UCT The Underground Utilities Event
25 YEARS
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Design to Construction: Rehab, Replacement of Aged Interceptor

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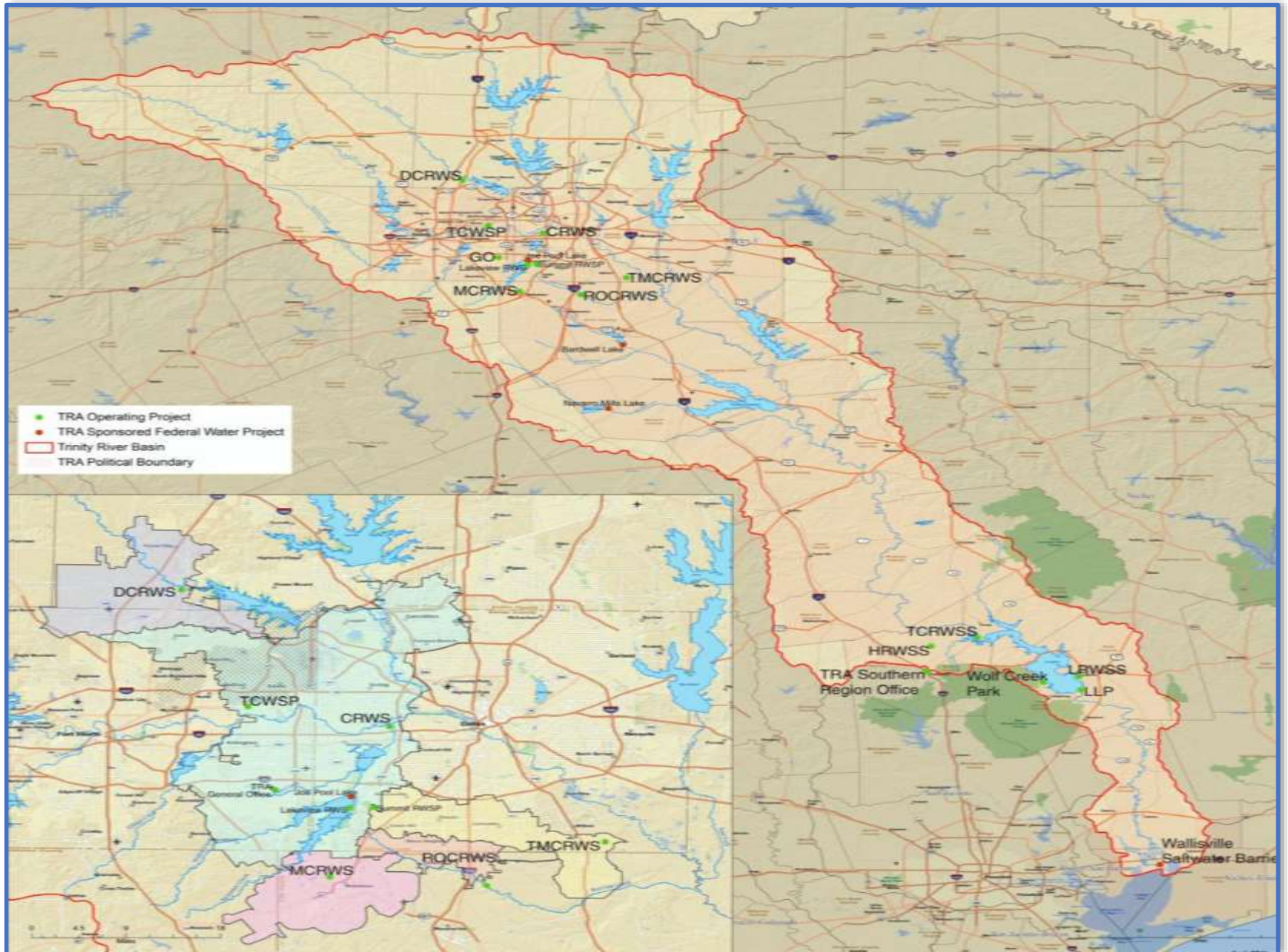
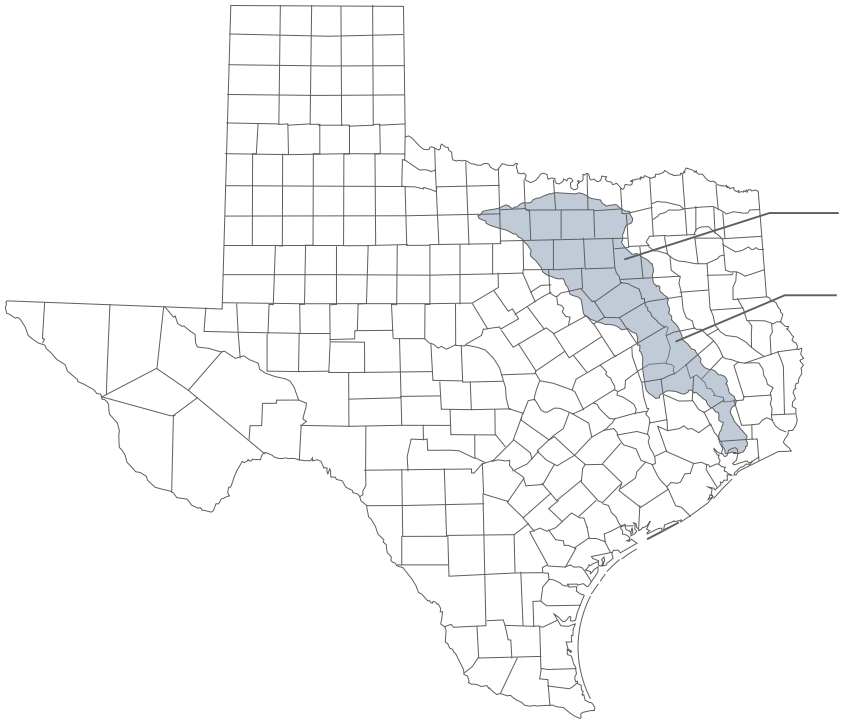
Trinity River Authority of Texas

