



NORTH  
TEXAS  
MUNICIPAL  
WATER  
DISTRICT

Regional Service Through Unity... Meeting our Region's Needs Today and Tomorrow



*Lake Operations Center*

# WATER COMMITTEE MEETING

July 21, 2021 (Via Teleconference)





# AGENDA

## ACTION ITEMS

- A. Consider approval of Water Committee meeting minutes – June 23, 2021
- B. Authorize execution of engineering services agreement for Wylie Water Treatment Plant Biologically Active Filtration project – Administrative Memorandum No. 5741
- C. Authorize execution of engineering services for Wylie Water Treatment Plant Master Plan project – Administrative Memorandum No. 5742
- D. Authorize award of construction contract and inspection services agreement on Apollo Pump Station 2020 Electrical and Mechanical Improvements project – Administrative Memorandum No. 5743

## DISCUSSION ITEMS

- A. Corrosion control evaluation update and anticipated sampling requirement changes
- B. Discuss the Texas Fawnsfoot, a threatened freshwater mussel species
- C. Discuss City of Texarkana Draft Water Use Permit No. 13642
- D. Opportunity for Committee members to provide feedback on Water Committee meeting
- E. Opportunity for Committee members to request potential future agenda items  
(No substantive discussion of items will take place at this time)

## ADJOURNMENT



# AGENDA

## Opening Remarks

- A. Chairman/Executive Director/Committee Champion Status Report concerning legislation and regulatory matters, budgets, current projects and ongoing programs of the District including the Regional Water System, Watershed Protection, and Water Conservation



# AGENDA

## Action Items

- A. Consider approval of Water Committee meeting minutes –  
June 23, 2021**

**Recommend approval of Water Committee meeting minutes**



# AGENDA

## Action Items

### **B. Authorize execution of engineering services agreement for Wylie Water Treatment Plant Biologically Active Filtration project – Administrative Memorandum No. 5741**

- Consider recommendation on authorizing the Executive Director to execute an engineering services agreement with Carollo Engineers, Inc., in the amount of \$5,803,659 for final engineering design, bidding, and construction services for Project No. 101-0390-15, Wylie Water Treatment Plant Biologically Active Filtration

*What: Authorize engineering services to proceed with final design and construction phase services*

*Why: This final design effort will provide the detailed design to advance the project through bid-ready documents and Texas Commission on Environmental Quality (TCEQ) review, and the designer's typical construction services.*



## BAF ROAD MAP

- **2011 – 2019 – Filter Reconfigurations**
- **Project 390 BAF Implementation (WTP's I, III, IV)**
  - **2015 – 2018 – BAF Conversion Plan**
  - **2019 – 2021 – Preliminary Design**
  - **July 2021 - 2023 – Final Design – REMIT TO CMAR**
- **Project 496 Ammonia Conversion to LAS (All WTP's)**
  - **2018 – Evaluation & Preliminary Design**
  - **2019 – Jan 2022 – Final Design – REMIT TO CMAR**
- **Project 517 – WTP II Structural & Mechanical**
  - **2018 – 2020 – Preliminary Design**
  - **2019 – 2021 – Phase I Final Design – REMIT TO CMAR**
  - **2020 – 2022 – Phase II Final Design – REMIT TO CMAR**
- **CMAR Work Packages commence through 2025**





## DESIGN SERVICES FOR FINAL DESIGN

- **The complex interconnectivity of the four treatment plants presents many variations in operability, water quality potential, constructability, and construction cost**
- **Phase I Preliminary Design narrowed BAF configuration options down for manageable evaluation**
- **Phase II Preliminary Design developed the Project Basis of Design based on preferred options**



## DESIGN SERVICES FOR FINAL DESIGN

- **Primary Tasks:**
  - **Chlorine contact basins at Plants III and IV**
  - **Additional finished water clearwell at Plant IV**
  - **Major piping relocations and connections**
  - **Flow modeling and baffling for mixing**
  - **Chemical storage, feed and injection**
  - **Filter backwash management pumps**
  - **Filter operations automation**
- **CMAR coordination**
- **Planning level construction cost: \$60,000,000**





# DESIGN SERVICES FOR FINAL DESIGN





## RECOMMENDATION

**The Executive Director and NTMWD staff recommend the Board of Directors authorize the Executive Director to execute an engineering services agreement (ESA) as follows:**

**Consultant: Carollo Engineers, Inc.**

**Scope: Final engineering design, bidding, and construction services**

**Project: No. 101-0390-15, Wylie Water Treatment Plant Biologically Active Filtration**

**Amount: \$5,803,659**





# AGENDA

## Action Items

### **C. Authorize execution of engineering services for Wylie Water Treatment Plant Master Plan project – Administrative Memorandum No. 5742**

- Consider recommendation on authorizing the Executive Director to execute an engineering services agreement (ESA) with Hazen and Sawyer, Inc., in the amount of \$1,400,000 for planning study and Wylie Water Treatment Plant Capital Improvement Program Update; Project No. 101-0595-21, Wylie Water Treatment Plant Master Plan

