

Indirect Potable Reuse

Emergency Implementation Planning



AGENDA



💧 IPR Project Update

- Key progress to date and upcoming activities
- Water quality modeling and permitting

💧 Emergency Supply Strategy Alternatives

- Direct Potable Reuse

💧 Next Steps

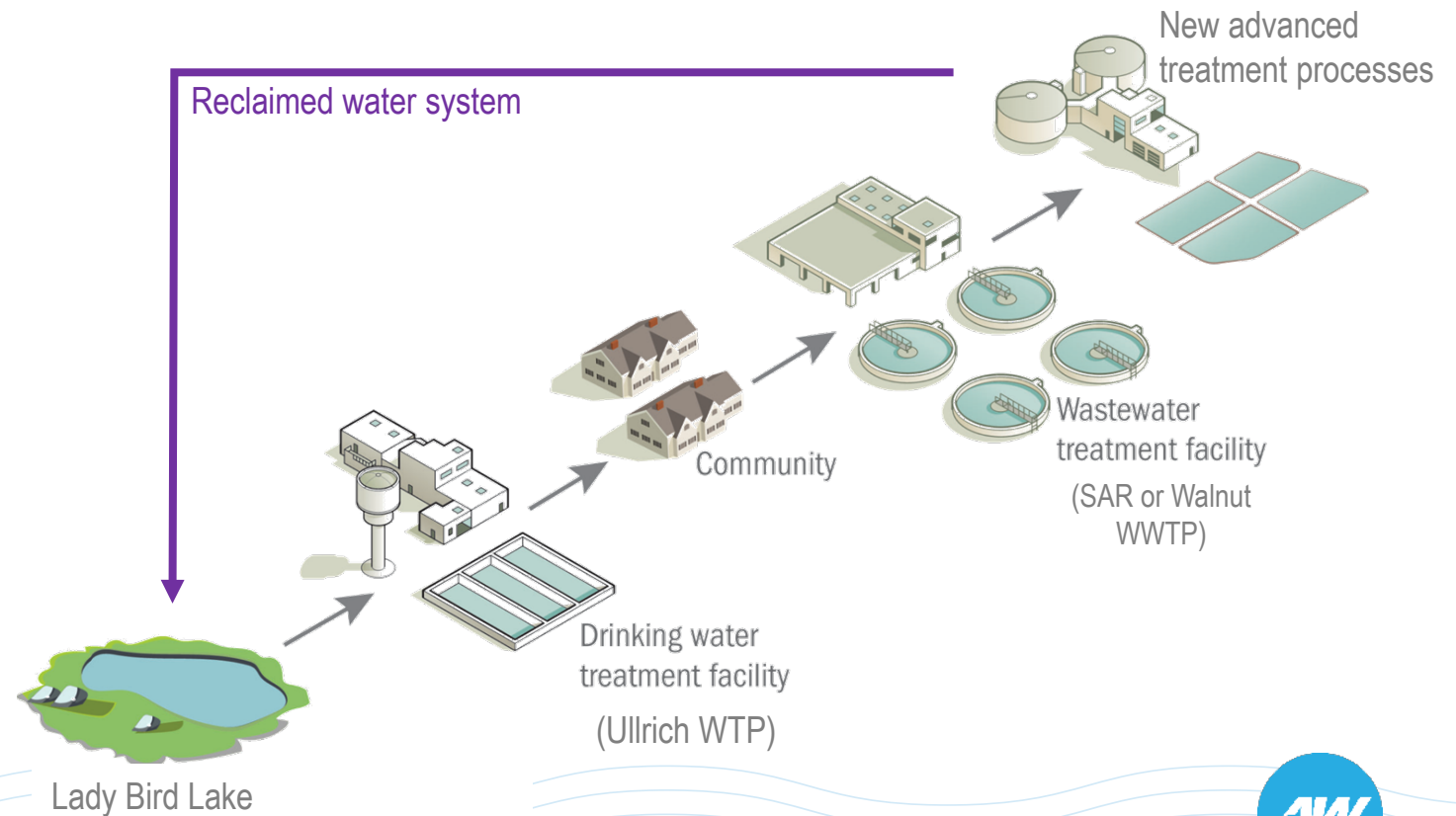


IPR PROJECT UPDATE

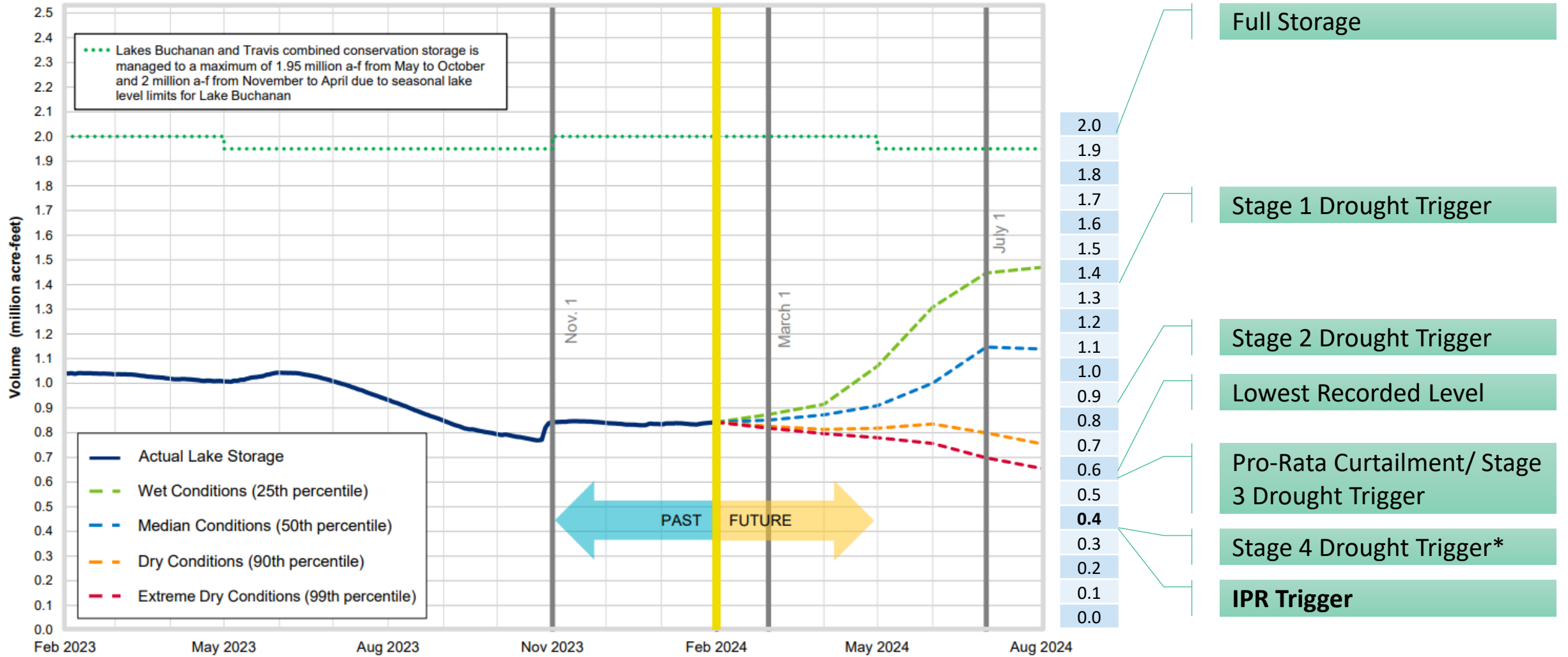


WHAT IS INDIRECT POTABLE REUSE (IPR)?

