Pflugerville Water Treatment Plant Expansion

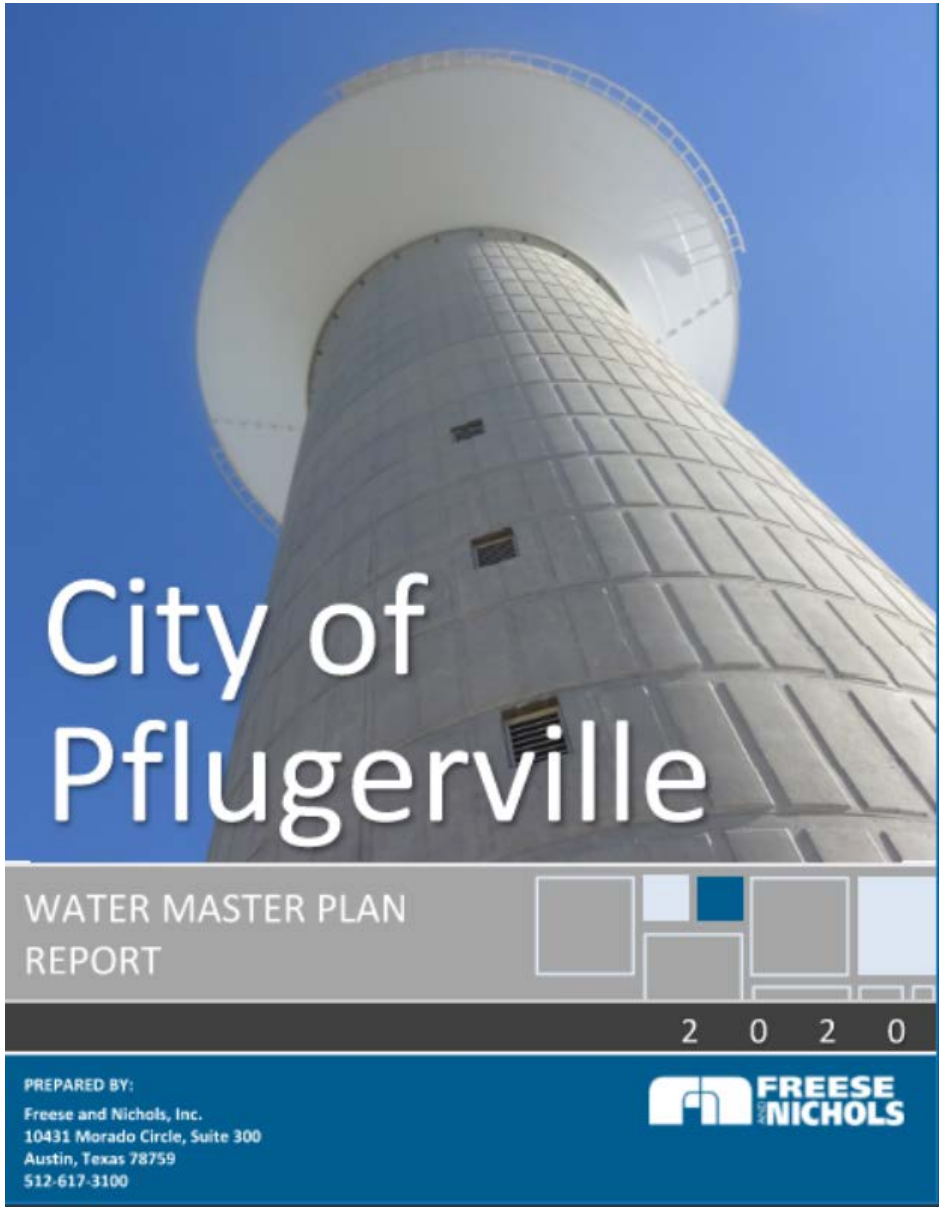
July 28, 2020

Agenda

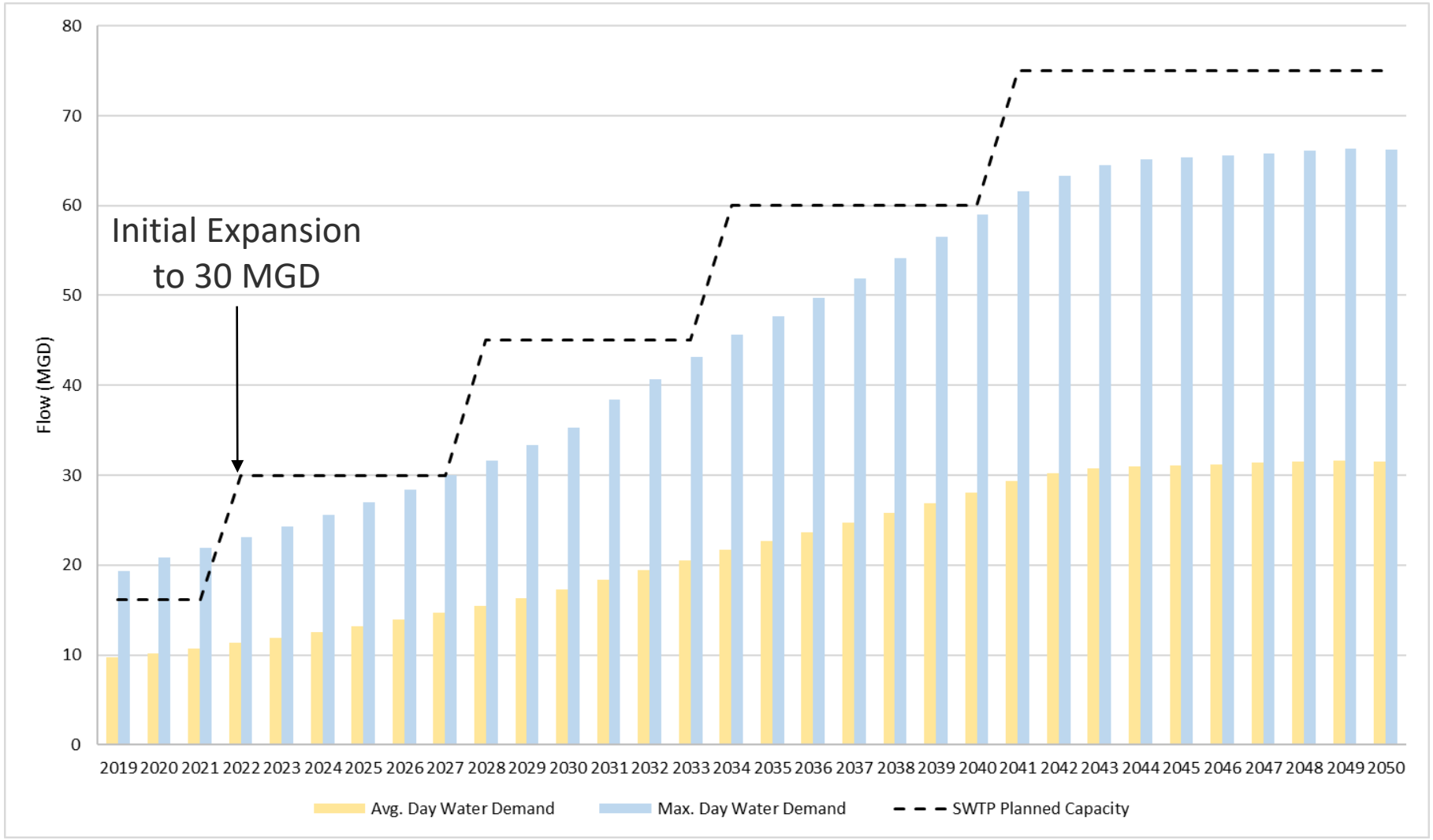
- Background
- Project Overview & Goals
- Treatment Recommendations
- Water Supply Recommendations
- Next Steps