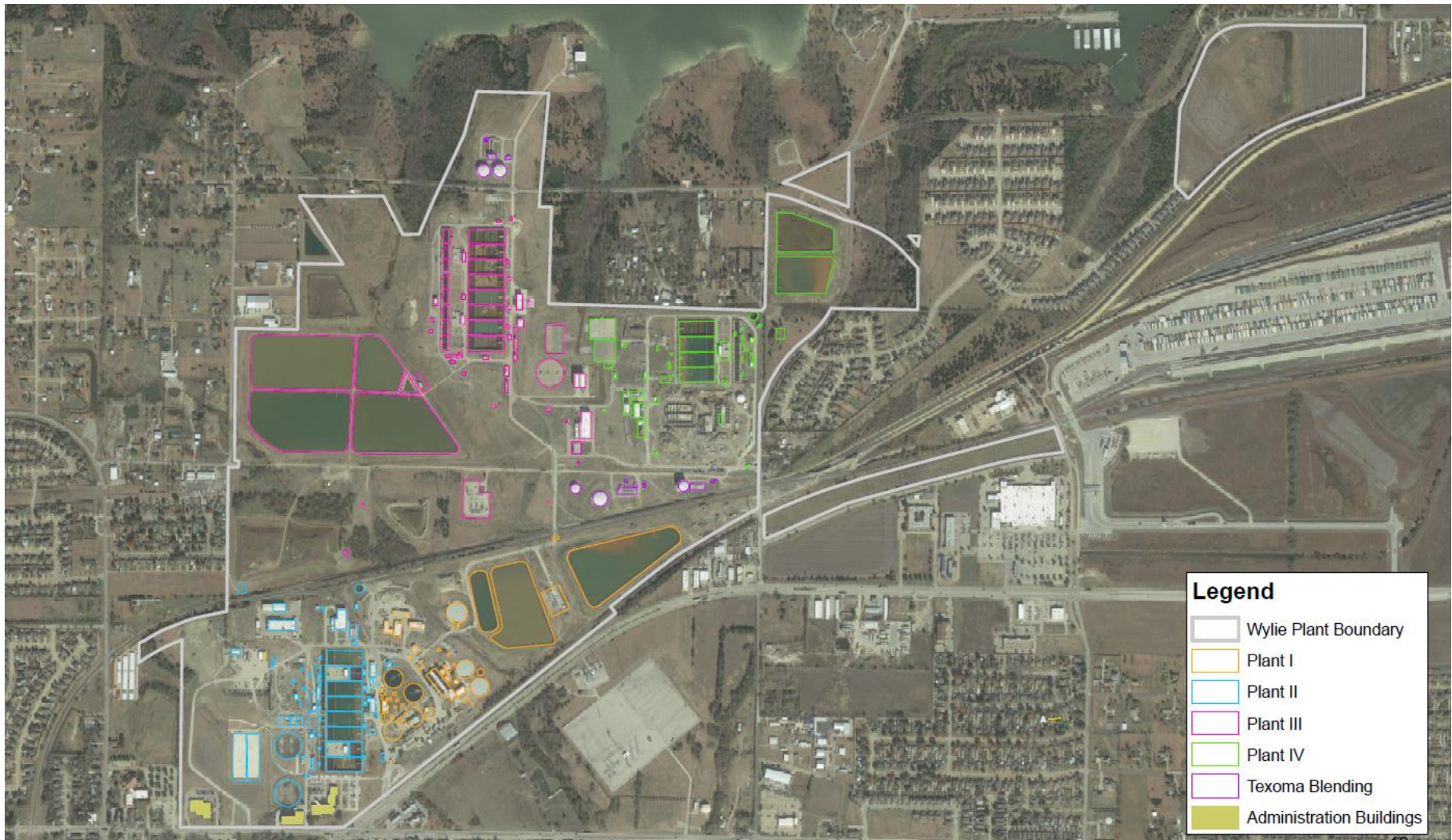
*What: Authorize an engineering services agreement to develop a Master Plan for the Wylie Water Treatment Plant (WTP) complex.*

*Why: Identify alternatives and make recommendations for improvements and phasing of projects for the Wylie WTP.*





# WYLIE WATER TREATMENT PLANT MASTER PLAN

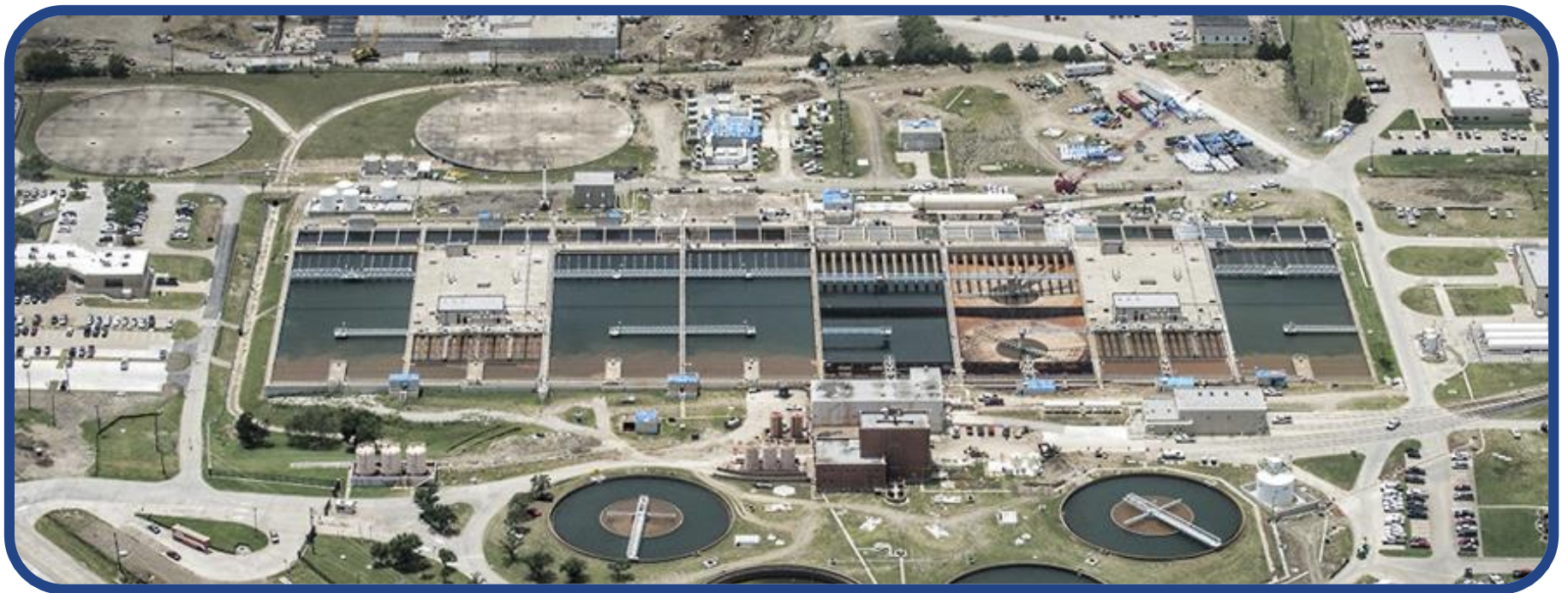






# WYLIE WATER TREATMENT PLANT MASTER PLAN

**Conduct process analysis, space planning, and facilities evaluations to define triggers and capital improvements projects to meet current and future treatment needs (2050)**





