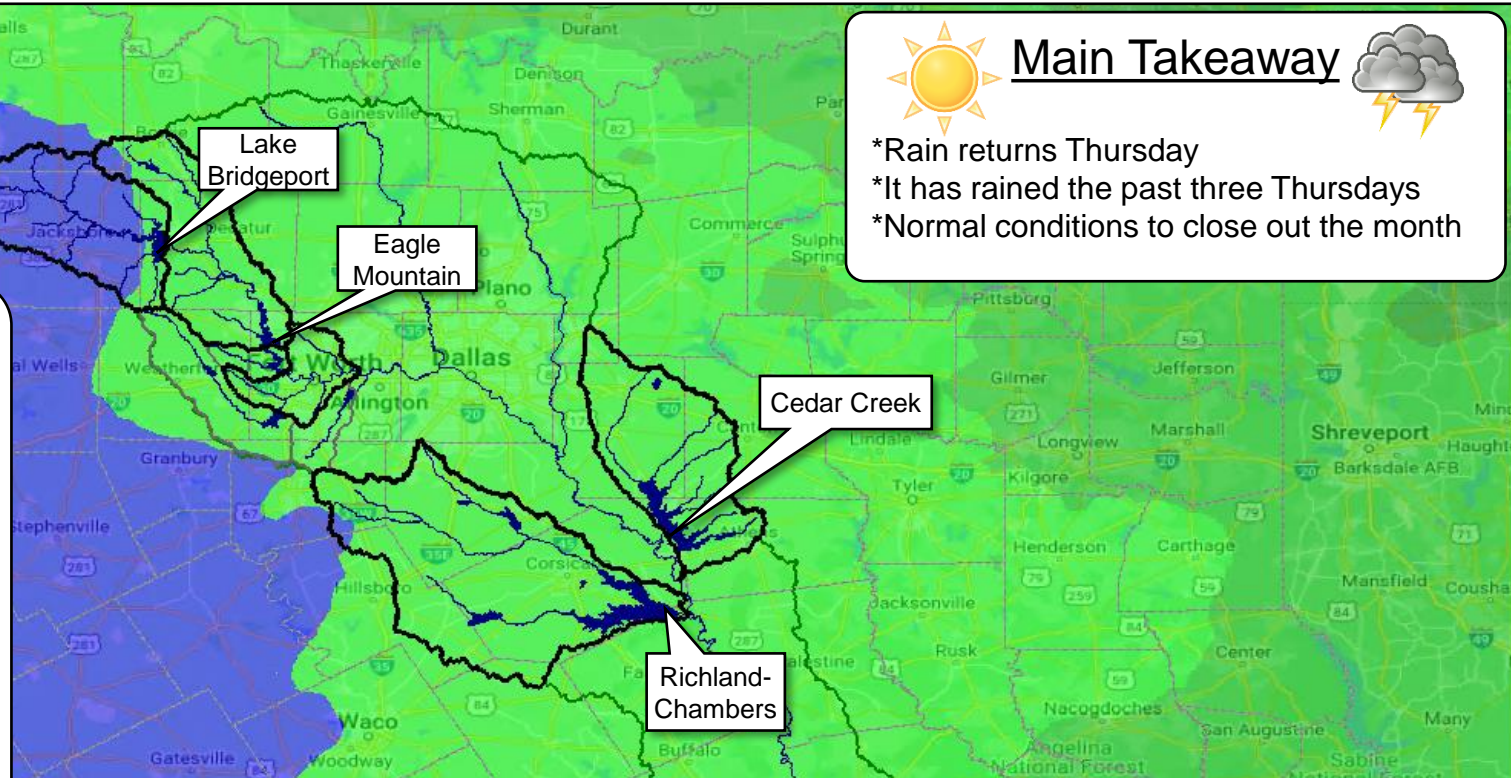


Temperature

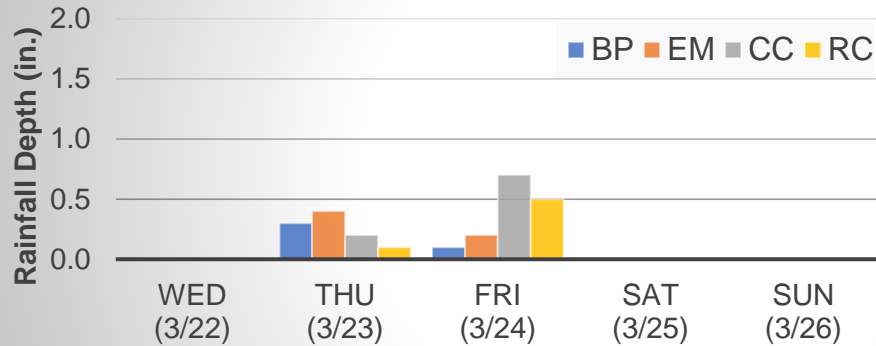


Precipitation

Precipitation forecast is obtained from NOAA's NWS and provided by the Weather Prediction Center (WPC). The data is processed and displayed using USACE Met-Vue software



## Daily Forecasted Rainfall Totals



Reservoir	Forecast Total (in.)
BP	0.4
EM	0.6
CC	0.9
RC	0.6

NWS Forecast Time: 2023-03-20 1200 GMT





# 12

## Executive Session

# 13

## Consider Approval of Purchase and Installation of Microwave Radio Equipment at Multiple District Sites

Travis Bird, *Director of Information Services*



# 14

## Future Agenda Items



# 15

Next Board Meeting  
April 18, 2023 at 9:00 AM



# 16

## Adjourn