



Women Lead Historical P3 Water Supply & Integration Project in Texas

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Vista Ridge/Agua Vista Roles

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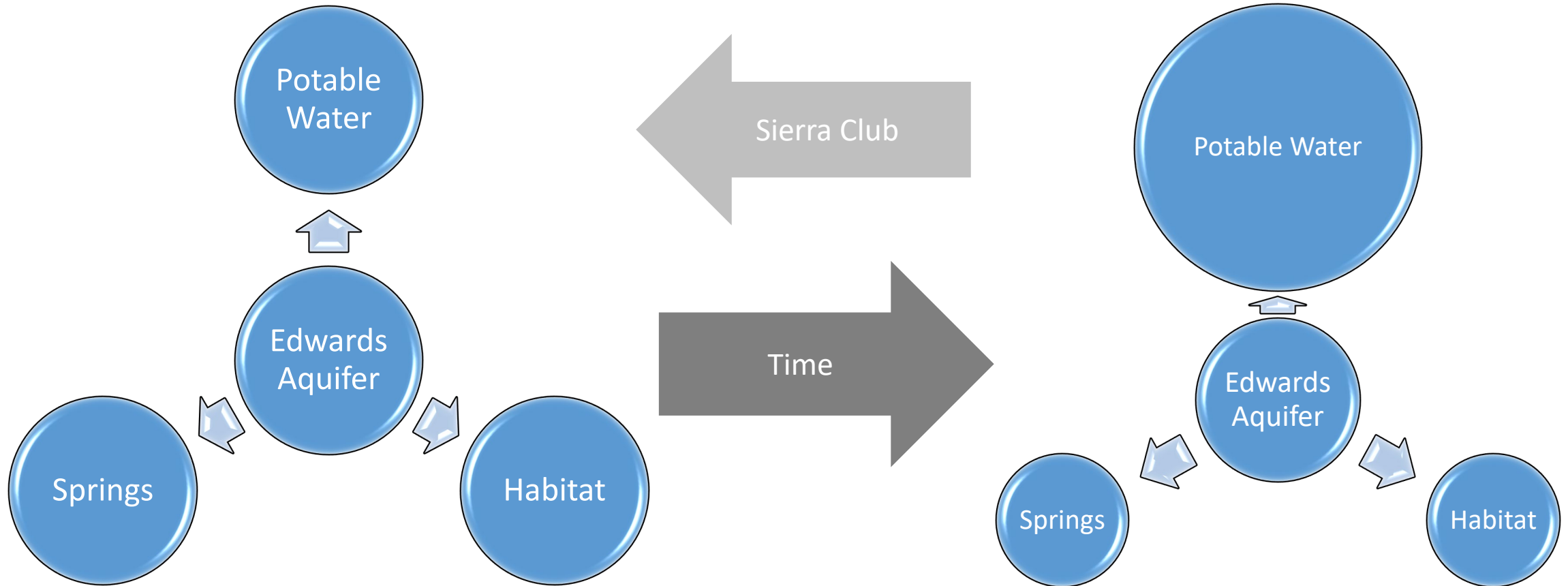


Overview

- **History of Project**
- **Components of Project**
- **Successful Resolution of Challenges of Project**



A Little History





Planning for Growth in San Antonio

- **2040**
 - Projected growth: approximately **1 million**
 - 50%+ increase in SAWS customers
- With conservation, growth will add **25% to water supply needs by 2040**



Top growth, 50,000 people or more

San Antonio is ranked second nationally among U.S. cities of 50,000 people or more that experienced the largest population surge between 2018 and 2019. A snapshot:

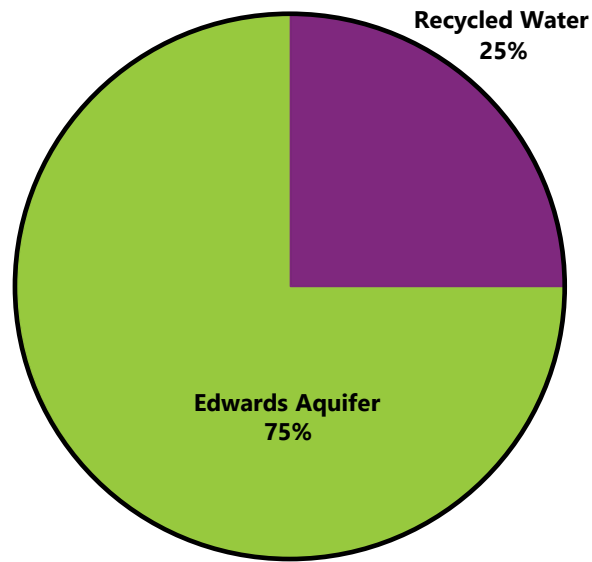
	CITY	GAIN SINCE 2018	2019 POPULATION
1	Phoenix	26,317	1.68 million
2	San Antonio	17,237	1.55 million
3	Austin	16,439	978,908
4	Fort Worth	16,369	909,585
5	Charlotte, N.C.	13,194	885,708