# WYLIE WATER TREATMENT PLANT MASTER PLAN

## Project Tasks

- **Determination of current, intermediate, and long-term water quality and treatment goals for the 2050 planning period**
- **Conduct staff interviews across all departments to determine infrastructure and staffing needs**
- **Analyze the current hydraulic and process limitations at the Wylie WTP to determine true capacity**
- **Identify facility improvements including new treatment processes, hydraulics/piping and support facilities to achieve the necessary capacity and treatment goals**





# WYLIE WATER TREATMENT PLANT MASTER PLAN

## Project Tasks continued

- **Perform Condition Assessment Validation and Gap Assessment**
- **Assess current and future regulatory requirements and impacts on treatment and operations**
- **Update Plant Electrical System Planning Model (SKM)**
- **Conduct a plant performance evaluation and identify optimization opportunities**
- **Conduct scenario planning analysis to develop trigger-based decision framework for future improvements**



## RECOMMENDATION

**The Executive Director and NTMWD staff recommend the Board of Directors authorize and engineer service agreement as follows:**

**Consultant: Hazen and Sawyer, Inc.**

**Scope: Planning study and Wylie WTP capital improvement program update**

**Project: No. 101-0595-21, Wylie Water Treatment Plant Master Plan**

**Amount: \$1,400,000**



# AGENDA

## Action Items

### **D. Authorize award of construction contract and inspection services agreement on Apollo Pump Station 2020 Electrical and Mechanical Improvements project – Administrative Memorandum No. 5743**

- Consider authorizing recommendation on award of construction contract with Crescent Constructors, Inc., in the amount of \$3,837,000 and authorizing an inspection services agreement with Dietz Engineering in the amount of \$981,000 on Project No. 101-0553-20, Apollo Pump Station 2020 Electrical and Mechanical Improvements

*What: Award a construction contract and authorize inspection services agreement to provide electrical, instrumentation, and mechanical improvements for the Apollo Pump Station.*

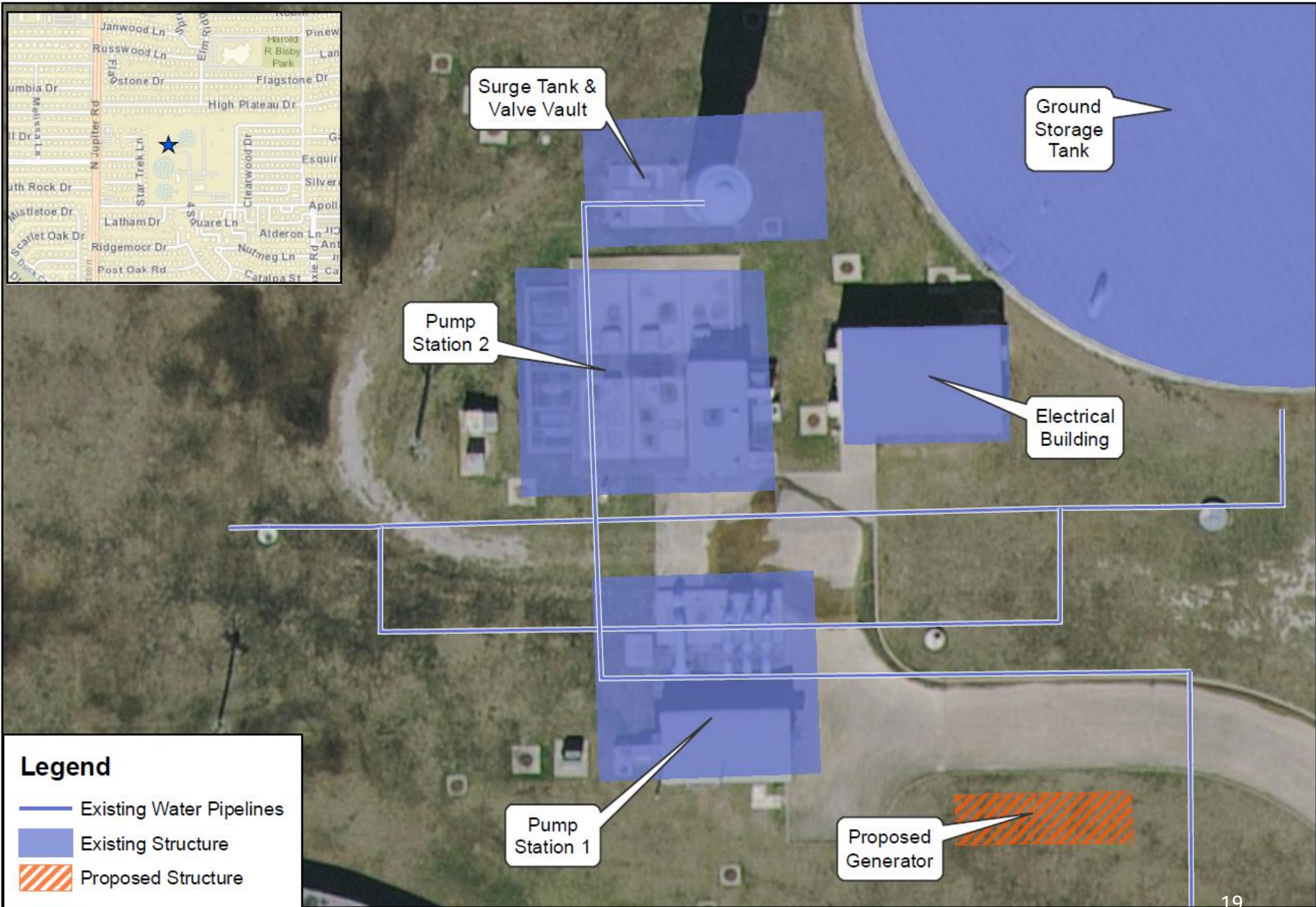
*Why: The construction project will improve pumping capacity and performance to deliver distribute water into the McCree ground storage tank and downstream facilities. A new generator will also be installed to increase power reliability.*