- IPR is an emergency water supply strategy included in the 2018 Water Forward plan
- The strategy would use Lady Bird Lake as an environmental buffer and to convey highly treated WWTP effluent to Ullrich WTP for use in supplementing drinking water supplies



Lakes Buchanan and Travis Total Combined Storage Projections

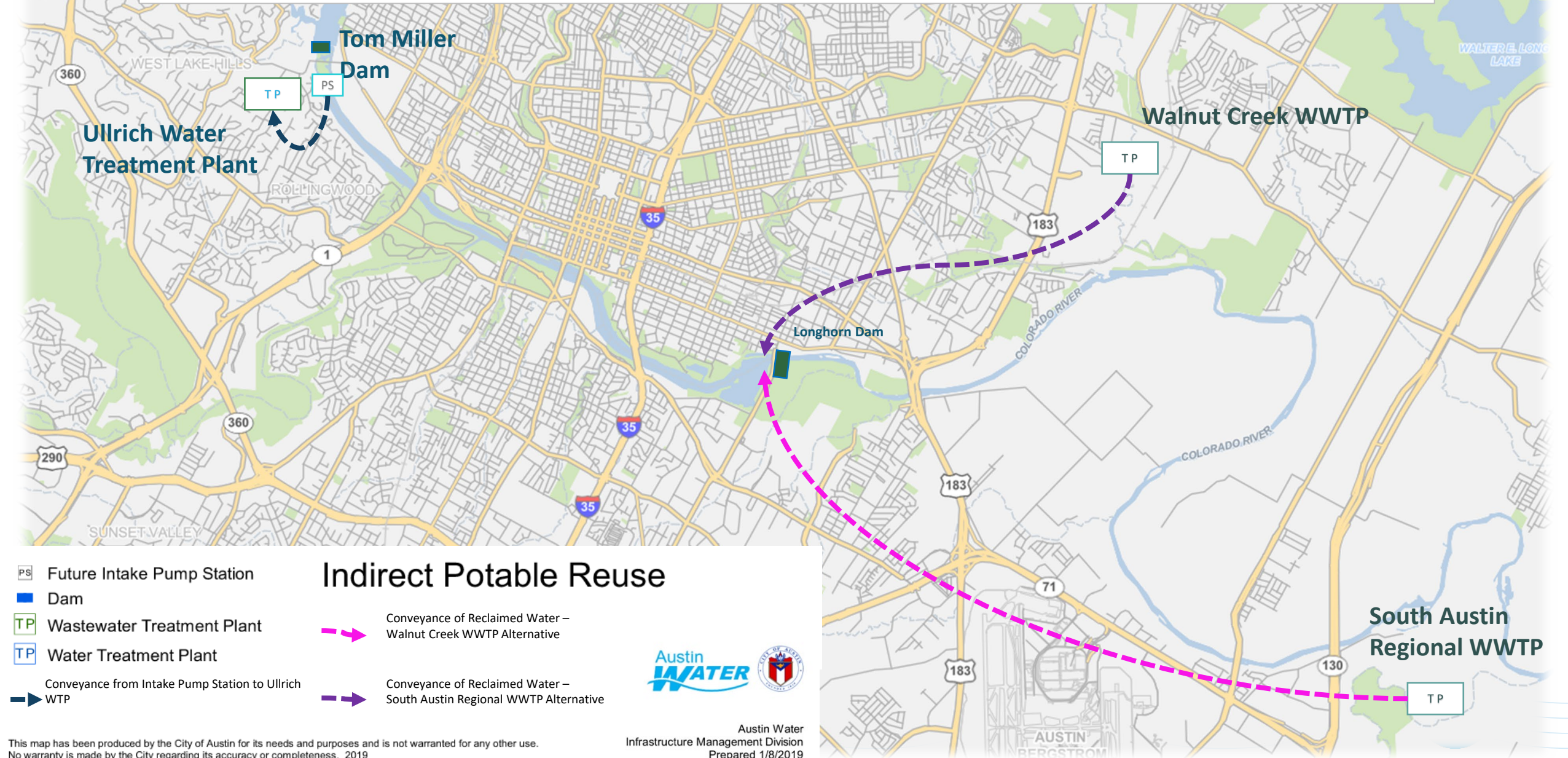


Date: Feb. 1, 2024
Note: One acre-foot equals 325,851 gallons



* Assumed 400KAF Stage 4 Drought Trigger for WF18 modeling

IPR: PRELIMINARY PROJECT LAYOUT



KEY PROGRESS TO DATE



- Nov. 2022 ♦ Initial regulatory discussion with TCEQ
- Feb. 2023 ♦ Consultant rotation list procurement begun
- September 21, 2023 ♦ Plummer NTP issued; Water quality modeling begun
- December 5, 2023 ♦ Internal IPR working group formed
- Dec. 2023 – Feb. 2024 ♦ Plummer continued updating 2016 EFDC (flow dynamic) and WASP (water quality) modeling
- January 19, 2024 ♦ Internal AW IPR Emergency Implementation Workshop
- February 23, 2024 ♦ TCEQ informal meeting on preliminary water quality modeling