The City of Pflugerville is experiencing expansive growth and is responding proactively

- Completion of Water Master Plan in 2020
- Onboarding of Owner's Representative in 2020 to aid in completion of identified water capital improvements projects



Proposed to Expand WTP Capacity to 30 MGD



WTP Expansion Project Goals

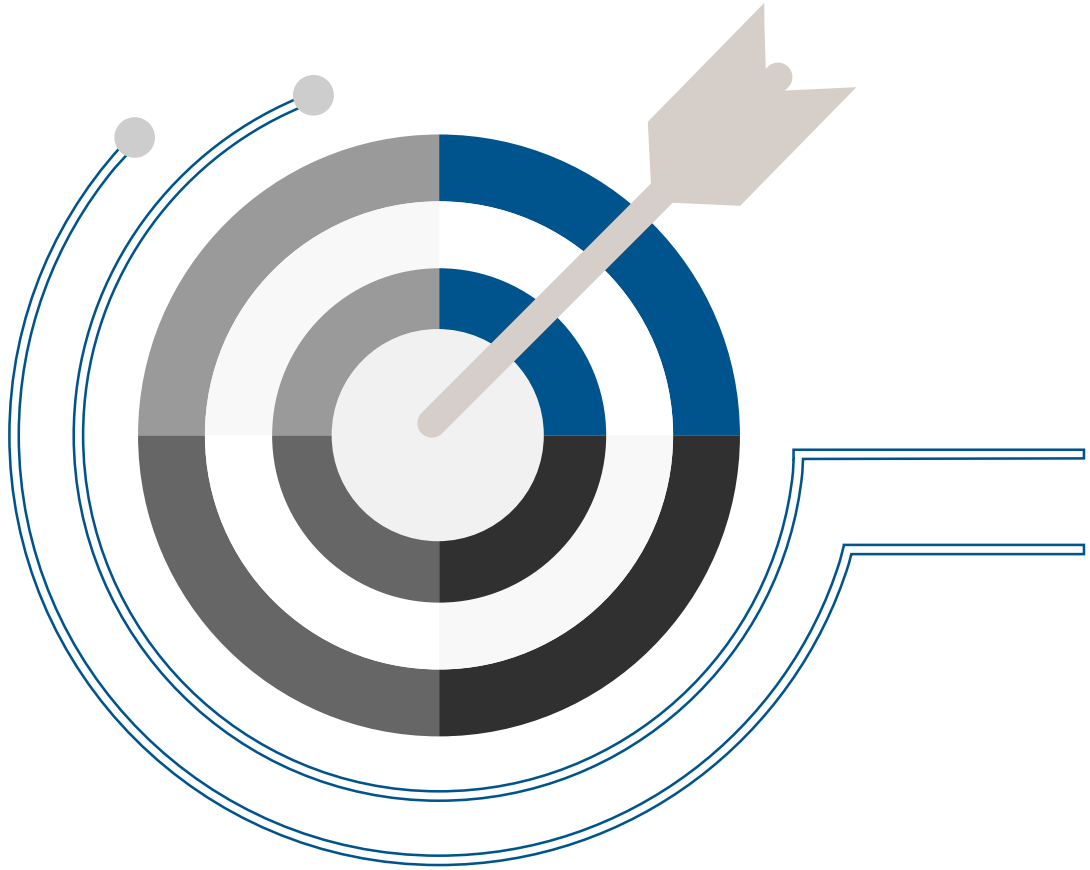
01 Increase WTP Rated Capacity to 30 MGD

02 Improved Effluent Water Quality

- *Consistently meet TCEQ Requirements*
- *Address Hydrilla and Zebra Mussels Interferences with Treatment processes*