## APOLLO PS ELECTRICAL & MECHANICAL

- Apollo PS was developed in two stages:
  - Apollo No. 1 has three 300 HP pumps; operated during low demand
  - Apollo No. 2 has two 2,000 HP pumps; operated during high demand
- Electrical power system utilizes a single primary utility feed:
  - Enters main switchgear building at Apollo No. 2
  - Single secondary feed from Apollo No. 2 to Apollo No. 1
- McCree GST, located at IH 635 and McCree Road in Garland:
  - 6 million gallons
  - Maintains minimum 5 psi on the Apollo-Casa View pipeline and the Wylie-Garland-Casa View System





## APOLLO PS ELECTRICAL & MECHANICAL

- Electrical Improvements:
  - Backup emergency generator (2500 kW)
  - Associated automatic transfer switch and switchgear
  - Site development for fuel tank and access
  - Replacement of deteriorated switchgear in Apollo No. 1
  - Addition of parallel feed between Apollo No. 2 and Apollo No. 1
- Mechanical Improvements:
  - Replace three pumps at Apollo No. 1 with higher head pumps to support current system needs
  - Install variable frequency drive on one pump at Apollo No. 2





## APOLLO PS ELECTRICAL & MECHANICAL

Bidder	Bid Amount
<b>Crescent Constructors</b>	<b>\$3,837,000.00</b>
Archer Western Construction	\$4,257,899.00
Eagle Contracting	\$4,361,655.00
Schofield Civil Construction	\$4,411,899.00
Hasen Design Build & Development	\$4,845,139.15
Felix Construction	\$5,414,598.59
Engineer's Opinion of Probable Construction Cost	\$6,477, 936.00

- Low bid approximately 60% of OPCC
- Close grouping of most bidders suggests good understanding
- Market conditions continue to be fluid
- Bid was verified with **Crescent** for validity



## RECOMMENDATION

**The Executive Director, NTMWD staff and Mbroh Engineering, Inc., recommend the Board of Directors authorize the award of a construction contract and authorize an inspection services agreement as follows:**

**Contract: Construction Contract: Crescent Constructors, Inc.  
Inspection Services Agreement: Dietz Engineering**

**Scope: Construction**

**Project: No. 101-0553-20, Apollo Pump Station 2020 Electrical and Mechanical Improvements**

**Amount: Construction Contract: \$3,837,000  
Comprehensive Inspection Svcs Agmt: \$ 981,000**



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*Zeke Campbell*

# AGENDA

## Discussion Items

- A. Corrosion control evaluation update and anticipated sampling requirement changes**





## LEAD AND COPPER RULE (LCR)

Requires water providers monitor lead and copper levels within homes

- Population based sampling
- Initial sampling is required twice per year
  - Population of 100,000 requires 100 sites.
- 2 consecutive years low levels
  - 50 sites every 1 or 3 years

Examples of changes that remove entities from reduced monitoring

- LCR results above action levels
- Changes in treatment
- Addition of booster chlorination in system



## BOTTOM LINE CORROSION CONTROL/ LEAD AND COPPER UPDATES

### New Source Water – Bois d' Arc

- Impacting the North System
- New source requires evaluation and additional sampling.
- TCEQ will select 5 highest populations to assess impacts.
  - Plano, Frisco, McKinney, Garland and Richardson
    - Still pending TCEQ approval
- **2022 startup for Plant**
- **2022 LCR sampling**

### Managing nitrification

- Impacting the South System
- Addition of Sodium Chlorite to address chloramine residuals.
- TCEQ will select 5 highest populations to assess impacts.
  - Garland, Mesquite, Rowlett, Sachse and Forney
    - Still pending TCEQ approval
- **2022 LCR Sampling**



# CORROSION CONTROL STUDY UPDATE

## Desktop Corrosion Control

- **Multi-phase approach**
- **Sampling Bois d' Arc Lake for water quality parameters underway.**
- **Ultimate goal of the study is to**
  - **review and update current strategy (if needed)**
  - **optimize corrosion control strategies for new source water and blending.**