UPCOMING ACTIVITIES



- February – June 2024 • Design engineer procurement
- March – July 2024 • Refinement of emergency water supply implementation plan
- Summer 2024 • WF24 evaluation of emergency strategies
- Coordination with ongoing permitting activities



WATER QUALITY MODELING & PERMITTING

- Initial model was developed in 2016, modeling the period from July 2012-December 2013
- Plummer updated the modeled period to January 2018 – December 2022
- Includes flows from period of record (EFDC hydrodynamic model) and water quality data (WASP model using both measured and reference values)
- Purpose of modeling is to provide TCEQ with updated Ladybird Lake baseline conditions and understand how various effluent constituents behave
 - Primary concern is nutrients contributing to the growth of algae, because the lake is on the EPA 303D list of impaired waters for excessive algae



EMERGENCY SUPPLY STRATEGY ALTERNATIVES



REUSE AS AN EMERGENCY SUPPLY



IPR and DPR in
Emergency
Implementation
Context



https://www.susana.org/_resources/documents/default/2-551-wintgens-hochstrat-2006-d19-integrated-reuse-aquarec-en.pdf

REGULATIONS: IPR VS. DPR



💧 Indirect Potable Reuse (IPR)

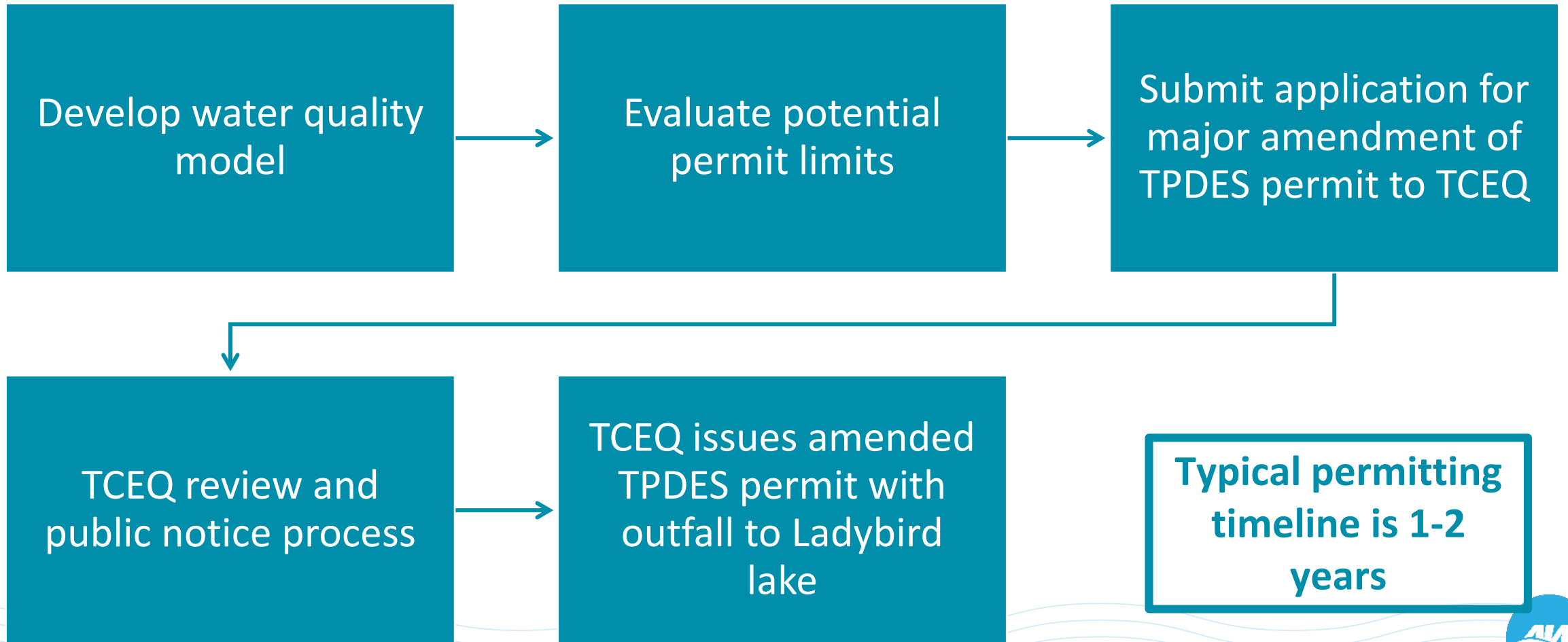
- Compliance with Clean Water Act (Texas Pollutant Discharge Elimination System [TPDES] permit)
- Compliance with Safe Drinking Water Act (at water treatment plant [WTP])
- Water rights - City must have right to divert and use water