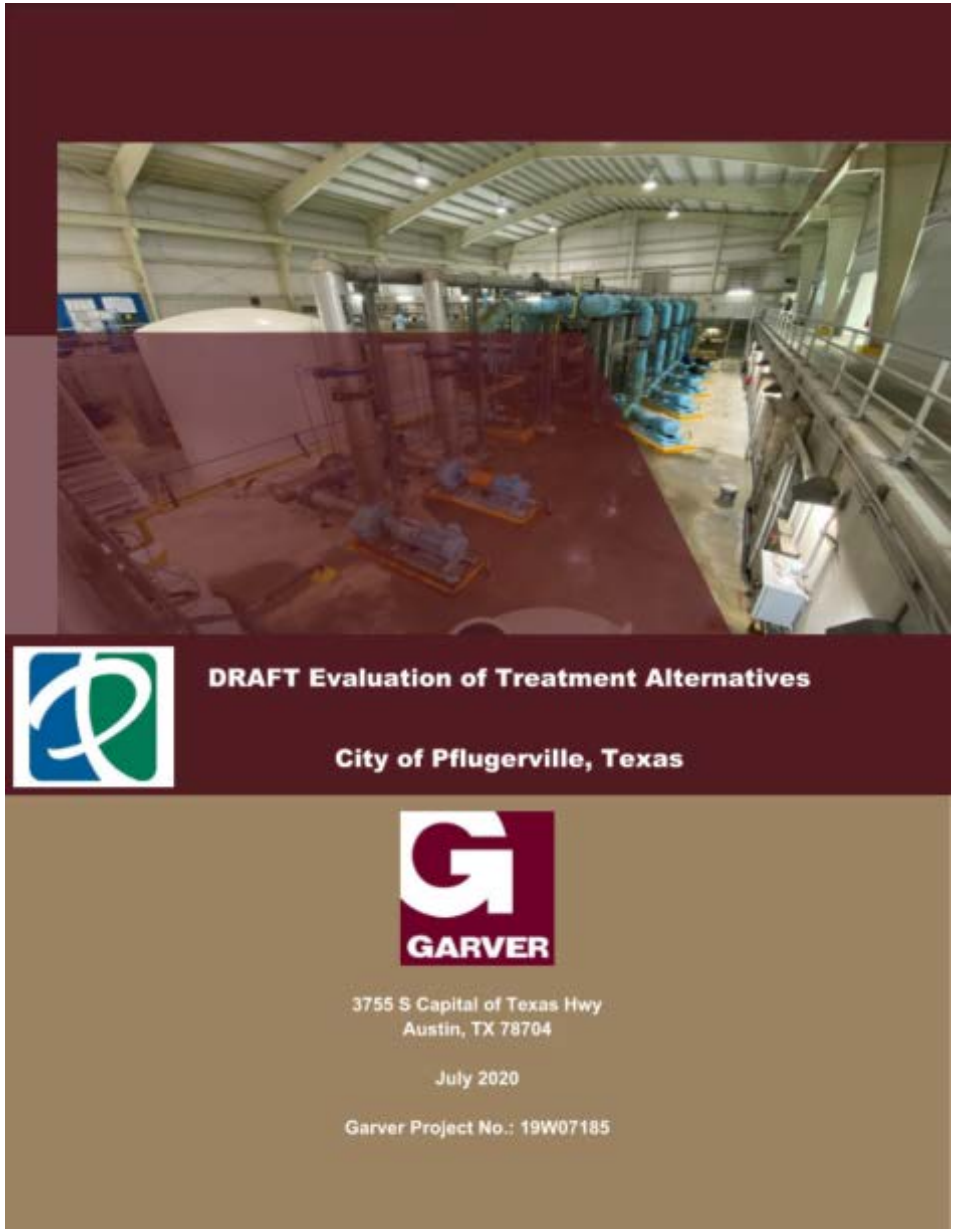
03 Improve Operability and Maintenance

04 Minimize Project Cost and Footprint



A detailed Evaluation of Treatment Alternatives Report was completed and submitted to the City

- Determine best path forward for WTP treatment process (membranes)
- Evaluate selected alternative for full build-out
- Develop 30 MGD budgetary cost estimate



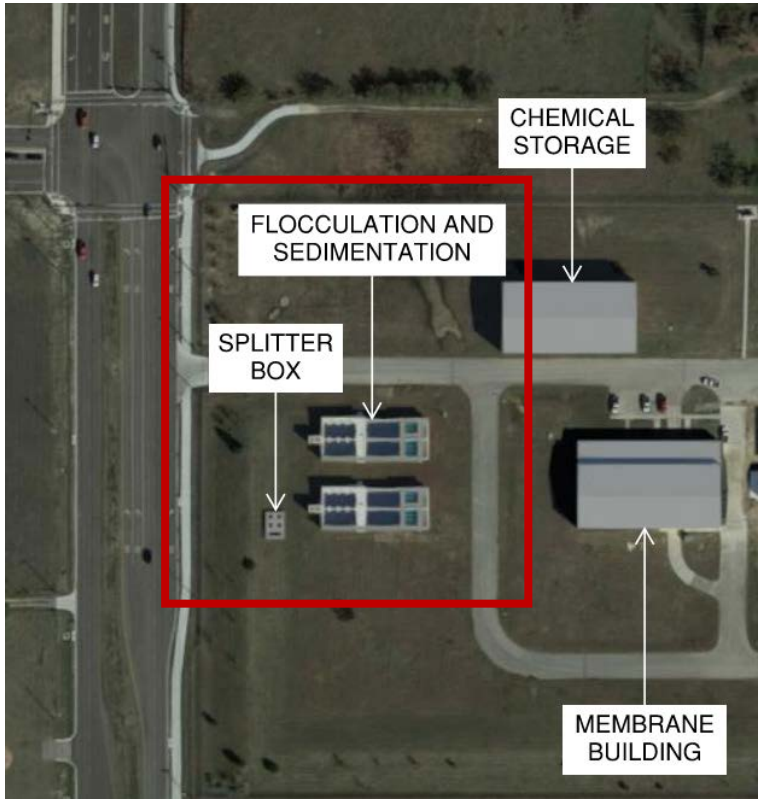
Pre-treatment will be added prior to membrane process to add a layer of protection

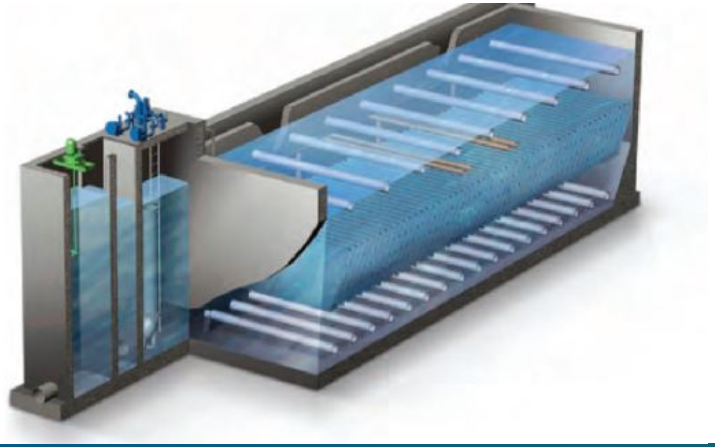
Provides a treatment barrier

- Hydrilla
- Freshwater clams
- Zebra mussels
- Turbidity
- TOC

•Increases membrane useful life

•Increases membrane capacity

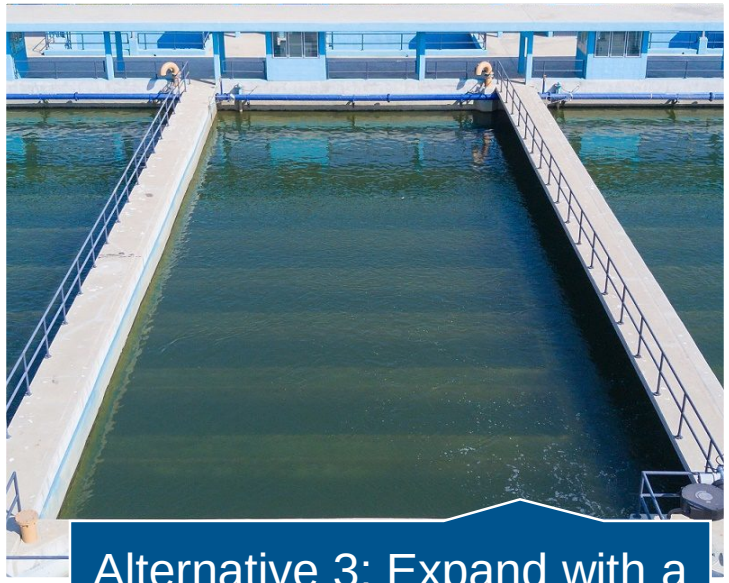




Several Filtration Treatment Alternatives were Evaluated to Meet Project Goals

Alternative 1: Expand with Existing ZeeWeed 500D Membranes

Alternative 2: Expand with a new Membrane Technology



Alternative 3: Expand with a Conventional Filtration Process

Alternatives were compared against the project goals

Comparison	Alternative 1
30 MGD Site Footprint	8,500 sf
Initial Capital Cost	$19.5M
20-year Life Cycle Cost	**$45.3M**
Qualitative Comparison	• Single manufacturer
	• Single set of operational controls
	• Existing system to remain in service during construction
	• No pilot study required

Alternatives were compared against the project goals

Comparison	Alternative 1	Alternative 2
30 MGD Site Footprint	8,500 sf	None
Initial Capital Cost	$19.5M	$13.0 - $16.0M
20-year Life Cycle Cost	**$45.3M**	**$33.9 - $37.0M**
Qualitative Comparison	• Single manufacturer	• Multiple manufacturers
	• Single set of operational controls	• Single set of operational controls
	• Existing system to remain in service during construction	• Existing system to be taken out of service in phases during construction
	• No pilot study required	• 30-days of full-scale operational data submittal to TCEQ required