Source: U.S. Census Bureau, Population Division

Mike Fisher/Staff artist

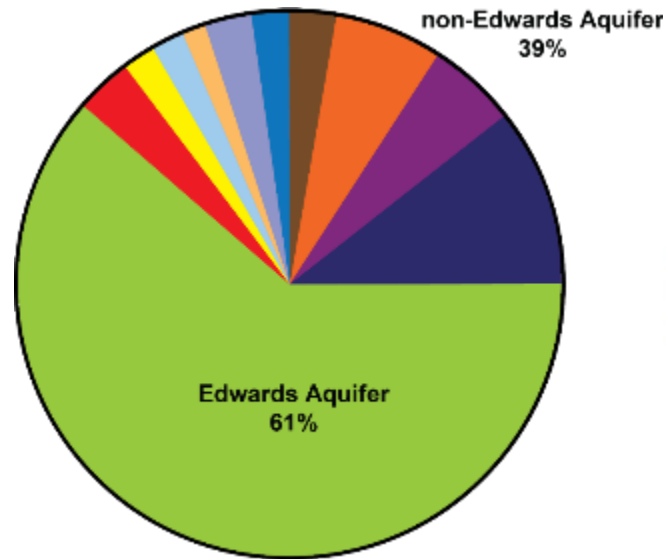


Diversifying San Antonio's Water Supply



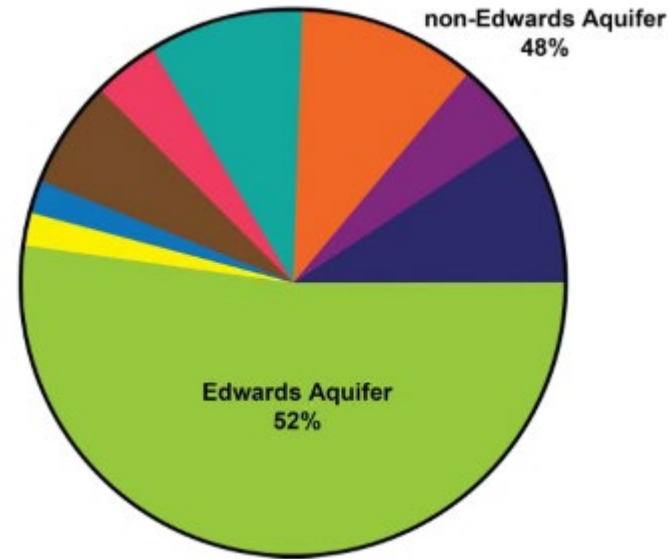
2000

302,000 AF



2018

470,000 AF



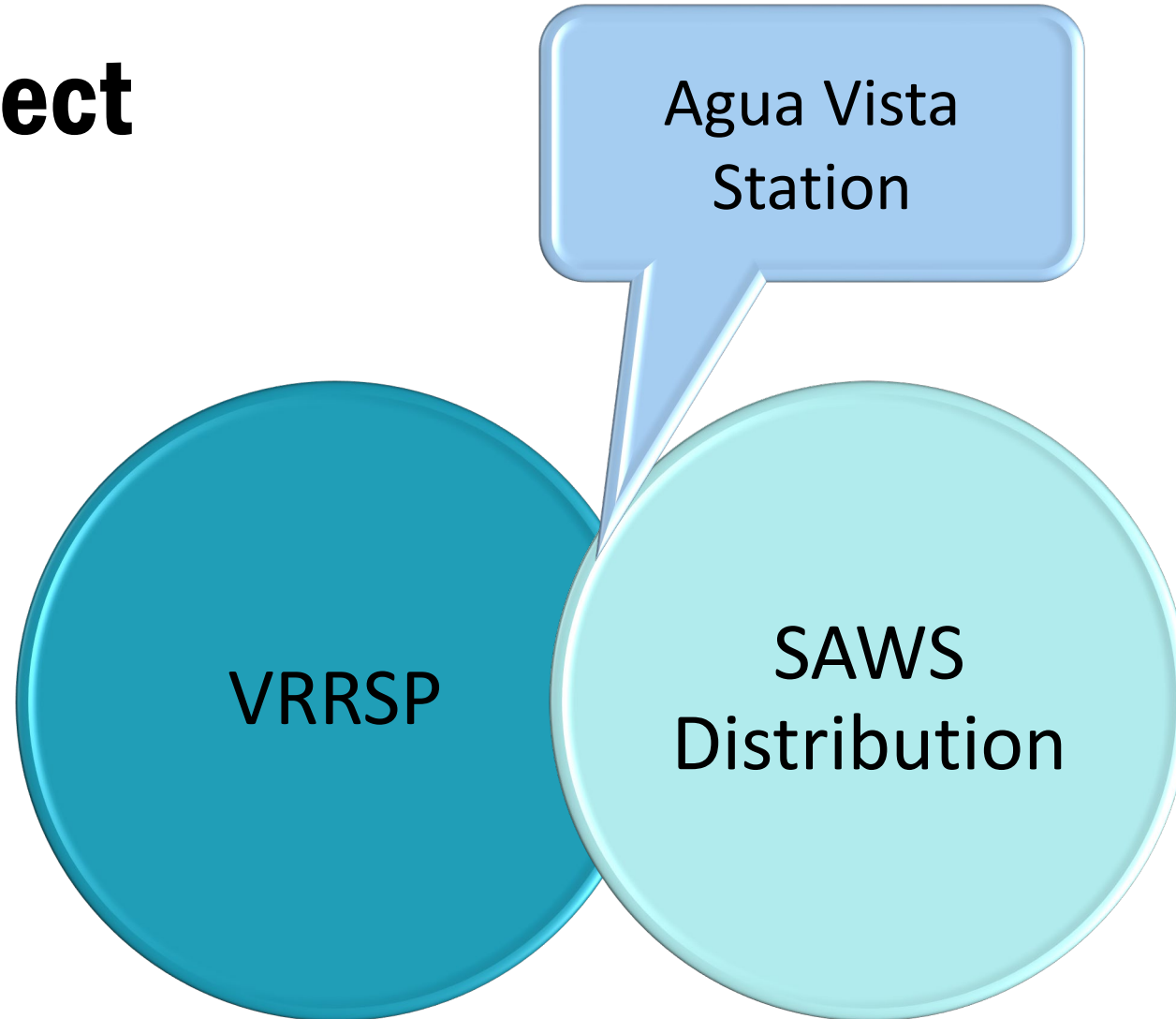
2070

540,000 AF

- Recycled Water (CPSE)
- Recycled Water (Direct)
- ASR Recovery
- Expanded Carrizo
- Vista Ridge
- Brackish Desal
- Regional Carrizo
- Medina System
- Canyon Regional
- Canyon Lake
- Local Carrizo
- Trinity Aquifer
- Edwards Aquifer