💧 Direct Potable Reuse (DPR)

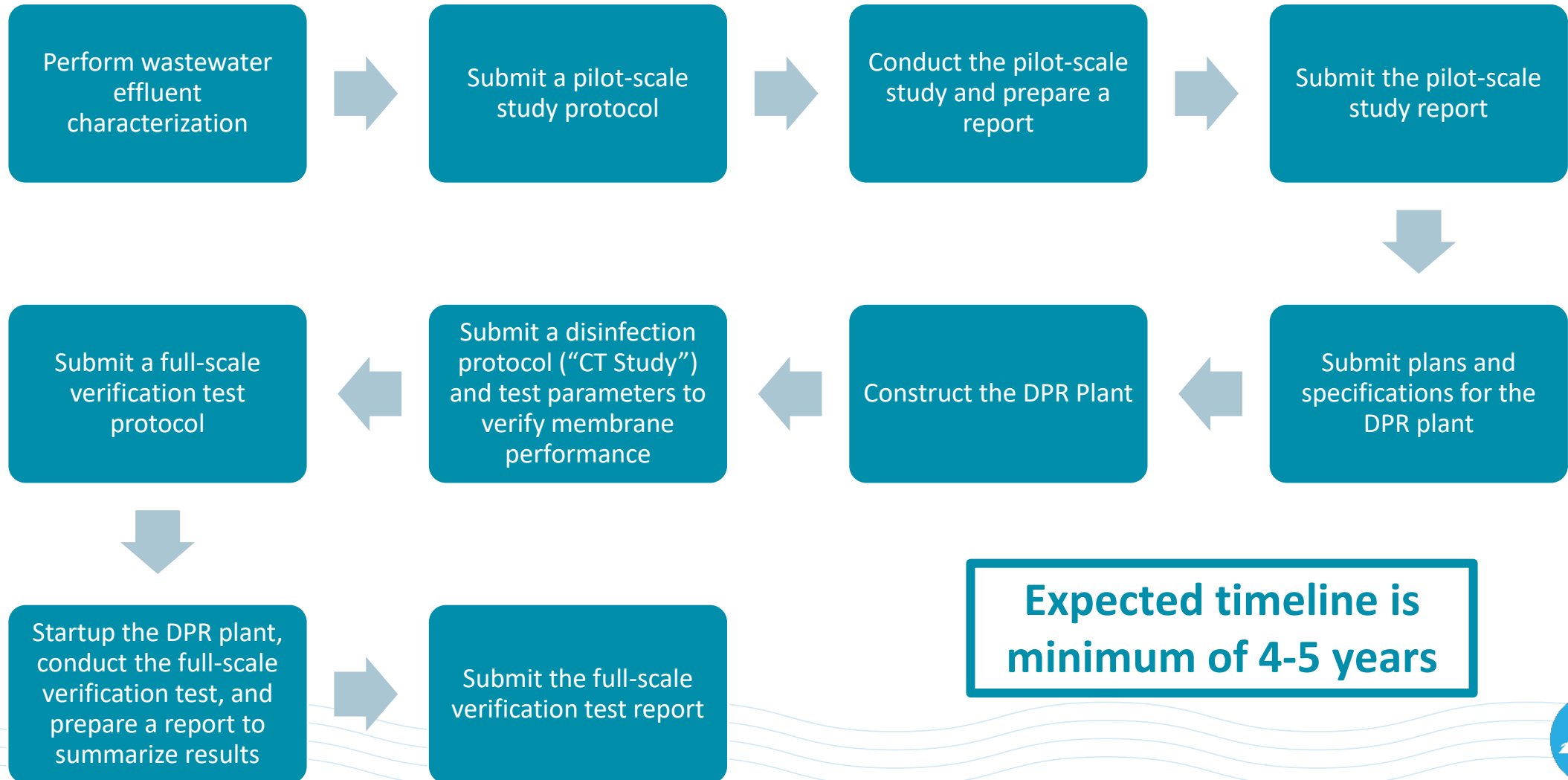
- Texas Commission on Environmental Quality (TCEQ) guidance focuses on compliance with Safe Drinking Water Act
 - Treatment requirements based on source water (effluent) characterization
 - Approval via exception process