Alternatives were compared against the project goals

Comparison	Alternative 1	Alternative 2	Alternative 3
30 MGD Site Footprint	8,500 sf	None	2,400 sf
Initial Capital Cost	$19.5M	$13.0 - $16.0M	$25.3M
20-year Life Cycle Cost	**$45.3M**	**$33.9 - $37.0M**	**$46.0M**
Qualitative Comparison	• Single manufacturer	• Multiple manufacturers	• Multiple manufacturers
	• Single set of operational controls	• Single set of operational controls	• Parallel sets of operational controls
	• Existing system to remain in service during construction	• Existing system to be taken out of service in phases during construction	• Existing system to remain in service during construction
	• No pilot study required	• 30-days of full-scale operational data submittal to TCEQ required	• 30-days of full-scale operational data submittal to TCEQ required

A new submerged membrane technology is the proposed method for filtration expansion

Comparison	Alternative 1	Alternative 2	Alternative 3
30 MGD Site Footprint	8,500 sf	None	2,400 sf
Initial Capital Cost	$19.5M	$13.0 - $16.0M	$25.3M
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Qualitative Comparison	• Single manufacturer	• Multiple manufacturers	• Multiple manufacturers
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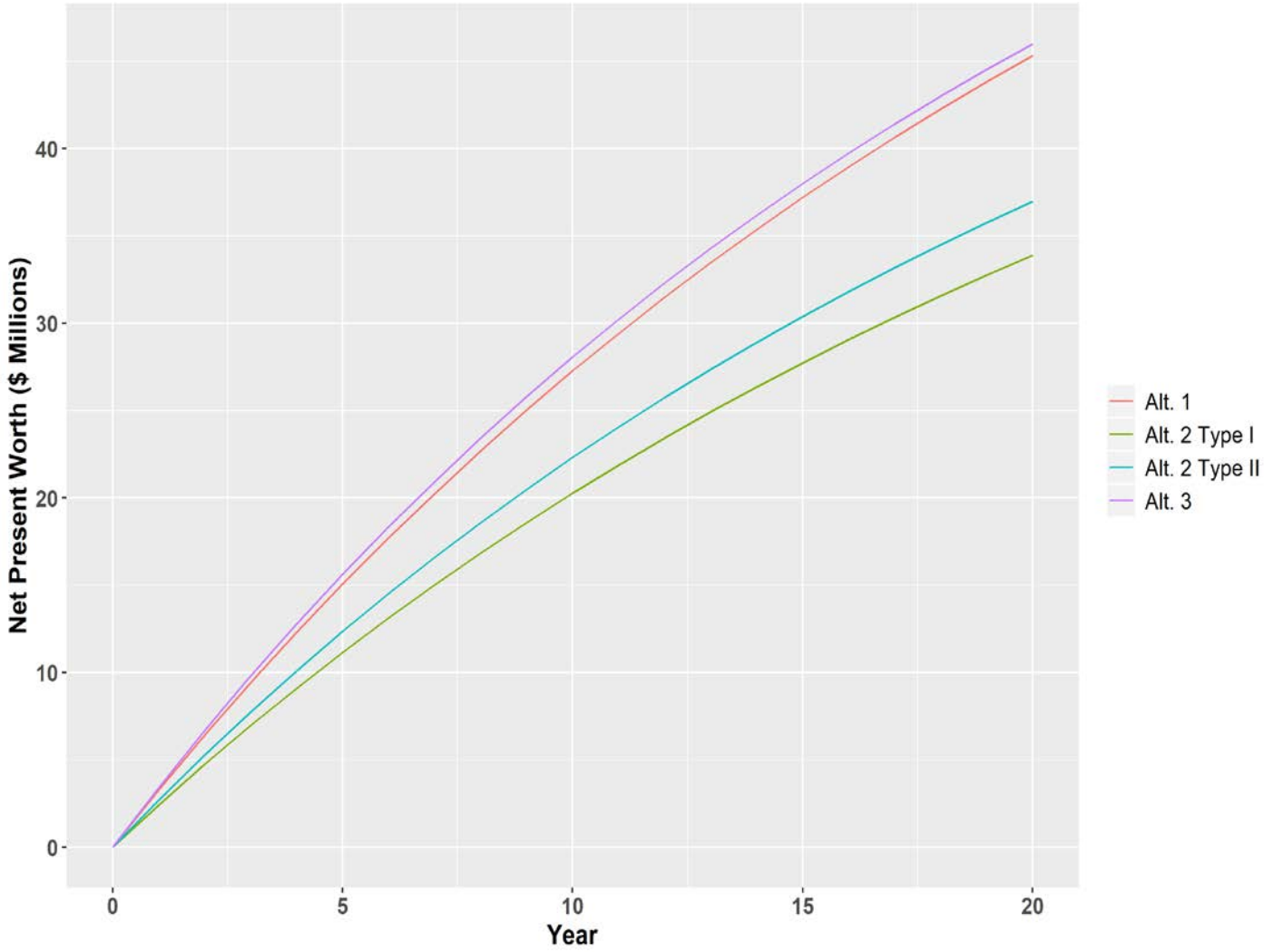
	• Existing system to remain in service during construction	• Existing system to be taken out of service in phases during construction	• Existing system to remain in service during construction
	• No pilot study required	• 30-days of full-scale operational data submittal to TCEQ required	• 30-days of full-scale operational data submittal to TCEQ required