Analysis and Results Expected Fall 2021

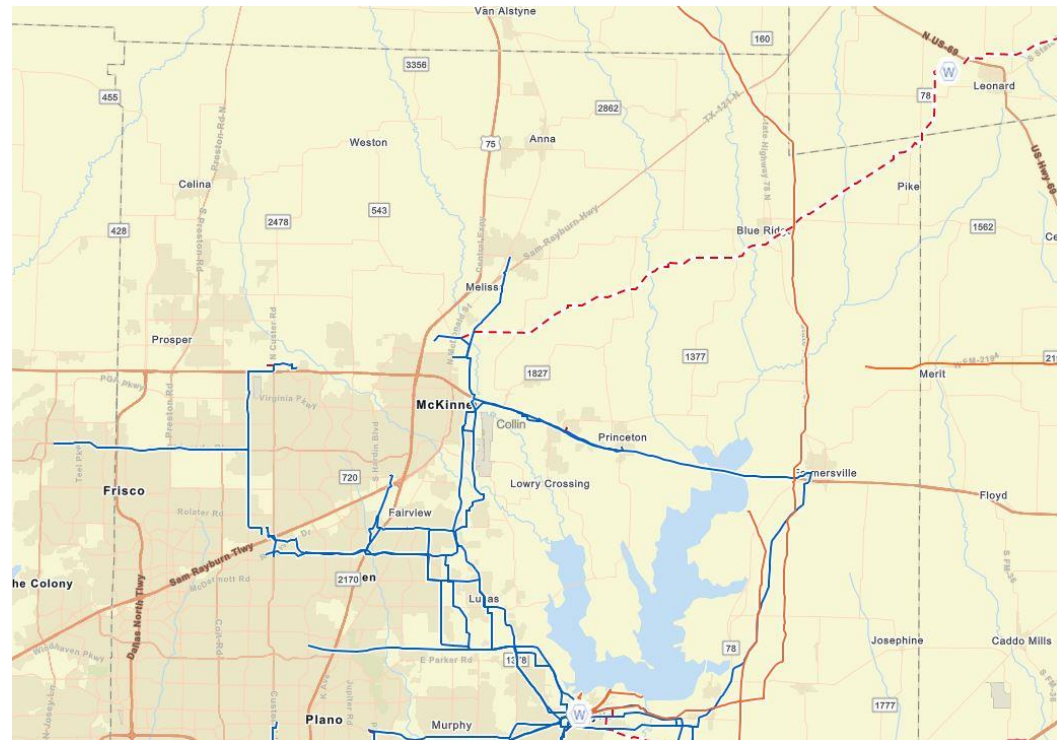




# LEAD AND COPPER PROGRAM IMPACTS

## North System – New Source Water

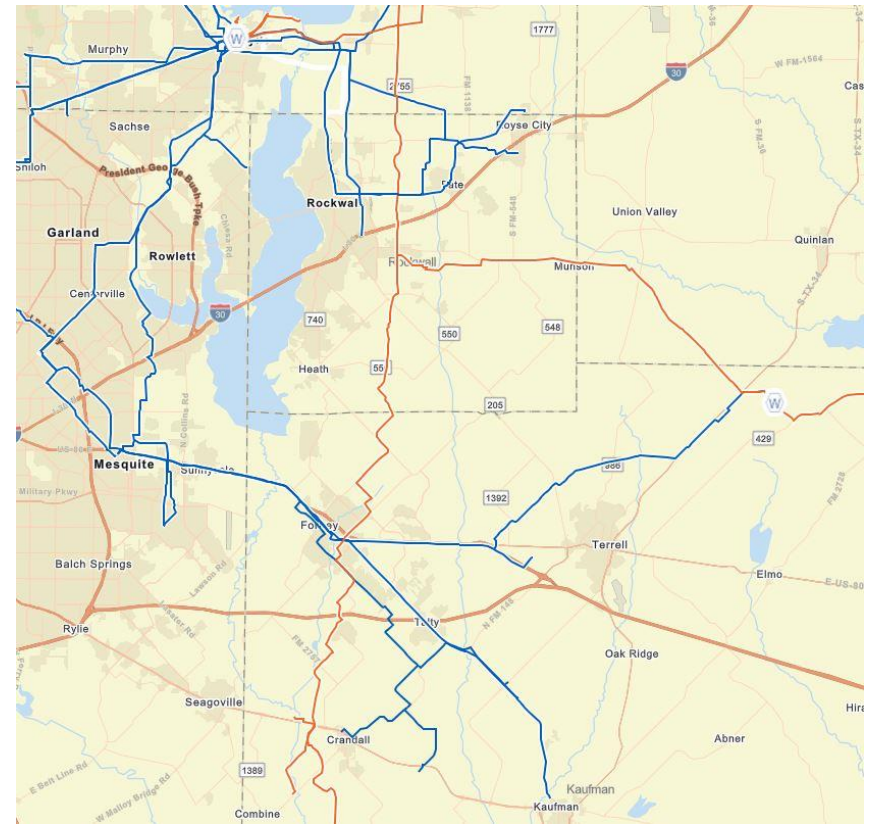
- TCEQ will “undeed” 5 entities from reduced monitoring to assess the new source water impact
  - 2x yearly sampling
- Selected based on population
- 2022 startup





# SOUTH SYSTEM SODIUM CHLORITE ADDITION

- Chlorite shown to be effective in improving chlorine residuals where water age/nitrification occur
- Addition at Plant 1
- Demonstrated success in other utilities
  - Lubbock
  - Corpus Christi
- Coordinate with TCEQ and the 5 cities will be undeemed
- 2022 sampling impact





## NEXT STEPS

- **North System**
  - **Continue to work with TCEQ plant startup**
    - Coordinate with TCEQ and 5 Cities on system notifications and letters
- **South System**
  - **Finalize design and build trailer system**
  - **Meet with member and customer cities**
  - **Coordinate with TCEQ and the Cities on 5 system notifications and letters**