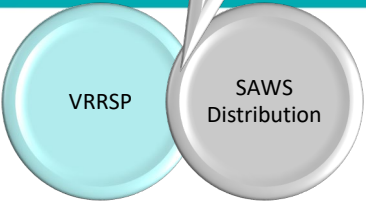


The Project





Agua Vista Station



The Vista Ridge Regional Water Supply Project



Another intermediate pump station

145+ miles of 54" and 60" pipeline

A termination site

An intermediate pump station

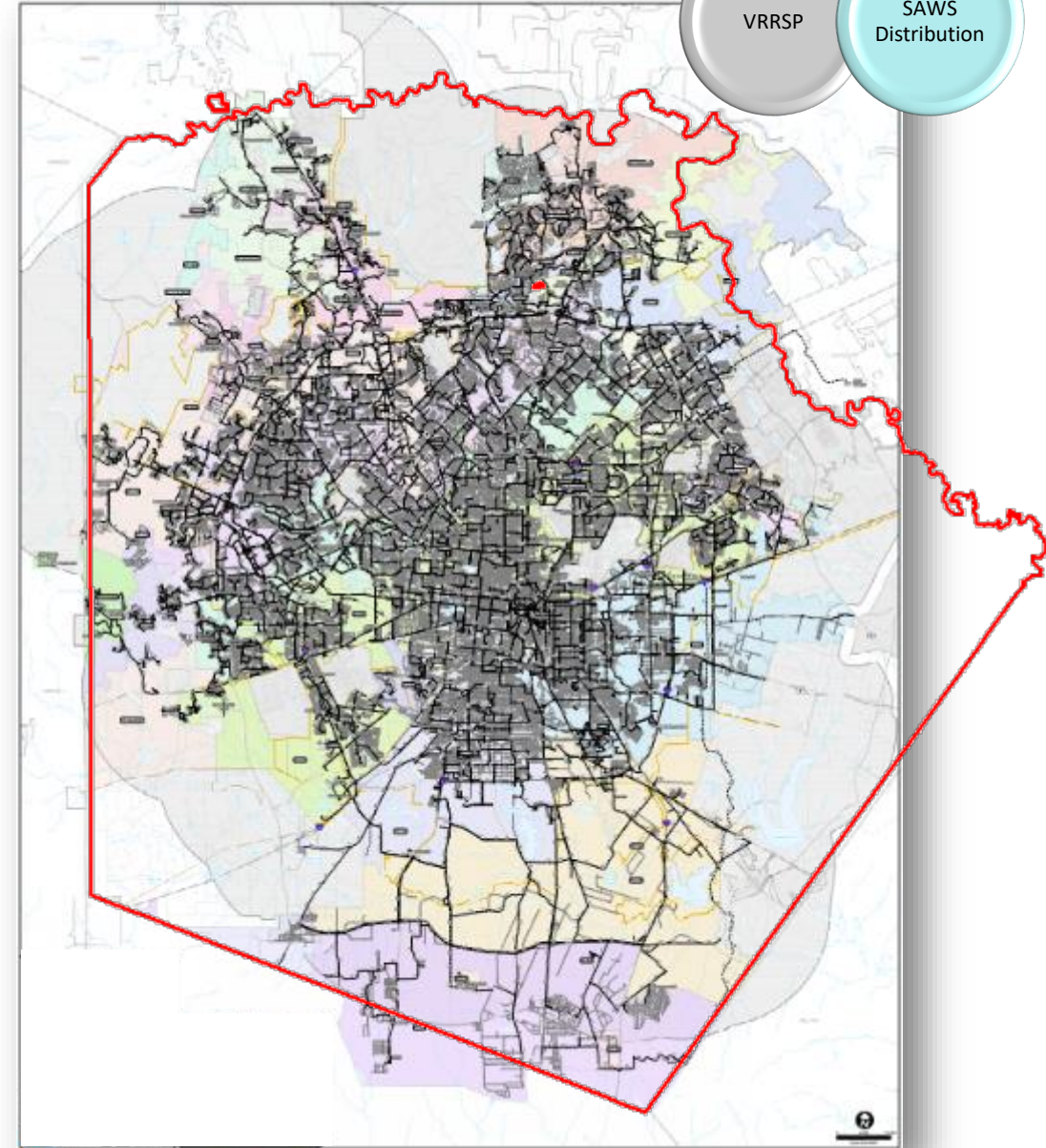
A wellfield into two aquifers, plus a collection system

A high service pump station with cooling towers and treatment



SAWS Distribution Area

- 930 Sq. miles (Bexar Co.=1,256)
- 7,144 Miles of Potable Water Main
- 500,000+ Water Customers
- 46 Pressure Zones
- 10 Active Potable Water Sources