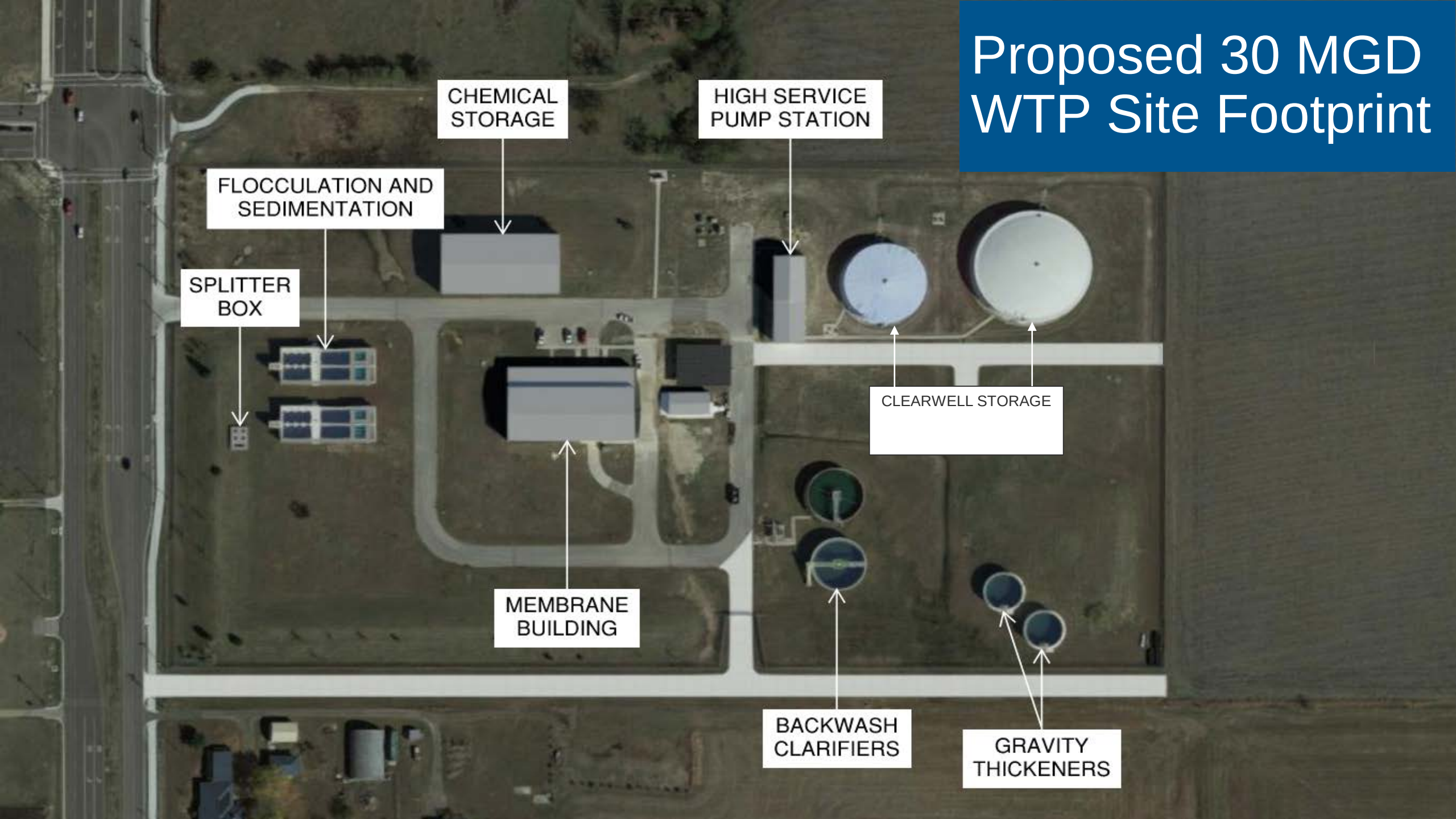
Alternative 2 offers the lowest life-cycle cost