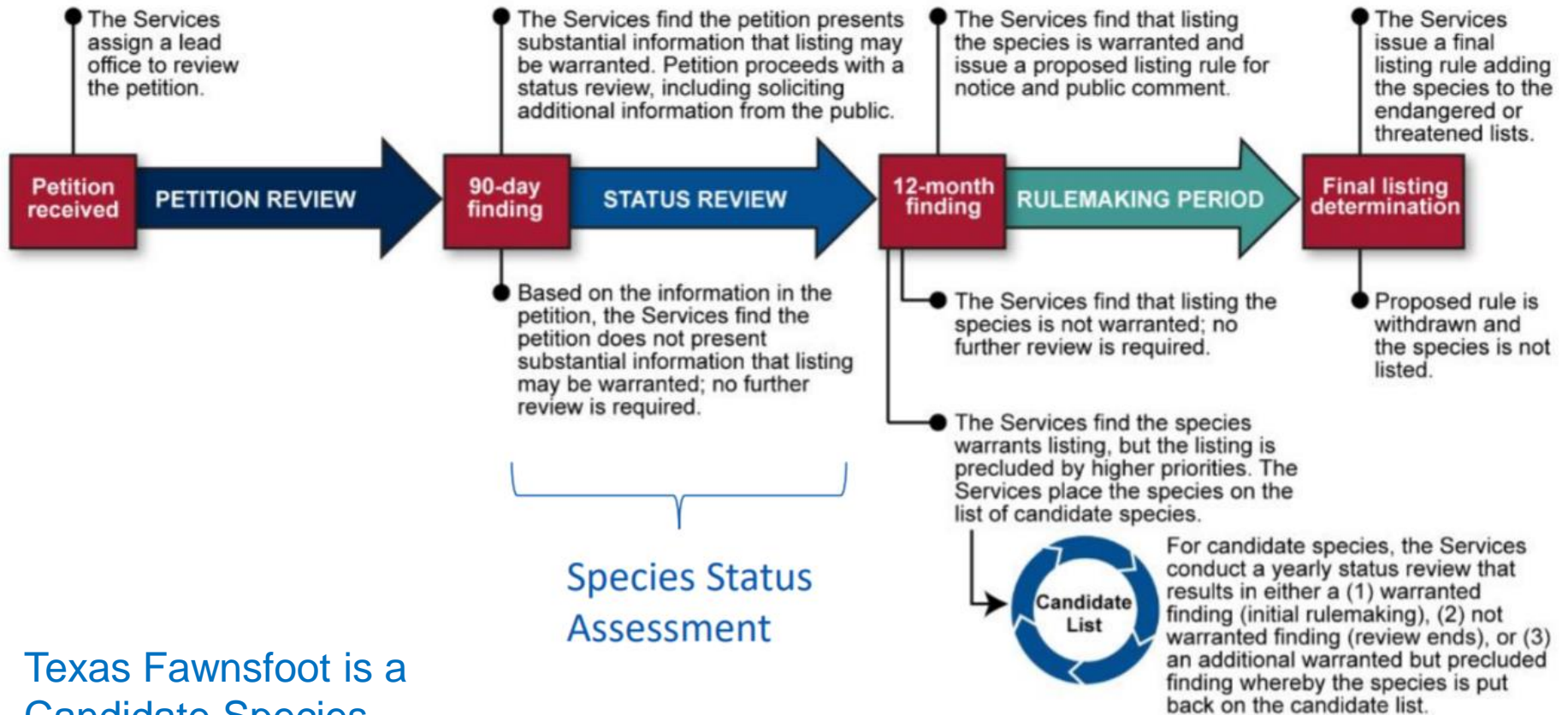
# AGENDA

## Discussion Items

- B. Discuss the Texas Fawnsfoot, a threatened or endangered freshwater mussel species and actions to mitigate**