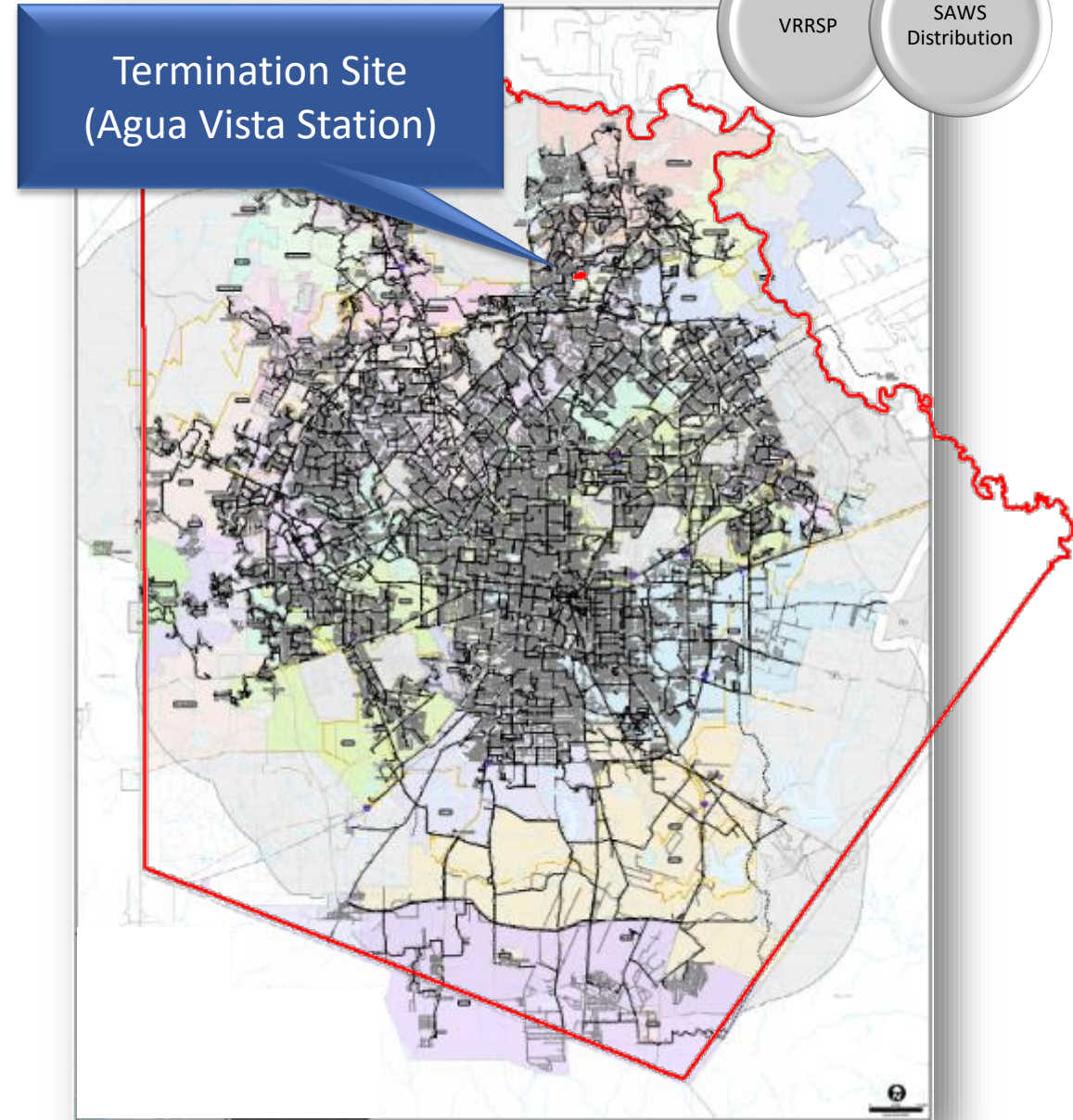




UNDERGROUND CONSTRUCTION TECHNOLOGY

The Underground Utilities Event | July 13-15, 2021 | Music City Center | Nashville, TN

Agua Vista Station





Vista Ridge Regional Water Supply Project Statistics

- **Transmission Main: 142 miles**
 - 54-inch and 60-inch
 - Steel (C200) Transmission Main 225 psi through 350 psi
 - Barwrap (C303) up to 200 psi





Vista Ridge Regional Water Supply Project Statistics

- **Well Collection Line: 7 miles**
 - 20-inch, 36-inch, 36-inch, 48-inch and 54-inch
 - PVC (C900) 20-inch
 - De-rated due to temperature of ground water
 - Barwrap (C303) 30-inch and above





Vista Ridge Regional Water Supply Project Statistics

- **197 River and Creek Crossings**
 - Open cut
 - Tunneled
- **61 Highway & County Road Crossings**
 - Open cut
 - Tunneled
 - Dependent on permit requirements
- **112 Tunnels**
 - 12,000 LF
 - Hand-mined with liner plate





Vista Ridge Regional Water Supply Project Statistics



- **18** Butterfly Valves
- **326** Combination Air Valves
- **165** Blow off Valves
- **141** Access manways
- **93** Permitting agencies and utility companies