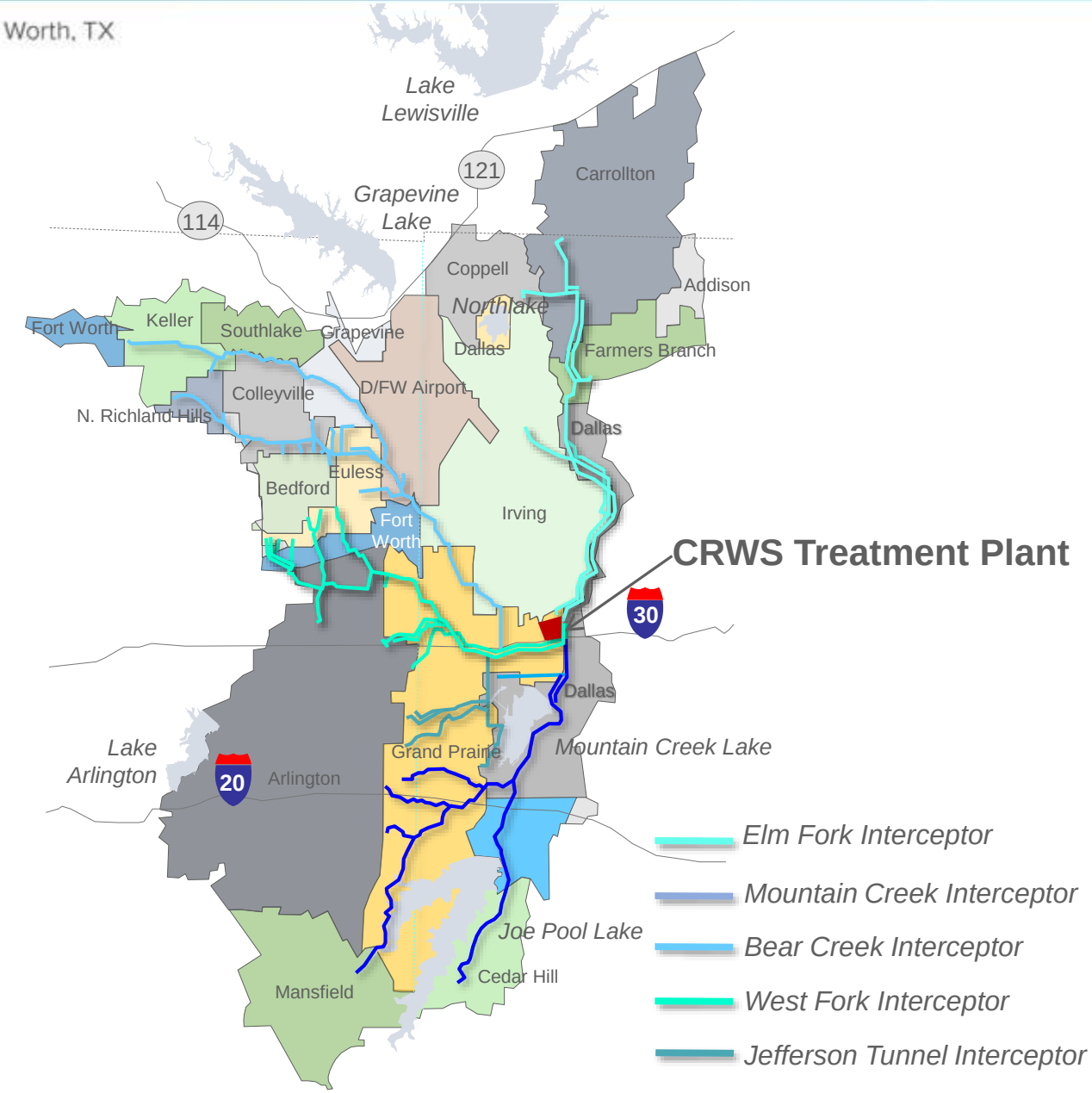
- Conservation and reclamation district
- Water and Wastewater treatment, along with recreation and reservoir facilities within the nearly 18,000 square-mile Trinity River Basin
- Five wastewater treatment facilities (3 mgd to 162 mgd)
- Four water treatment facilities (1.5 mgd to 87 mgd)