REGULATORY PROCESS- IPR- DISCHARGE PERMIT



TCEQ DPR GUIDANCE- DPR FACILITY APPROVAL PROCESS



POTENTIAL TREATMENT COMPONENTS: IPR VS. DPR

💧 IPR

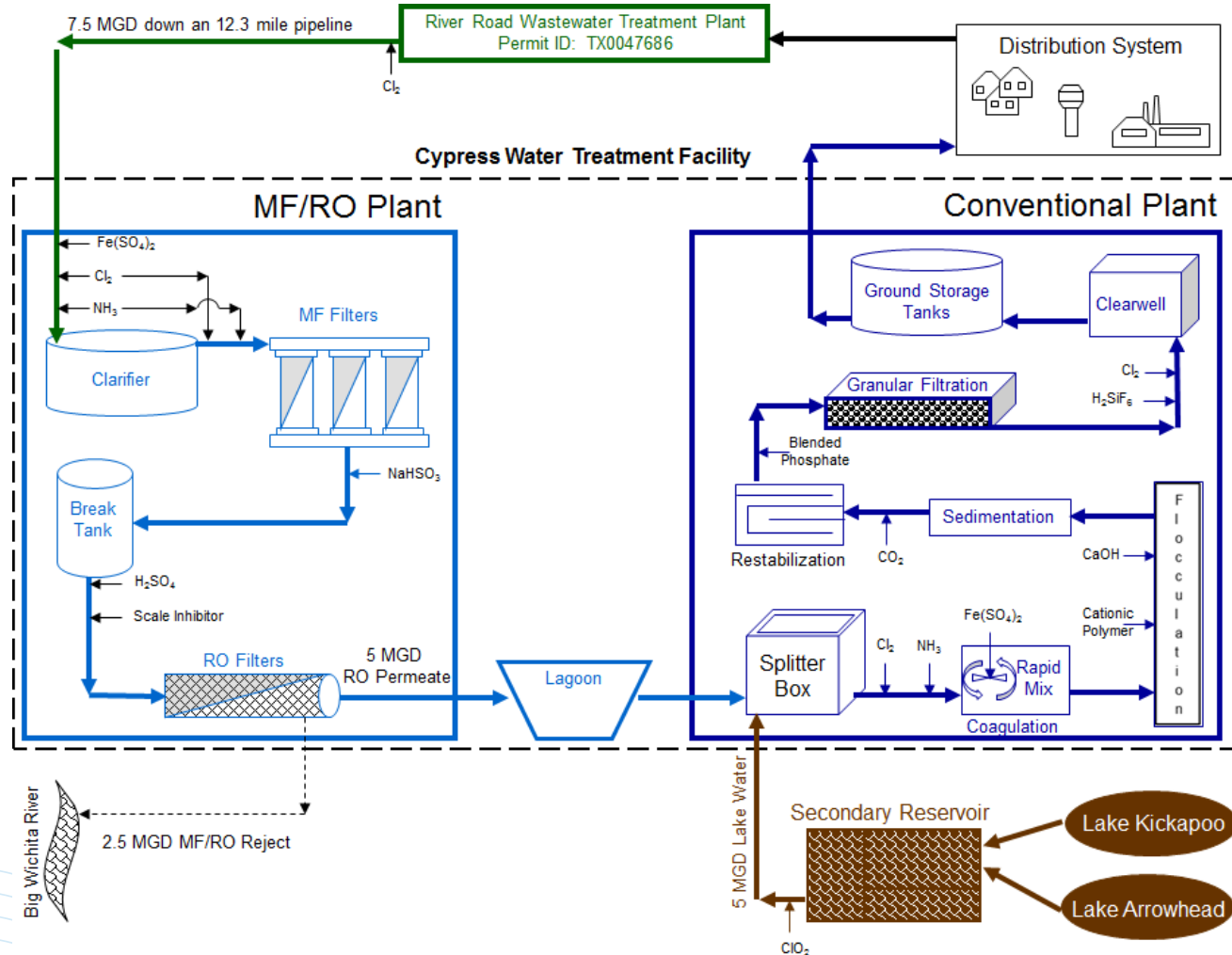
- Existing treatment and potentially:
 - Chemical addition for phosphorus removal
 - Effluent filtration
 - Dechlorination at outfall
 - May require additional treatment at the drinking water treatment plant