# The Listing Process



Texas Fawnsfoot is a Candidate Species

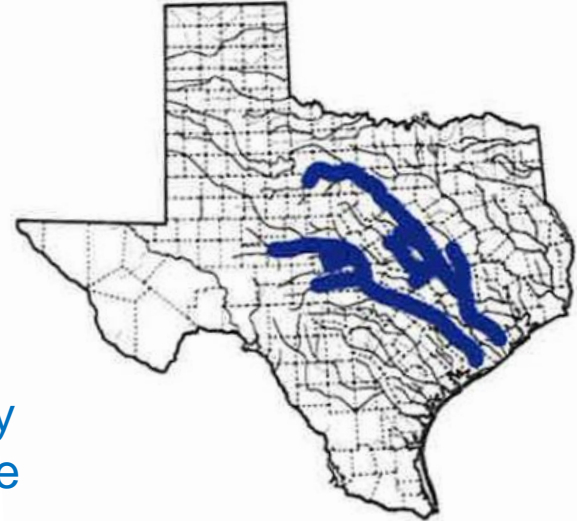
**USFWS must use**

**“the best scientific data available  
not  
the best scientific data possible.”**

**Fawnsfoot**



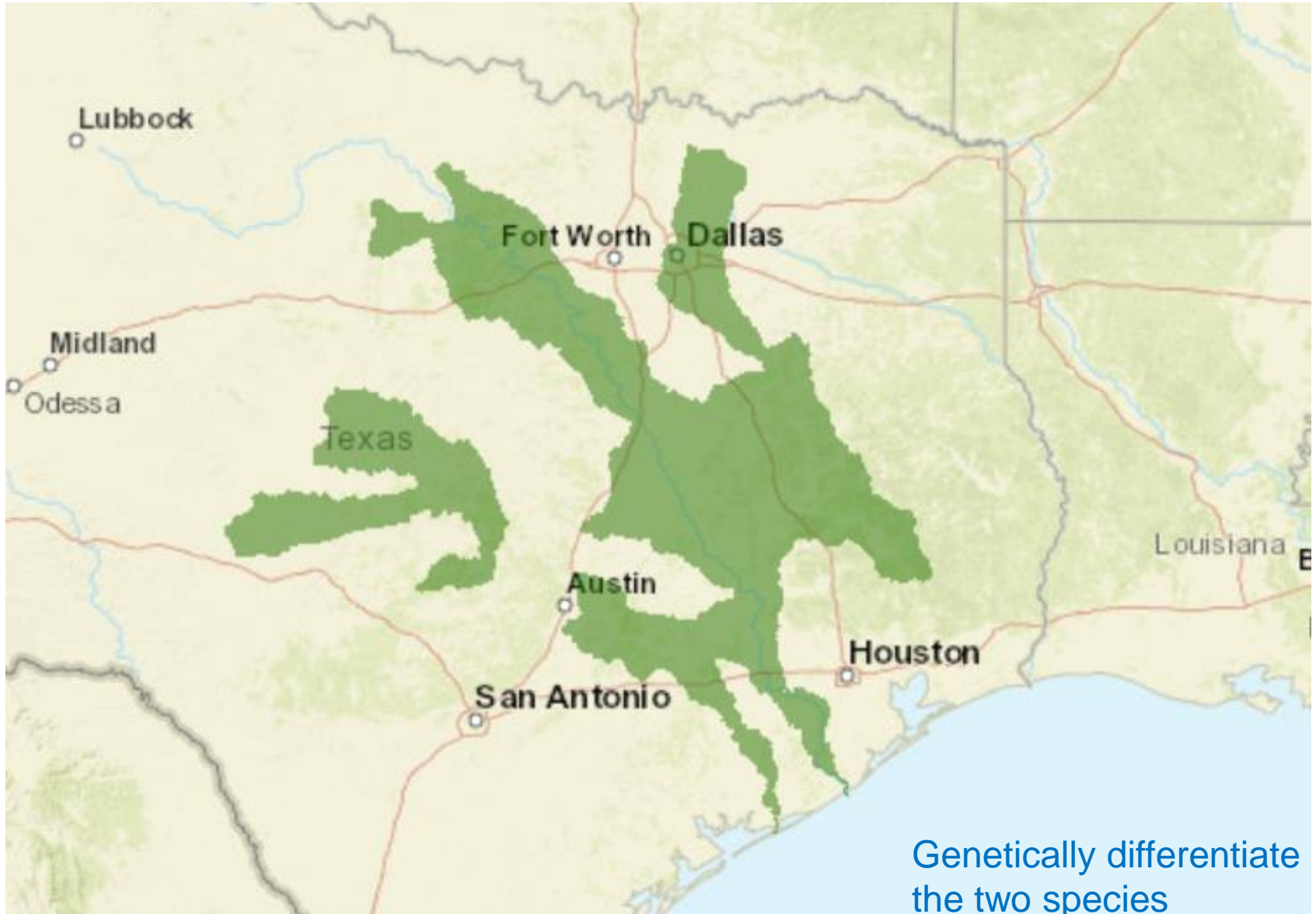
**Texas Fawnsfoot**



Anatomically  
no difference



## Current range for Texas Fawnsfoot



Genetically differentiate  
the two species

- **Flowing waters with low to moderate velocities that appear to function as flow refuges during high flow events.**
- **Mud, sand, and gravel substrates.**
- **Often found in bank habitats and occasionally in backwater, riffle, and point bar habitats.**
- **Presumed fish host is freshwater drum.**
- **Live 4-18 years. Some species in North American can live a century.**
- **Filters water to feed.**
- **Adults cannot migrate.**

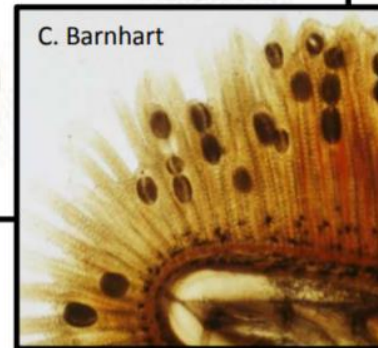
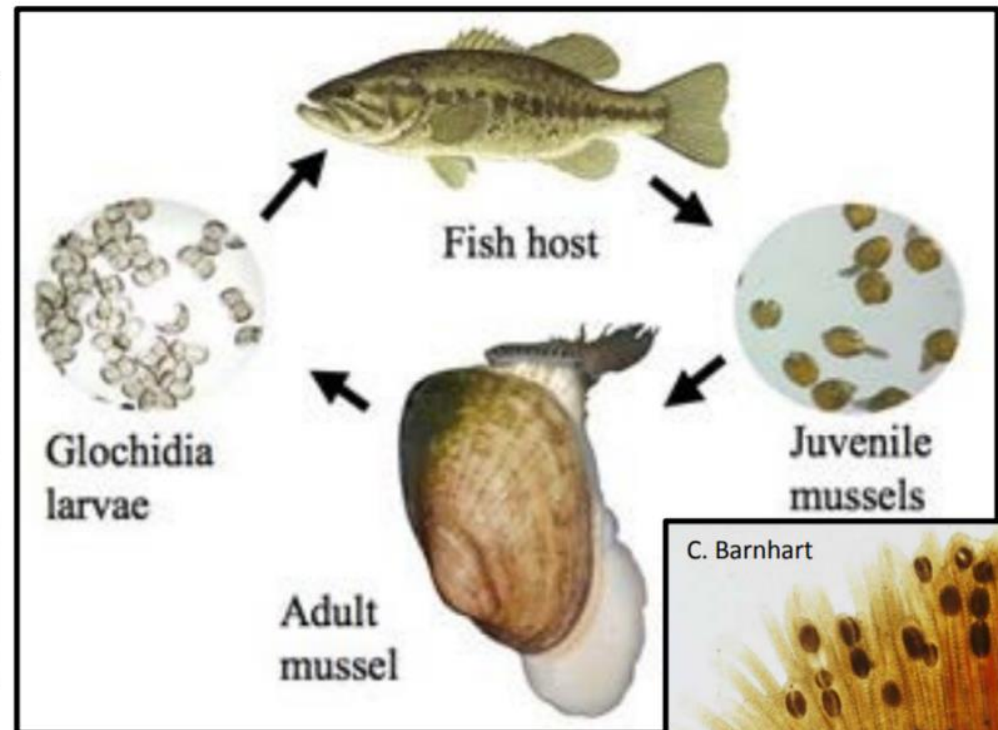


# Mussel Life Cycle

- Unique life history, including parasitic juvenile life stage
- Fish host generalist or specialist depending on mussel species
- Host fish movements affect mussel recruitment and distribution