TRA's Basin-wide Facilities & Projects



Central Regional Wastewater System (CRWS)





Design

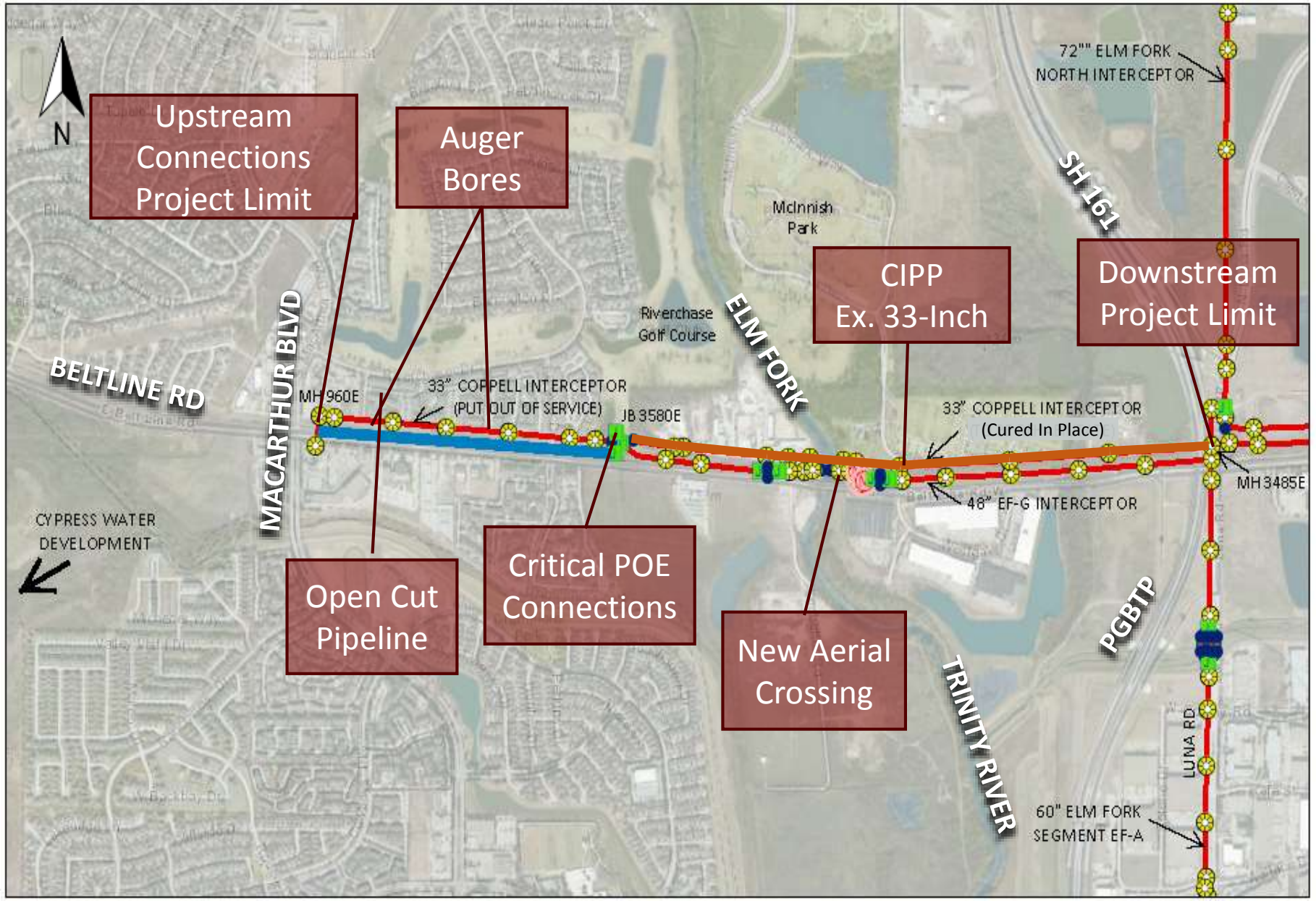
- 3,900 LF of original interceptor line taken out of service due to poor condition
- Additional system capacity needed to accommodate 2060 flows
- Most new flows from new developments in the upstream portion of the line

Design Considerations

- Rehab existing line where possible
- Limited grade - very flat
- Several Critical Connections
- Multiple Stakeholders (TRA, Coppell, Carrollton, Dallas, DART, NTTA)
- Minimize Public Impacts - Park, Pistol Club, Sports Bar, Apartment Complexes, Day Care, and Business Park