💧 DPR

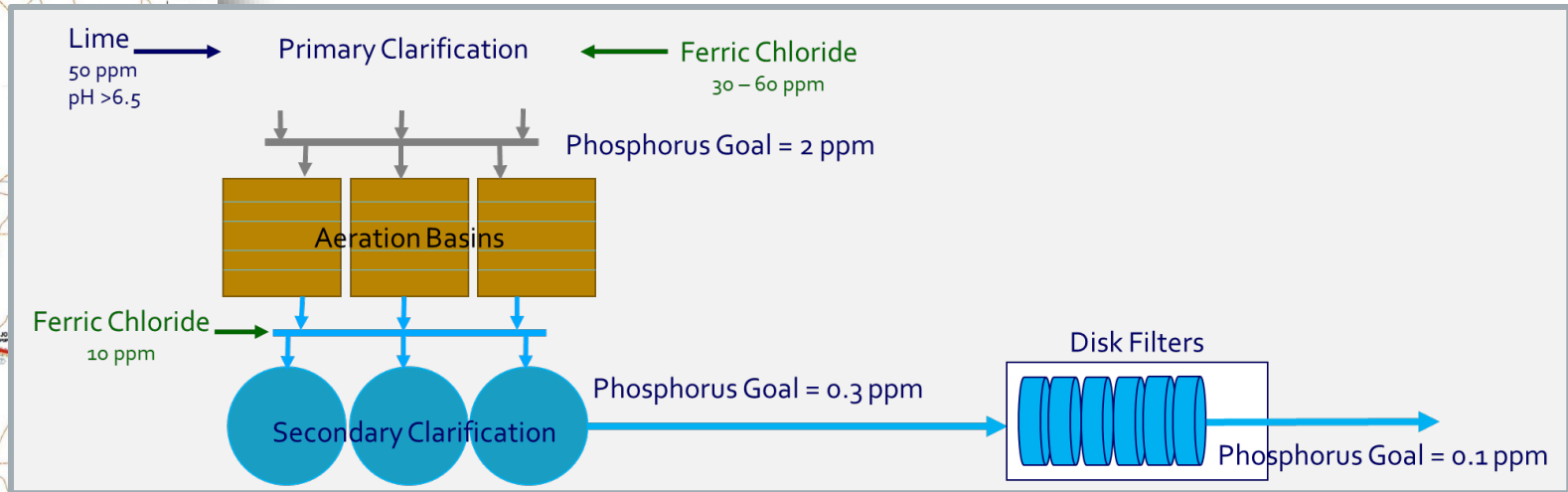
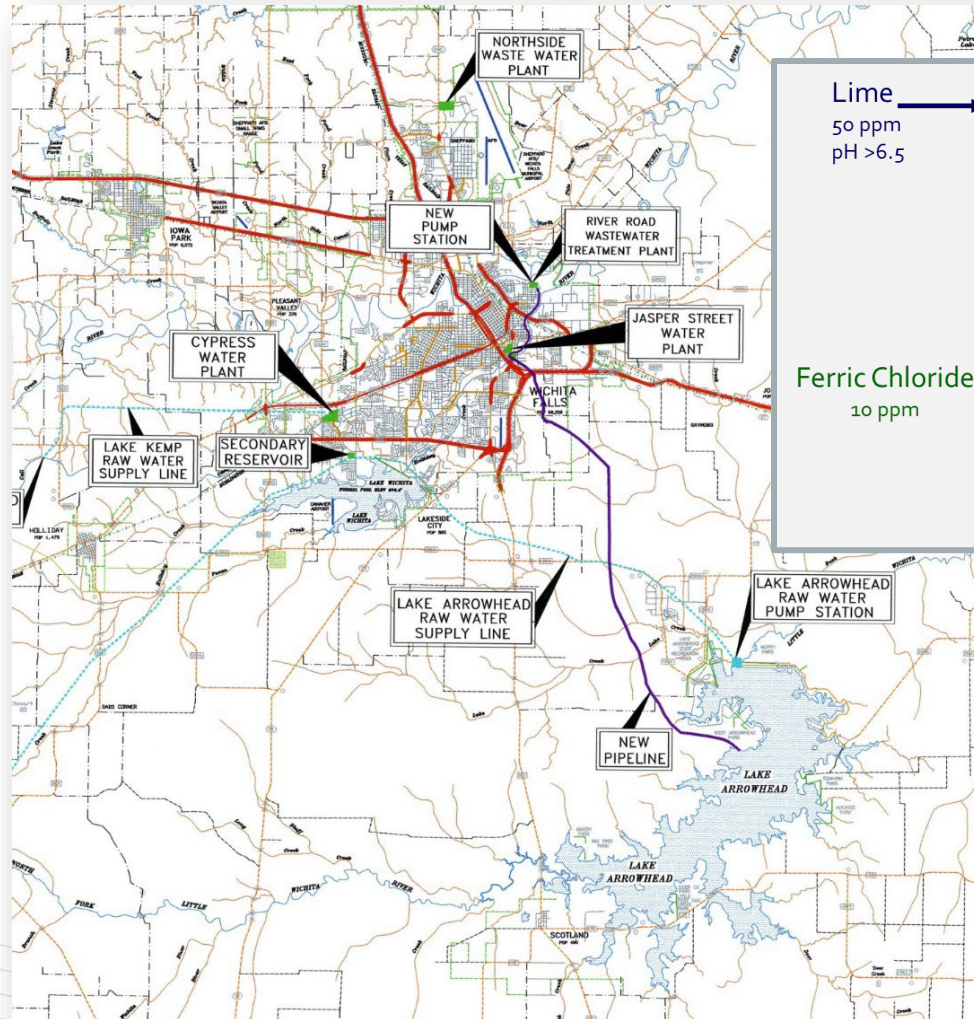
- May require additional nutrient removal at wastewater treatment plant (WWTP)
- Low pressure membranes
- Reverse osmosis (RO)
- Additional disinfection
- Other processes pending detailed evaluation
- Disposal of RO concentrate



CITY OF WICHITA FALLS- FROM EMERGENCY DPR TO IPR



CITY OF WICHITA FALLS - FROM EMERGENCY DPR TO IPR



NEXT STEPS



- Consultant (Plummer) to continue:
 - LBL IPR water quality modeling in advance of further conversations with TCEQ
 - Development of Emergency Water Supply Implementation Plan
- AW IPR working group to:
 - Continue coordination on key permitting activities, and communications and emergency implementation planning
 - Move forward on procurement of IPR design engineer and development of IPR configuration(s)
 - Continue evaluation of emergency supply strategy alternatives



An aerial photograph of a wastewater treatment plant. In the foreground, there are several large, rectangular concrete basins filled with water, connected by a network of walkways and railings. Beyond the basins, there's a green field and some industrial buildings. In the far background, a dense urban skyline is visible under a cloudy sky. A semi-transparent blue banner is overlaid across the middle of the image.

Thank you!