G. Pandolfi - FWS





## **CANDIDATE CONSERVATION AGREEMENT WITH ASSURANCES (CCAA)**



Photo: Texas hornshell by Joel Lusk, FWS

- **For species not yet listed.**
- **Encourages implementation of specific conservation measures.**
- **Provides private landowners with a Enhancement of Survival Permit that authorizes incidental take if the species is later listed. (Regulatory Certainty)**
- **Standard is net conservation benefit. (incidental take  $\leq$  conservation lift)**
- **Allows incidental takes for current and future activities.**
- **Negotiate the conservation measures and authorized incidental takes.**
- **Only for Trinity River Basin.**
- **Good for 25 years.**
- **Between TRA & USFWS, **we are participant by certificate of inclusion.****
- **We can cease participation.**

## UPPER TRINITY BASIN WATER QUALITY COMPACT

- Created in 1975 to protect mutual interests in the quality of water in the upper Trinity River basin through water quality monitoring, studies, and related activities.
- Trinity River Authority, City of Dallas, City of Fort Worth and NTMWD.
- Agreed to jointly develop a CCAA for Texas Fawnsfoot Mussel.
- Agreed to include Tarrant Regional Water District as a participant in the CCAA.



## According to USFWS:

- North America has more mussel species than any other continent.
- About 300 species.
- 180 species in Alabama and 52 species in Texas.
- Over 72% of the species have threaten or endangered protection.





## Natural & anthropogenic factors lead to degradation, loss or fragmentation of habitat (threats to the species)

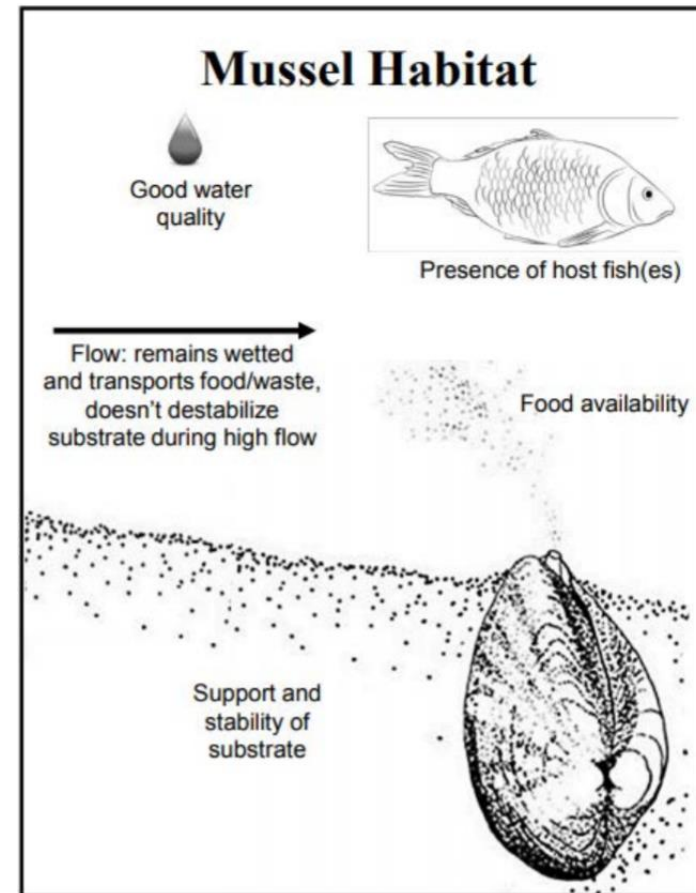
**Water Quantity** – withdrawals, discharges, impoundments, drought, flashiness due to urbanization may change the magnitude, frequency, duration, timing of the flow regime thus changing temporal & spatial distribution of water in the basin.

**Water Quality** – low oxygen, increase temperature, nutrients (ammonia).

**Runoff & Erosion** – increase in fine sediments, channel morphology, decrease in substrate stabilization (scouring).

**Barriers to Dispersal** – impairs movement of host fish, ecologically & genetically isolate populations.

**Exotic Species** – competition, alter habitat, alter water quality.





- USFWS will allow us to include other mussels in the CCAA for assurances.
- USFWS will allow us to include turtles in the CCAA for assurances.
- USFWS predicts the Texas Fawnsfoot Mussel will be listed in about 12 months.
- USFWS prediction of the timing of aquatic species listings found in Trinity River Basin:
  1. Alligator Snapping Turtle
  2. Texas Fawnsfoot Mussel
  3. Texas Heelsplitter Mussel
  3. Trinity Pigtoe Mussel
  3. Western Chicken Turtle



## QUESTIONS?

Jerry Allen, Environmental Manager  
469-626-4634    [jallen@ntmwd.com](mailto:jallen@ntmwd.com)



*Sara Thornton*

# AGENDA

## Discussion Items

**C. Discuss City of Texarkana Draft Water Use Permit No. 13642**





## PENDING TCEQ WATER RIGHTS APPLICATION

### City of Texarkana New Water Right Application for Wright Patman Reservoir, Draft Water Use Permit No. 13642

- Filed Application on November 21, 2019
- ***Application seeks a water use permit to authorize the diversion and use of 175,000 acre-feet of water per year from Wright Patman Reservoir on the Sulphur River, Sulphur River Basin for municipal, industrial, mining, and agricultural purposes within its service area in Bowie, Cass, and Red River counties, in the Sulphur, Cypress, and Red River Basins.***
- TCEQ deemed Application administratively complete on February 21, 2020
- TCEQ issued Notice of the Application on June 17, 2021 and the notice was published on June 27, 2021
- Comments and hearing requests on the Application are due July 27, 2021



# AGENDA

## Discussion Items

- D. Opportunity for Committee members to provide feedback on Water Committee meeting**



# AGENDA

## Discussion Items

- E. Opportunity for Committee members to request potential future agenda items  
(No substantive discussion of items will take place at this time)**

## Adjournment