Agua Vista Station

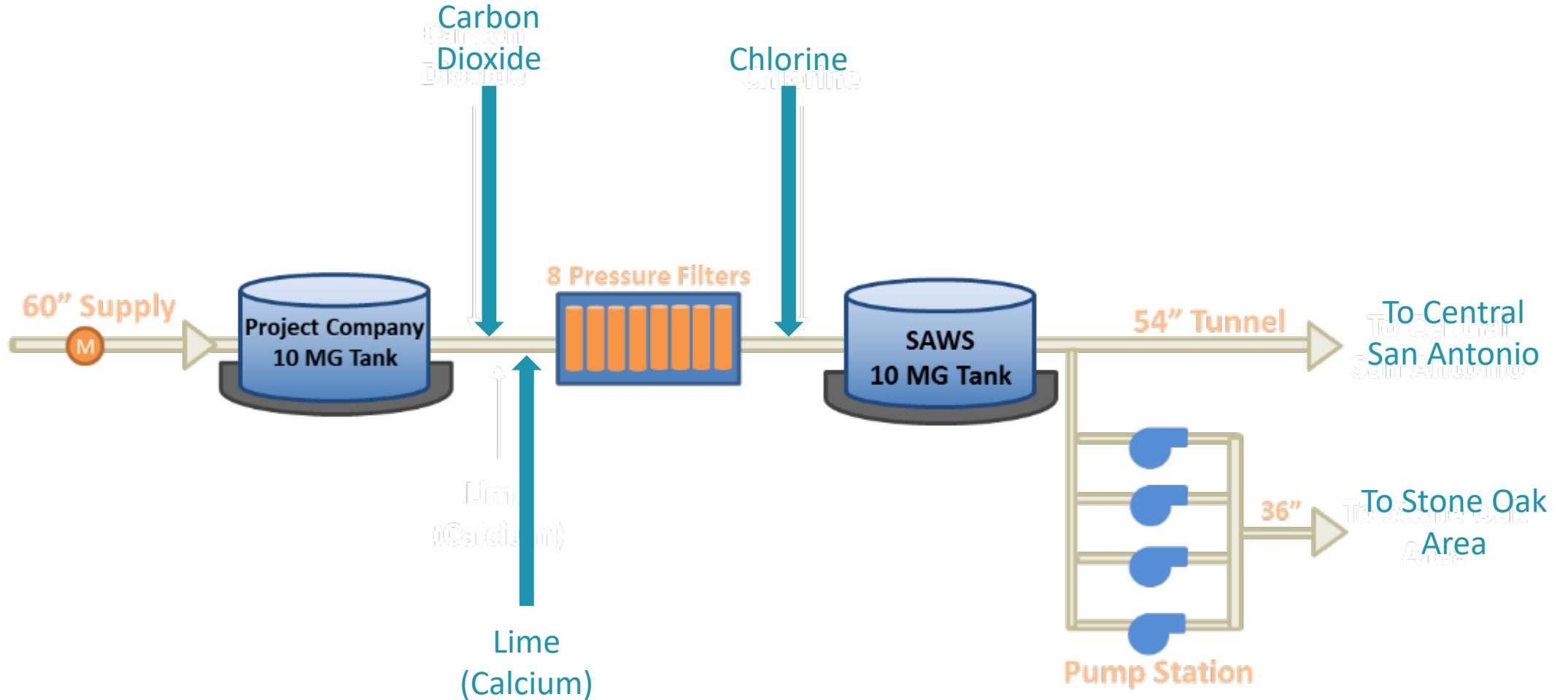
Vista Ridge Project



Online April 15,
2020



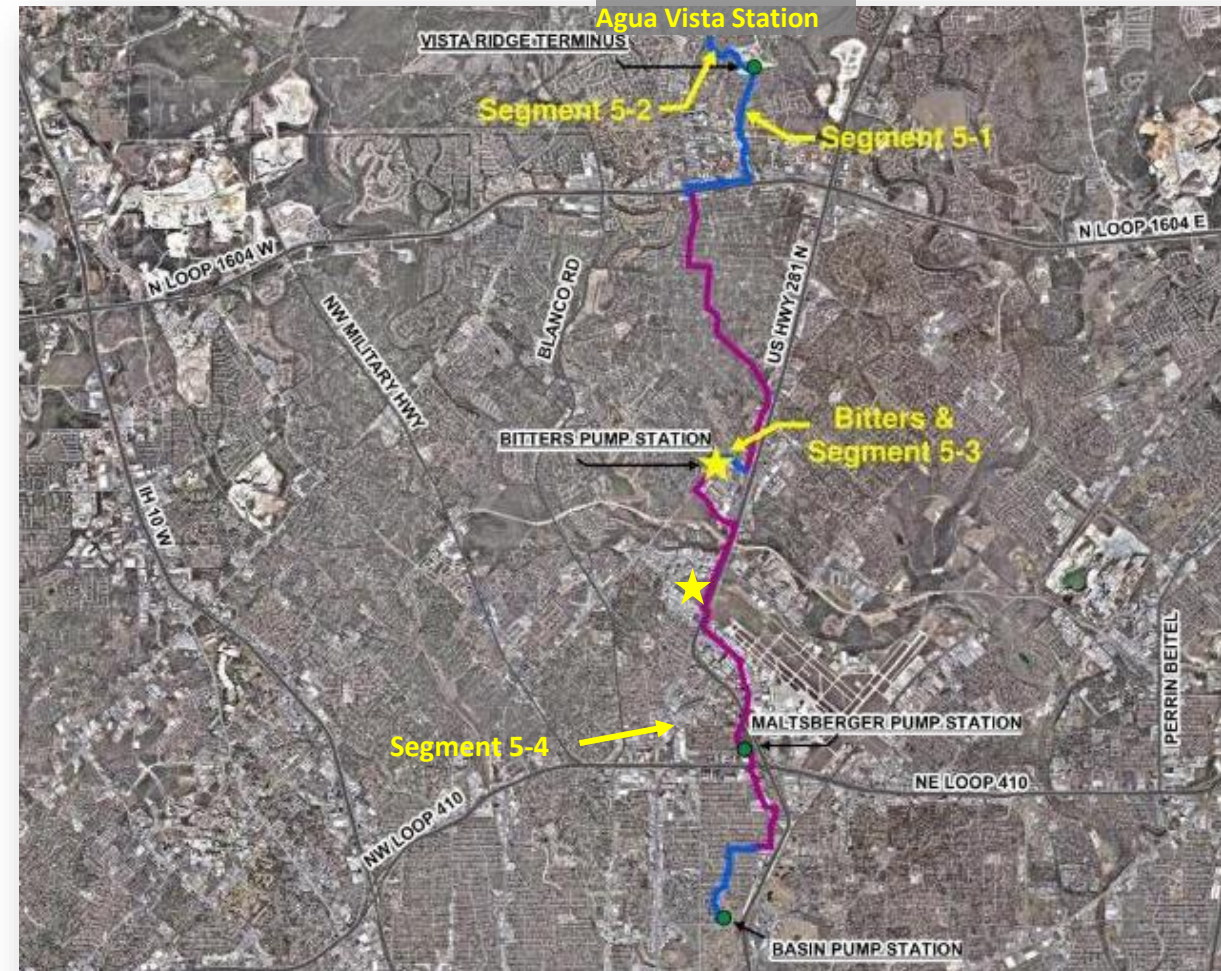
Agua Vista Station Process Flow





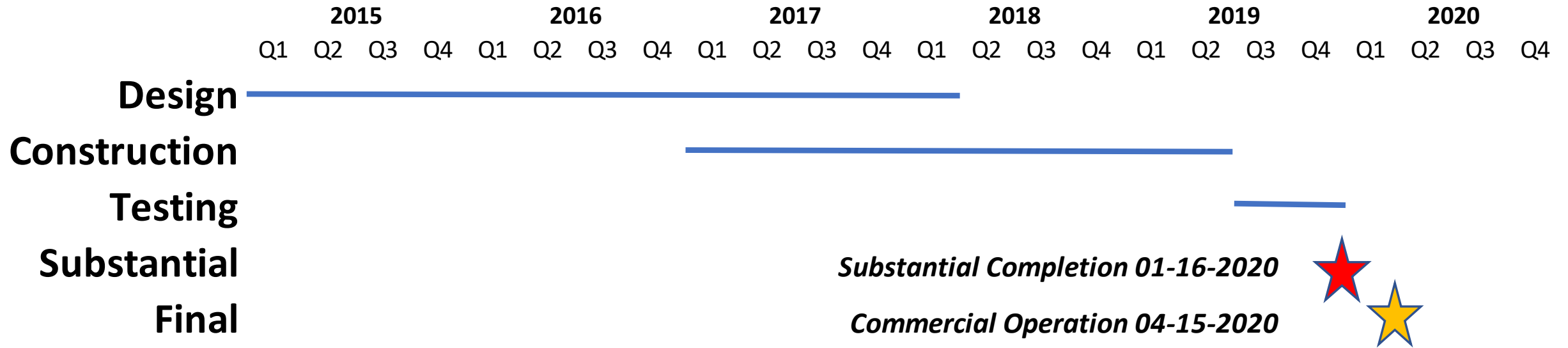
Central Water Integration Pipeline (CWIP)