- Power usage
- Chemical usage
- Equipment replacement

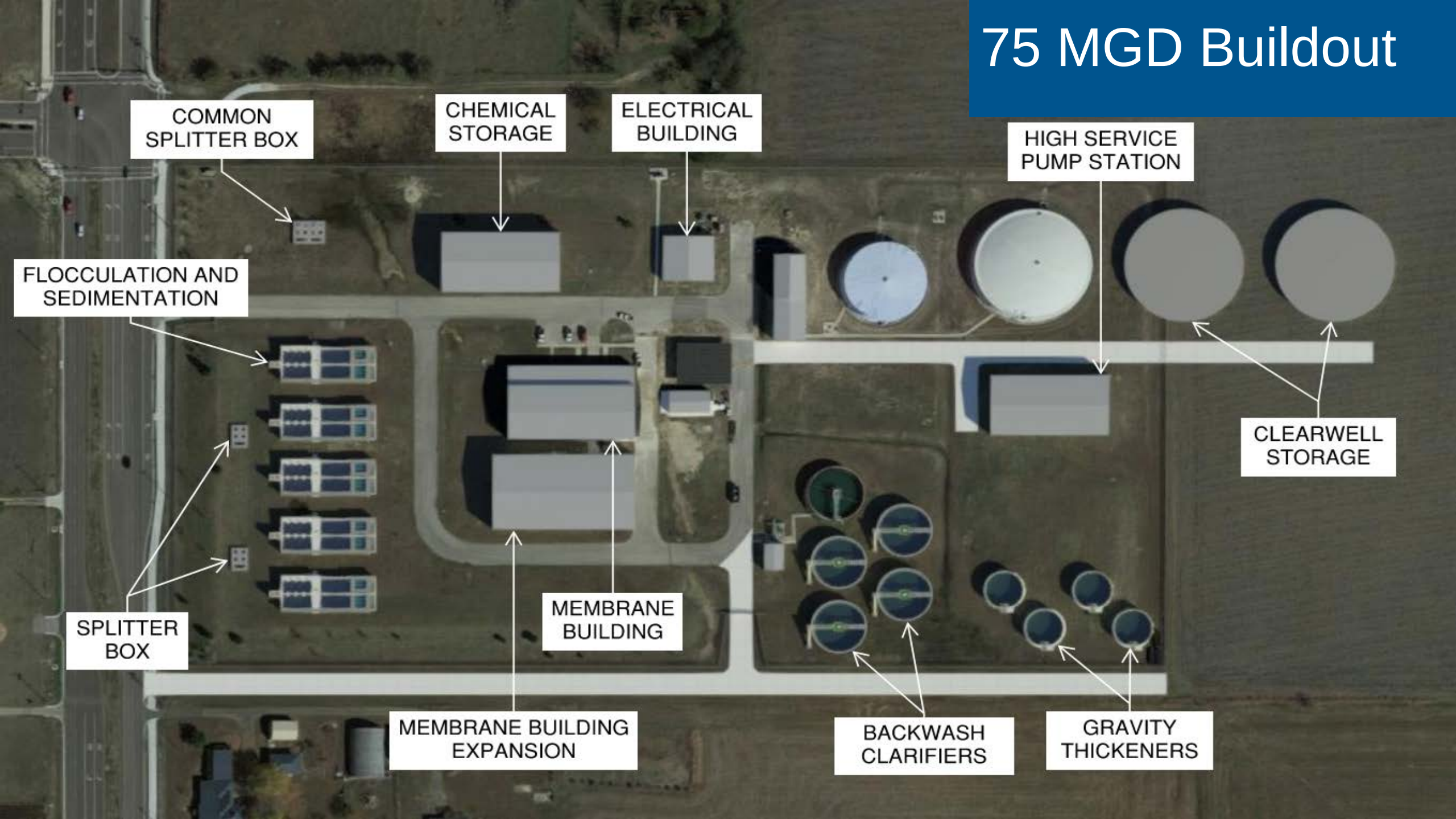


Existing WTP Site Footprint

Proposed 30 MGD WTP Site Footprint



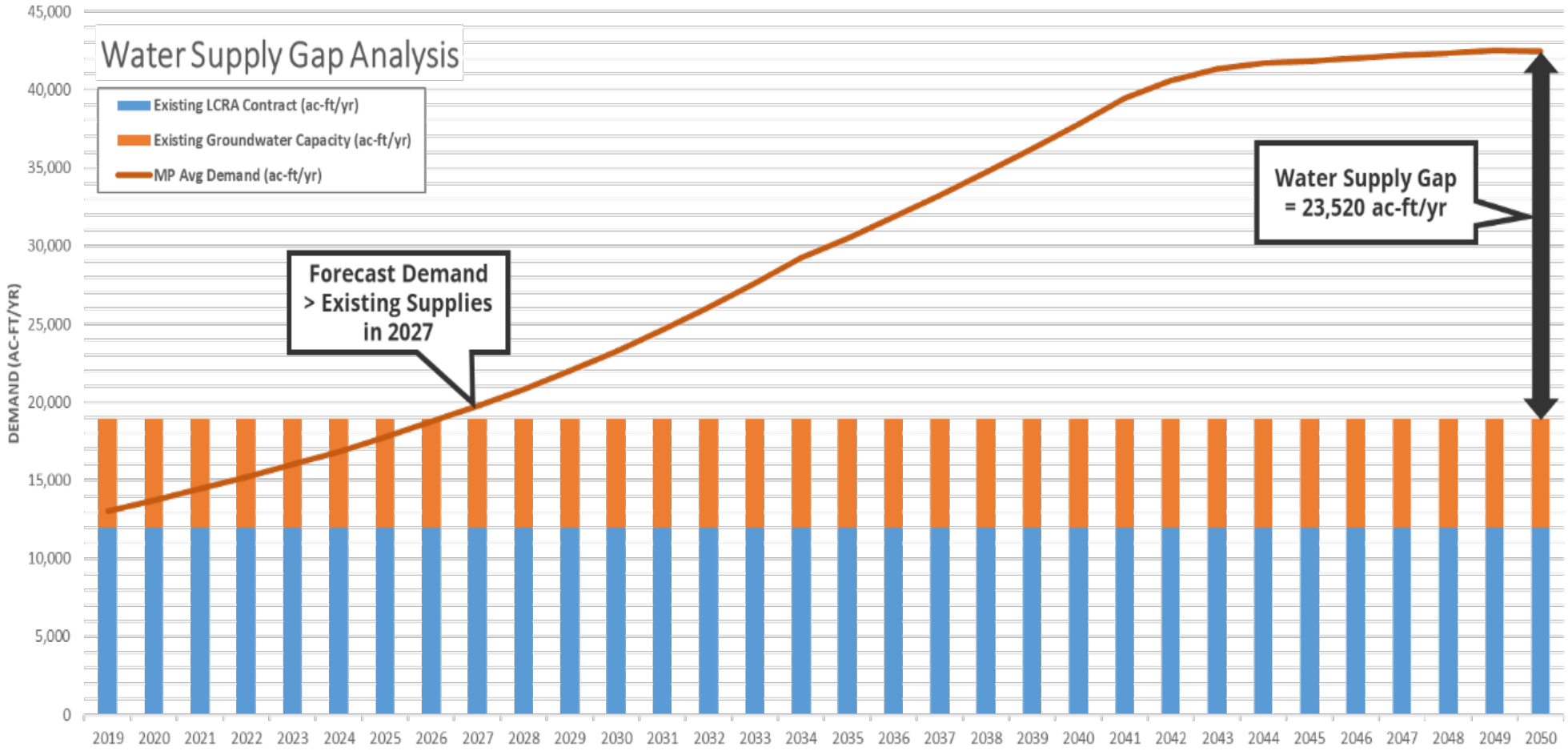
75 MGD Buildout



30 MGD Estimated Cost of Construction

Process	Estimated Cost
Lake Water Pumping	$2,691,000
Flocculation & Sedimentation	$14,106,000
Filtration	$17,110,000
Disinfection	$1,513,000
High Service Pumping	$3,639,000
Solids Handling	$4,225,000
Chemical Feed Systems	$14,738,000
SCADA & Electrical Improvements	$5,500,000
Other (Site Civil)	$2,046,000
Total	**$65,568,000**
Project Escalation to mid-point of construction (2.1%)	$1,377,000
Total Estimated Project Cost	**$66,945,000**

The City requires additional water rights to meet demand by 2027



Four near-term water supply alternatives were identified and evaluated

Alternative 1	• Finished Water Wholesale Agreement – City of Round Rock
Alternative 2	• Finished Water Wholesale Agreement – City of Austin
Alternative 3	• Finished Water Wholesale Agreement – SAWS Vista Ridge
Alternative 4	• Groundwater Well Rehabilitation

Five long-term water supply alternatives were identified and evaluated

Alternative 5	• BRA Alcoa Lake
Alternative 6	• LCRA Expanded Colorado River Rights
Alternative 7	• HB1437 Brushy Creek Intake
Alternative 8	• Central WWTP Indirect Potable Reuse
Alternative 9	• LCRA Bastrop County Groundwater Development

Recommended Water Supply Alternatives

Water Rights Acquisition

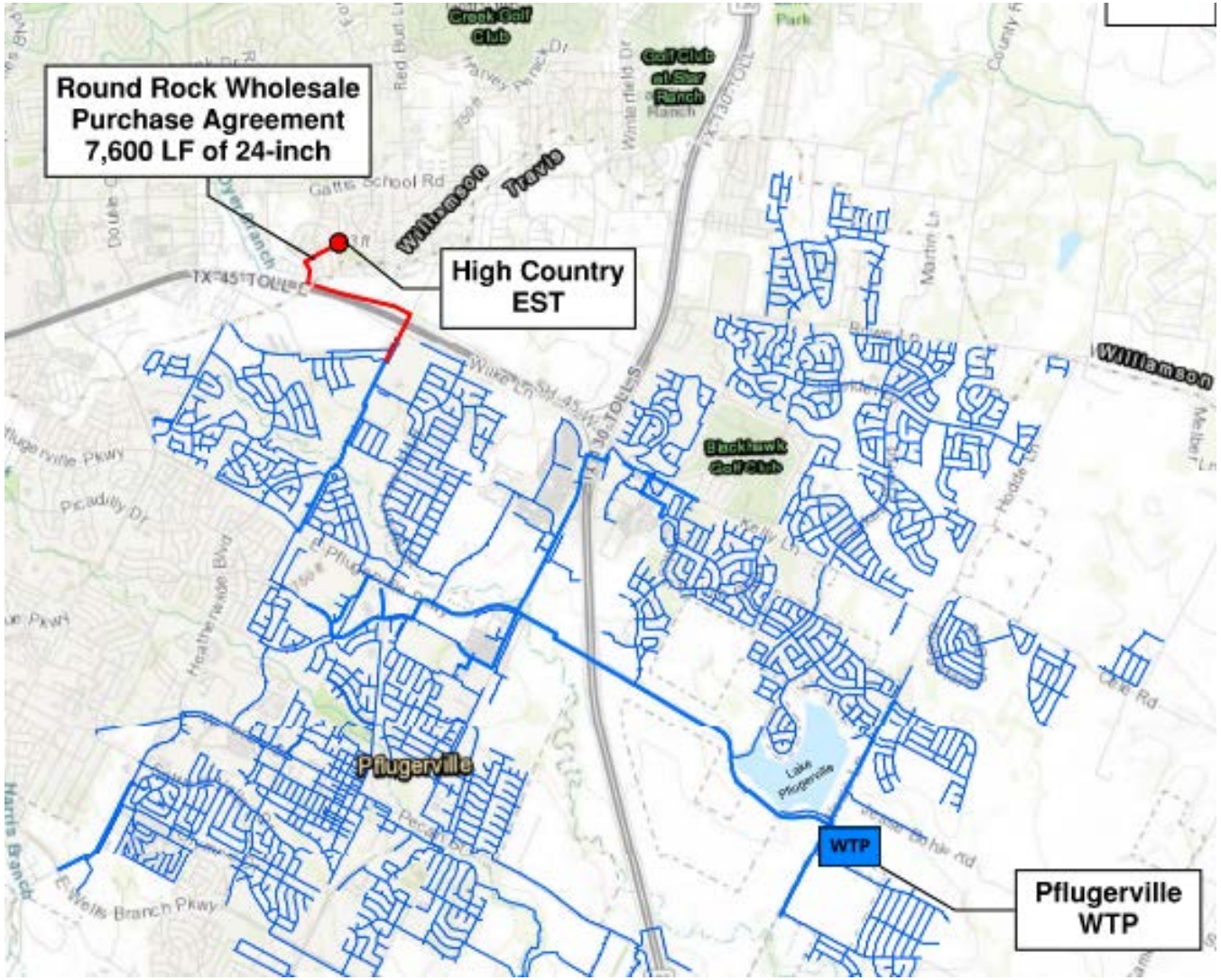
Near-term Water Rights Recommended Alternatives