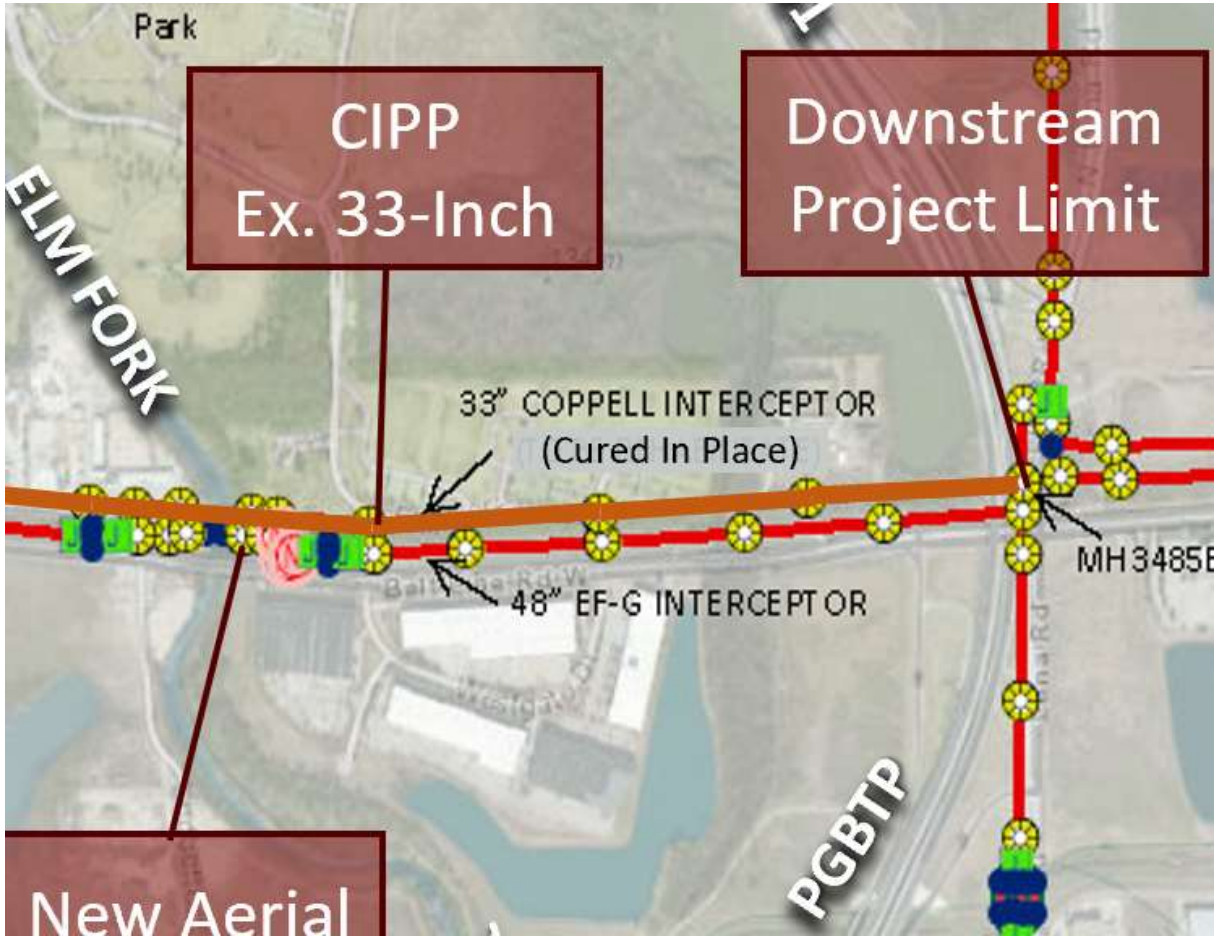
Project Components

- Cured-in-place piping (CIPP)
- New Aerial Crossing
- Critical POE Connections
- Open Cut sanitary sewer 30” to 48”
- Auger Bore
- Upstream Connections