- **8 projects** (approx. \$170M)
 - 48.6 MGD of new water supply
 - New WTP
 - 4 miles of new pipeline, with almost 2 miles of tunneling
 - Major upgrades to 2 water production facilities
- **27 months** from 30% design to drinking the water



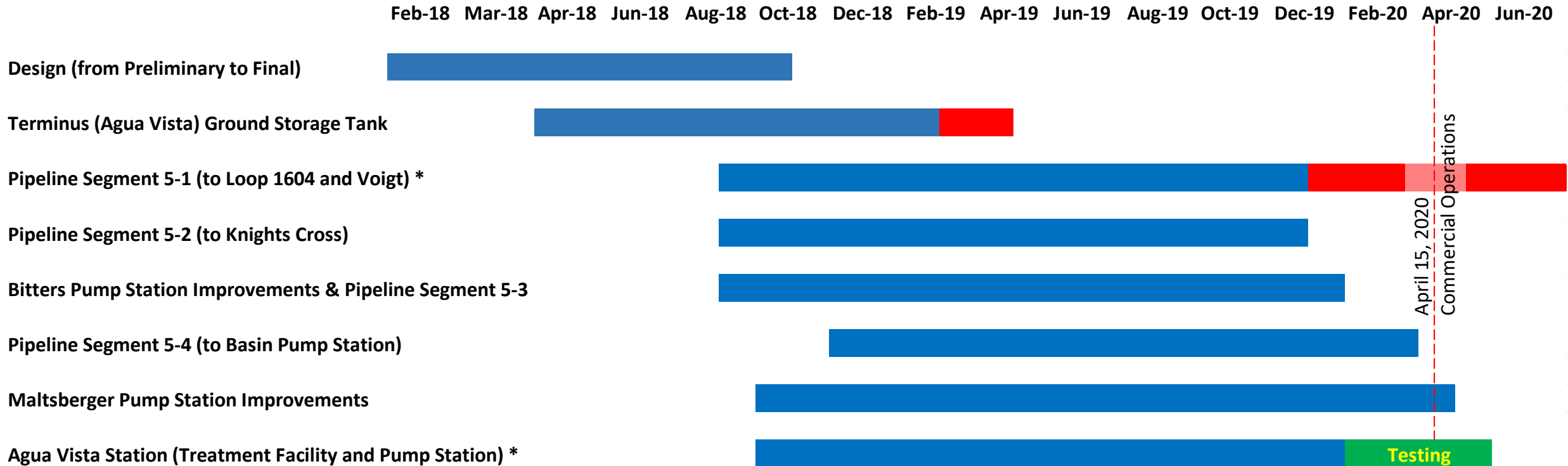


Challenge: Schedule





Challenge: Schedule



* Critical Path Projects



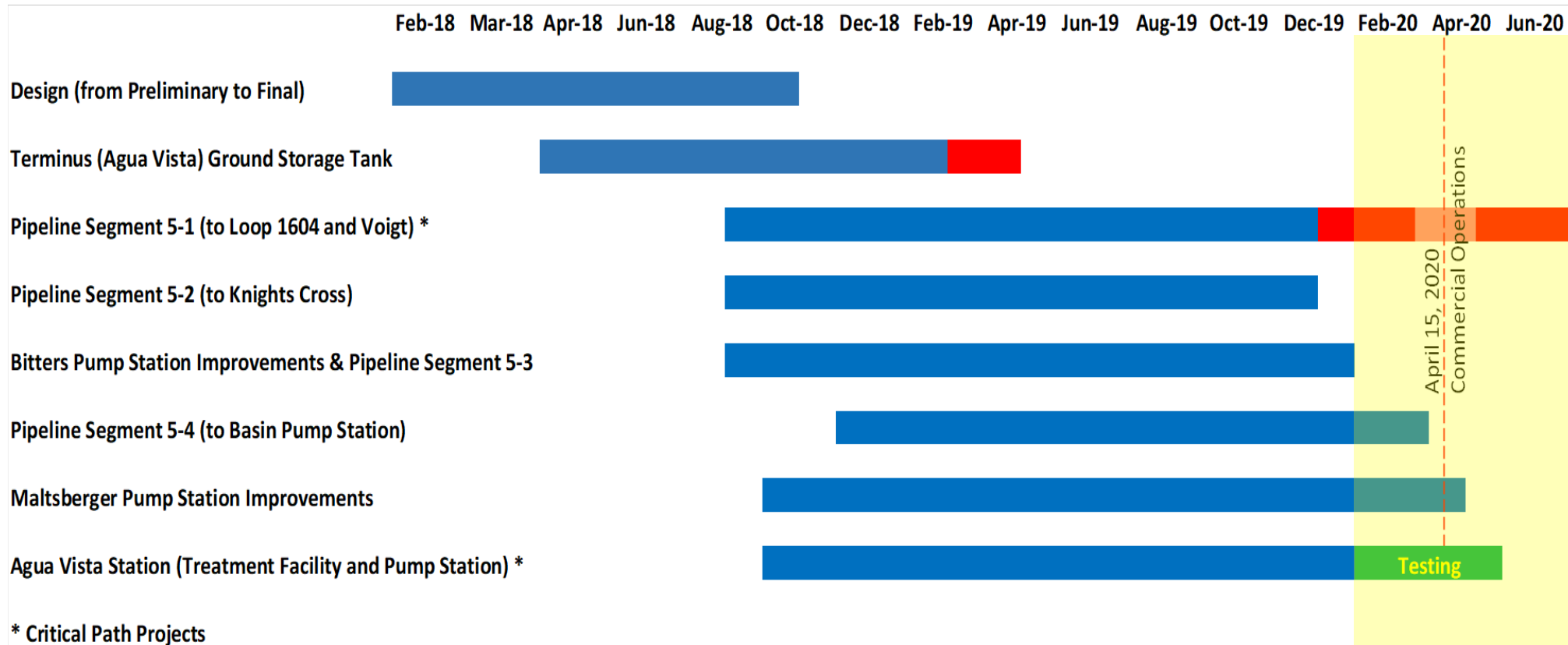
Challenge: VRRSP

- Land Acquisition
 - 511 parcels
 - No condemnations!