- Wholesale water agreement with Round Rock
- Maintain existing groundwater supplies

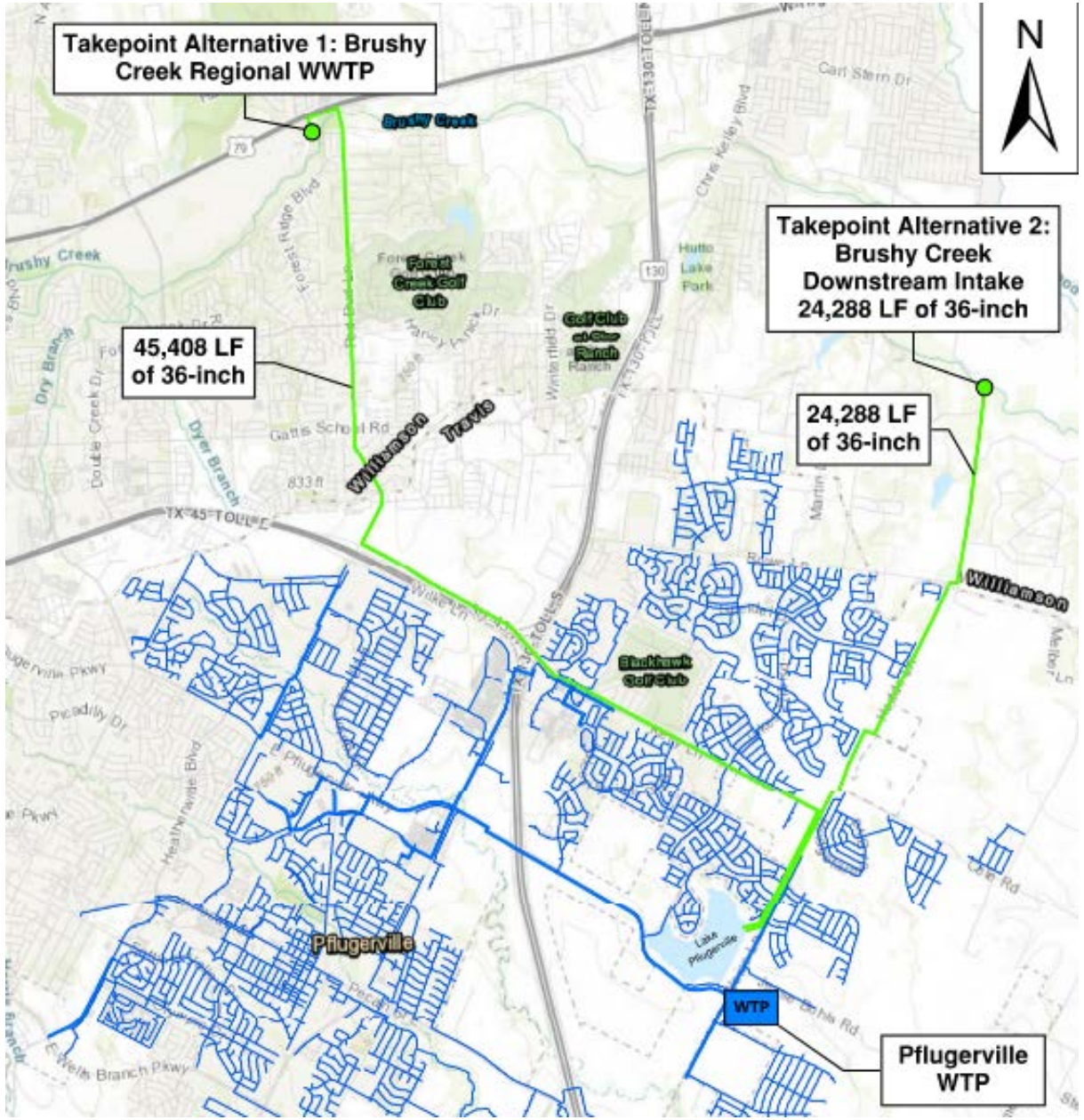
Long-term Permanent Water Rights Recommended Alternatives

- HB 1437: Intake along Brushy Creek
- Expansion of water rights through LCRA from the Colorado River