Challenge: Working through a pandemic

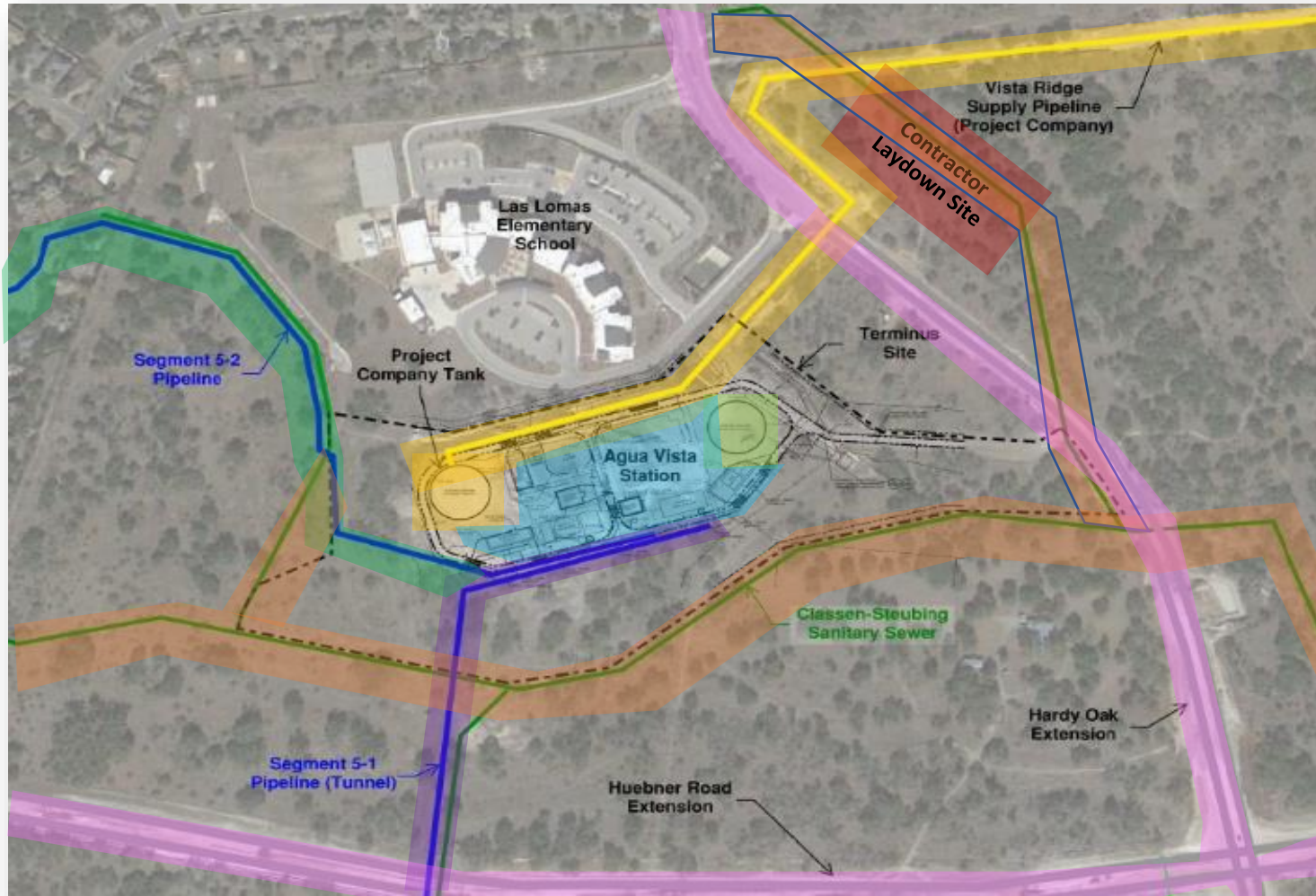




UNDERGROUND CONSTRUCTION TECHNOLOGY

The Underground Utilities Event | July 13-15, 2021 | Music City Center | Nashville, TN

Challenge: Coordination at Agua Vista Site

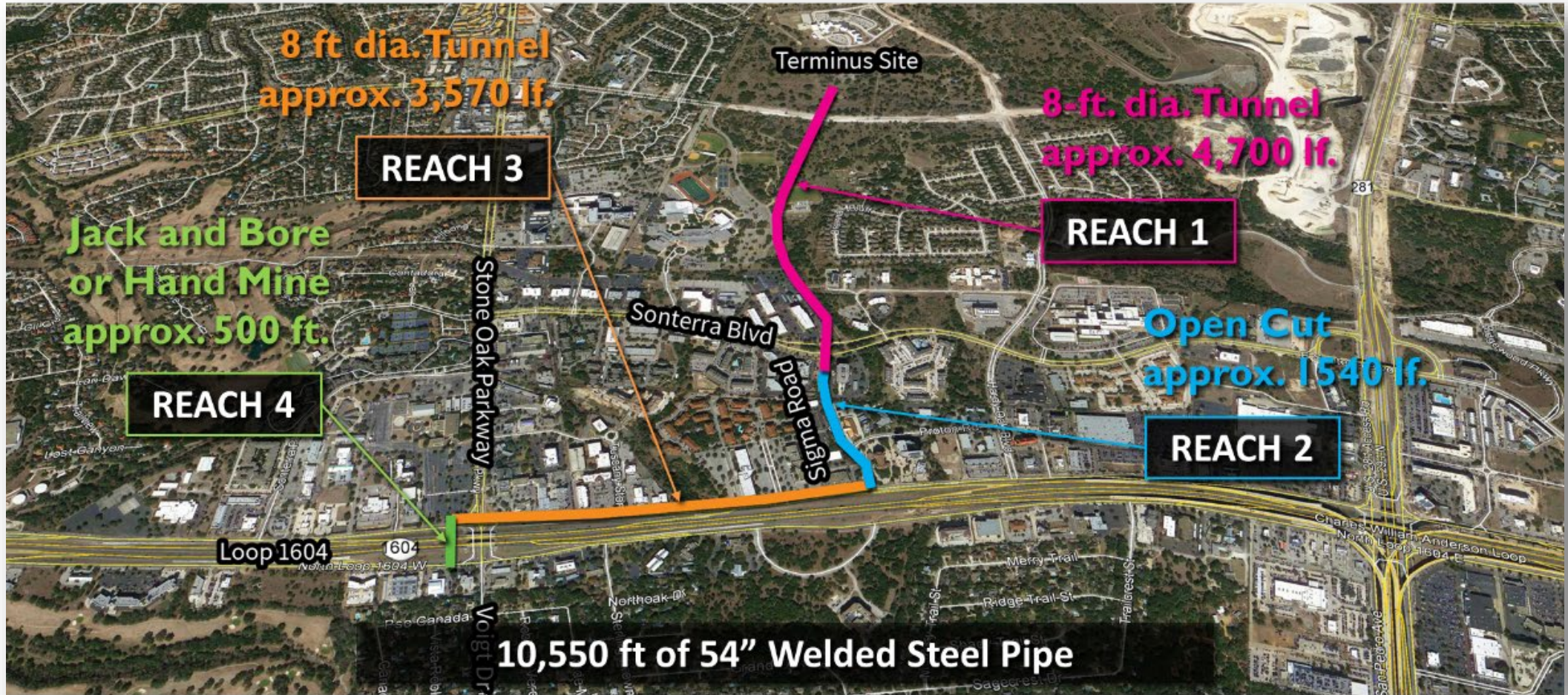




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Challenge: Tunnel to Loop 1604





UNDERGROUND CONSTRUCTION TECHNOLOGY

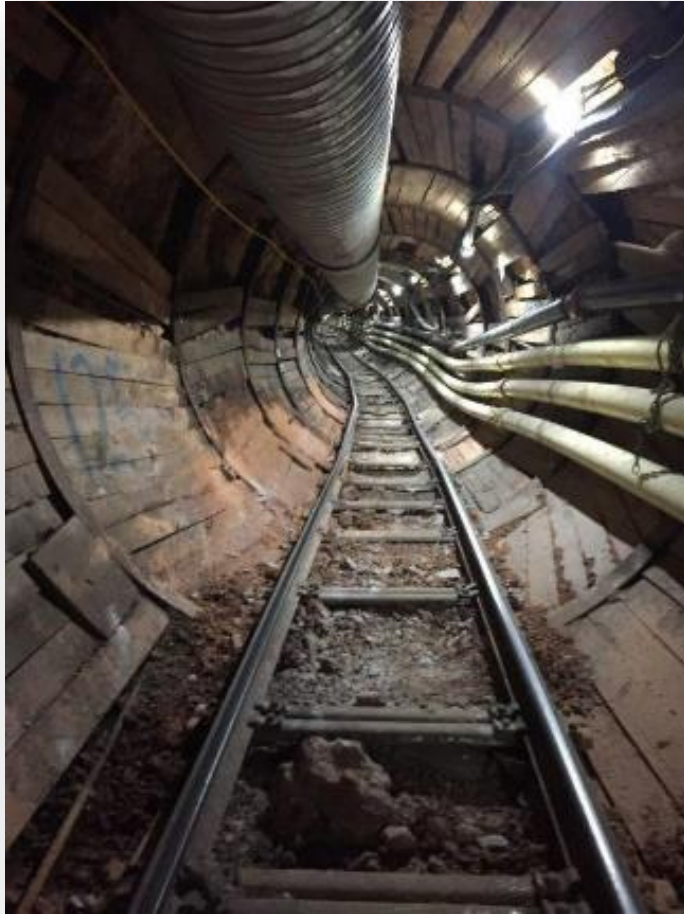
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Challenge: Cutting through rock in Stone Oak

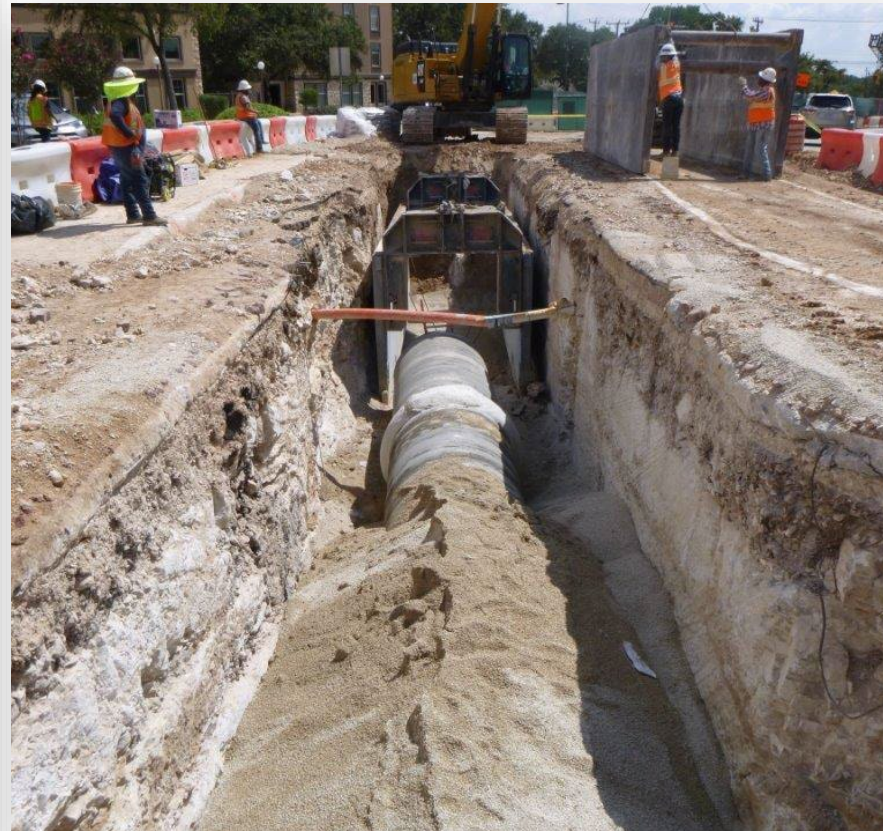




Challenges: Segment 5-1



Tunnel Excavation



Traffic Disruption on Sigma Rd



Keeping Peace at Cornerstone Church



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“There is no gain without struggle” - MLK





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Questions?