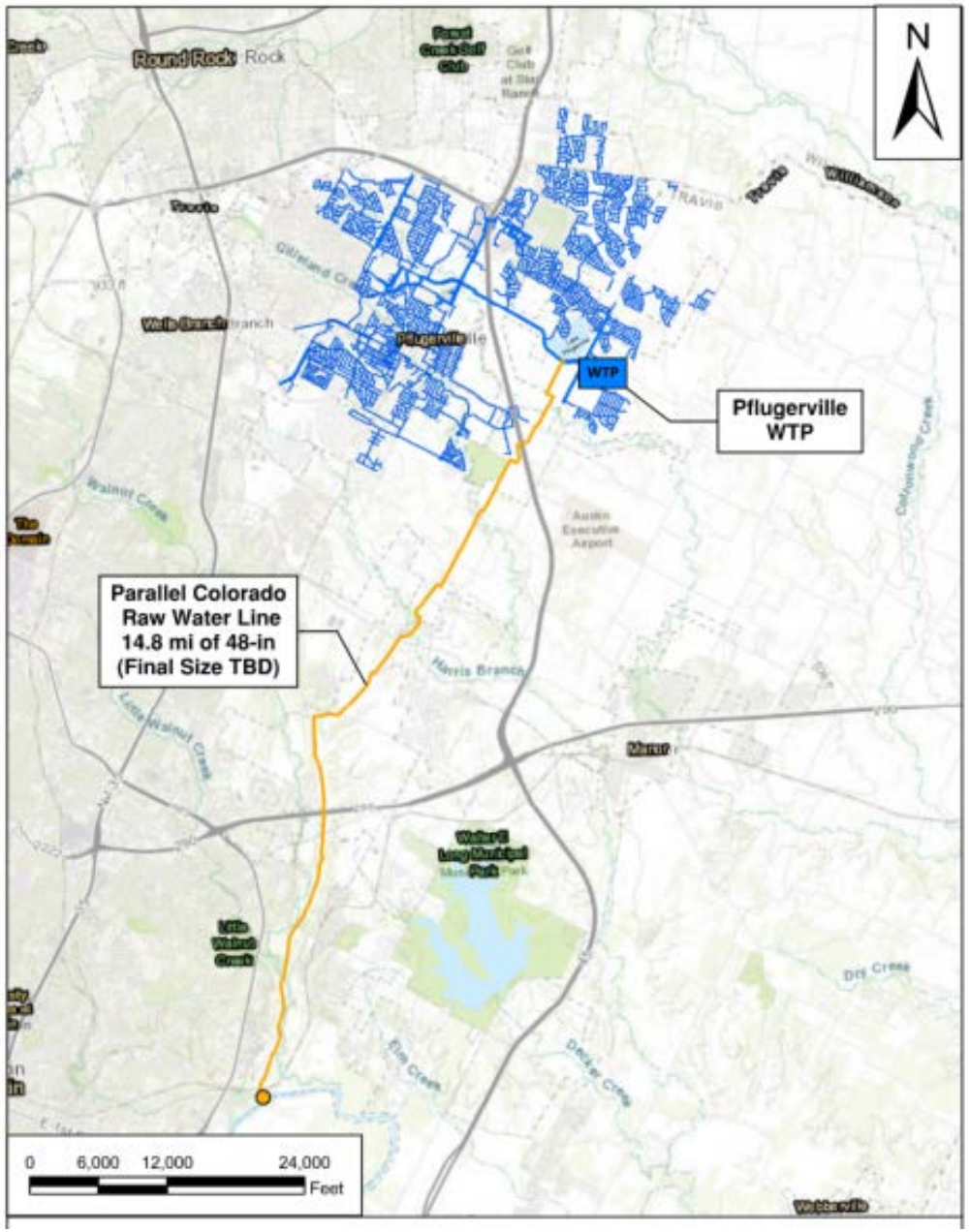
Wholesale water agreement with Round Rock



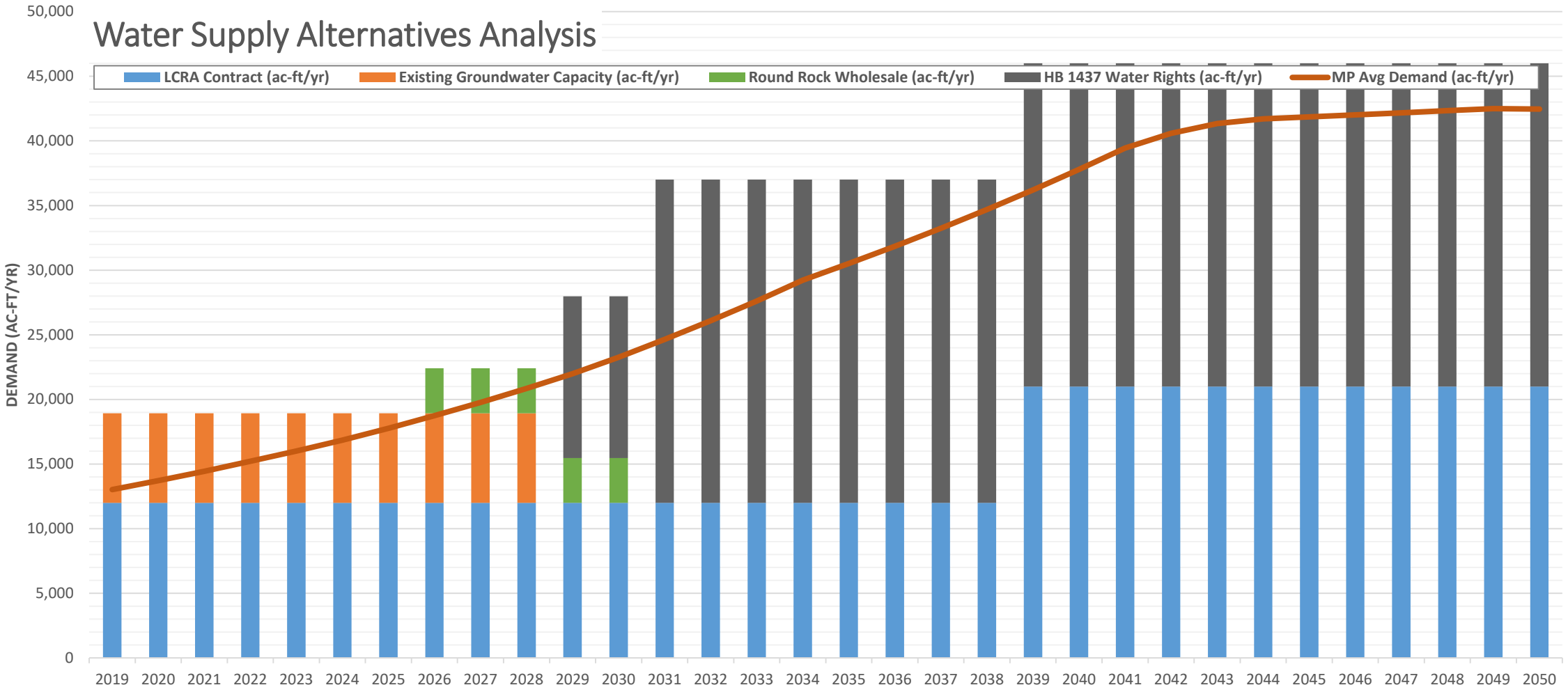
HB1437 Brushy Creek Intake



Expansion of Colorado River Supply



Recommended alternatives close the water supply gap



Next Steps for Expanding the City's Water Supply and Treatment Capacity

KEY SCOPE ITEMS

WTP Expansion: Design Phase

- Release Request for Qualifications (RFQ) for Design Consultant Services
- Piloting for TCEQ Approval of "Innovative" Design Criteria

Water Rights

- Retain Water Supply Specialist Counsel
- Begin Discussions with City of Round Rock, LCRA, and BRA, etc.

Anticipated Schedule

Task Number	WTP Owner's Representative: Task Schedule	Estimated Start	Estimated Completion	2020					2021												2022	
				AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
1.0	Project Management	Aug-20	Feb-22																			
2.0	Consultant Procurement	Aug-20	Nov-20																			
3.0	Funding and Regulatory	Aug-20	Feb-22																			
4.0	Water Rights Acquisition	Aug-20	Feb-22																			
5.0	Design Phase	Dec-20	Dec-21																			
5.1.1	PER	Dec-20	Feb-21																			
5.1.2	30%	Mar-21	May-21																			
5.1.3	60%	Jun-21	Aug-21																			
5.1.4	90%	Sep-21	Nov-21																			
5.1.5	100%	Dec-21	Dec-21																			
5.2	Bid Phase	Dec-21	Feb-22																			
6.0	Design Criteria Development	Aug-20	Nov-20																			
6.1	Coagulant Testing	Aug-20	Nov-20																			
6.2	Pilot Testing	Aug-20	Nov-20																			