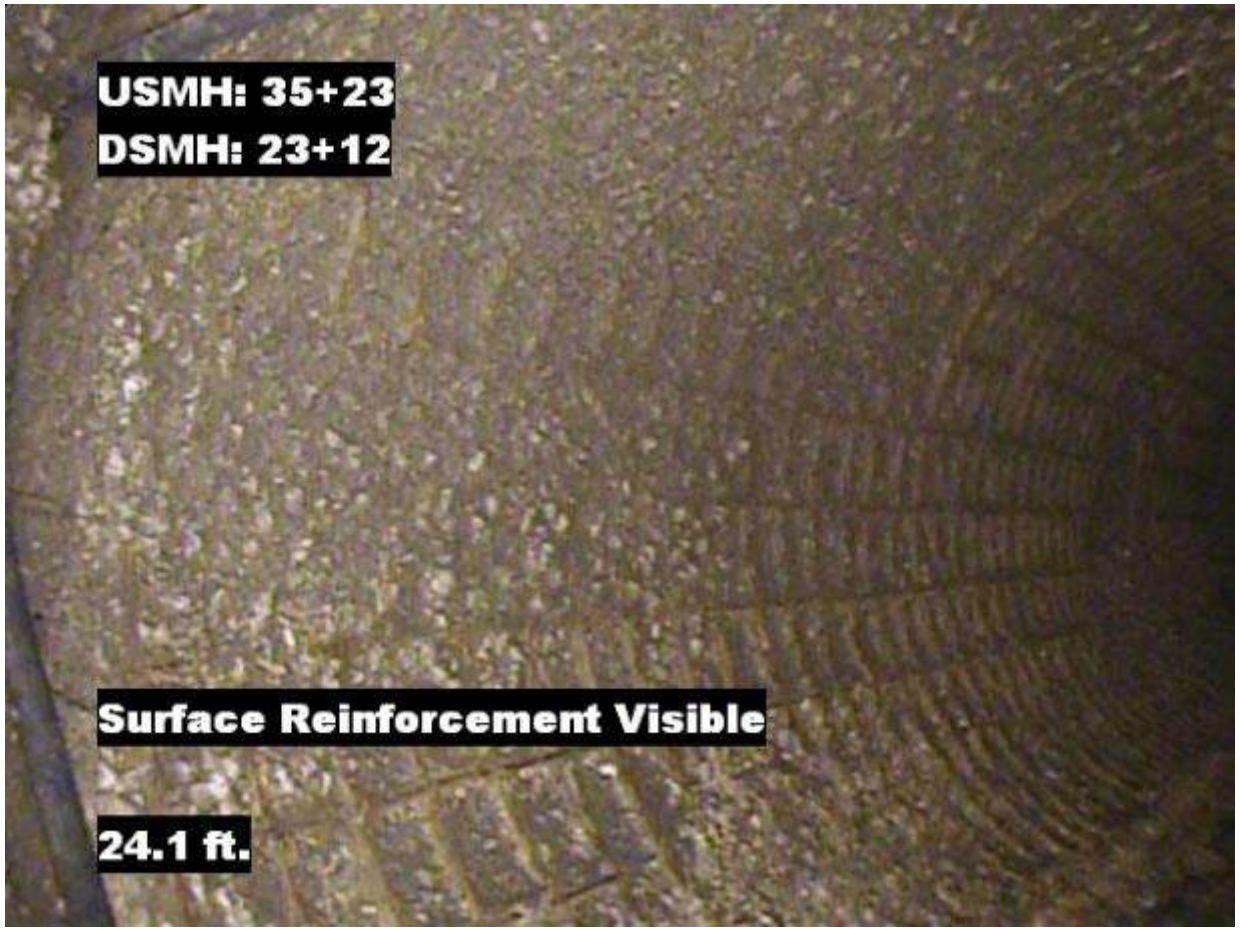


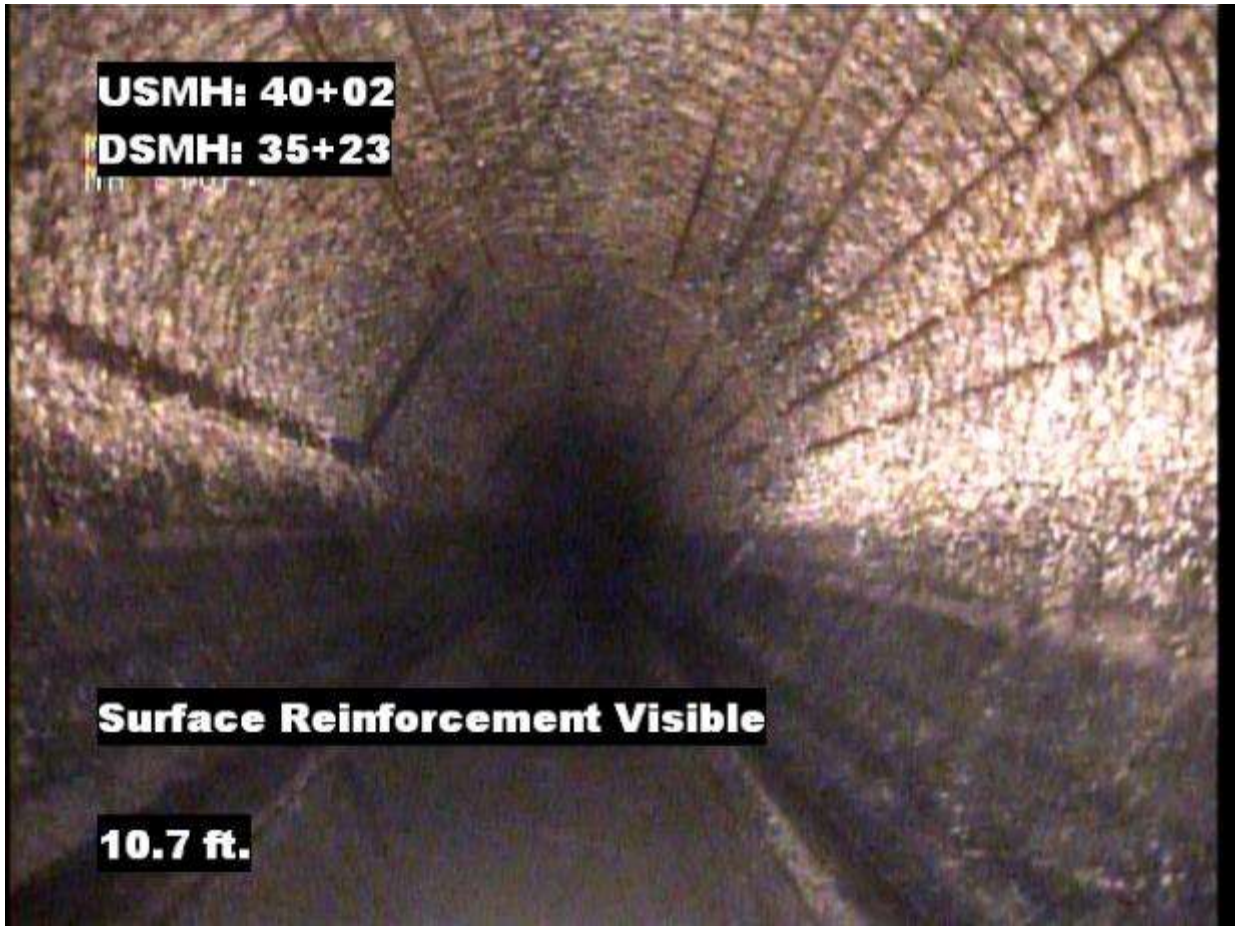
Cast-in-Place Pipe (CIPP)

- 2009 PDR – Estimated line failure 0-5 years
  - Line taken out of service
- Design began 2013 – Construction 2017
  - Open cut and trenchless methods considered
  - No CCTV for design – Cleaning and CCTV done in Construction
  - One collapse identified in design
- Cleaning/CCTV in 2018 for construction



PreLining Condition – Rebar Visible





PreLining Condition - Roots

PreLining Condition – Impacts to CIPP

- Condition inhibited root removal
- Collapse and blockage required point repairs
- Condition = Thicker/Larger Liner

Takeaway Message

Anticipate extra time for delays, contractor coordination and issue resolution

Installation of New Aerial Crossing over Elm Fork of the Trinity River

33” FRP pipe in 60” steel casing

* Note the water levels on the right were relatively low….

Water Levels Rose...and rose....

...and Rose!!

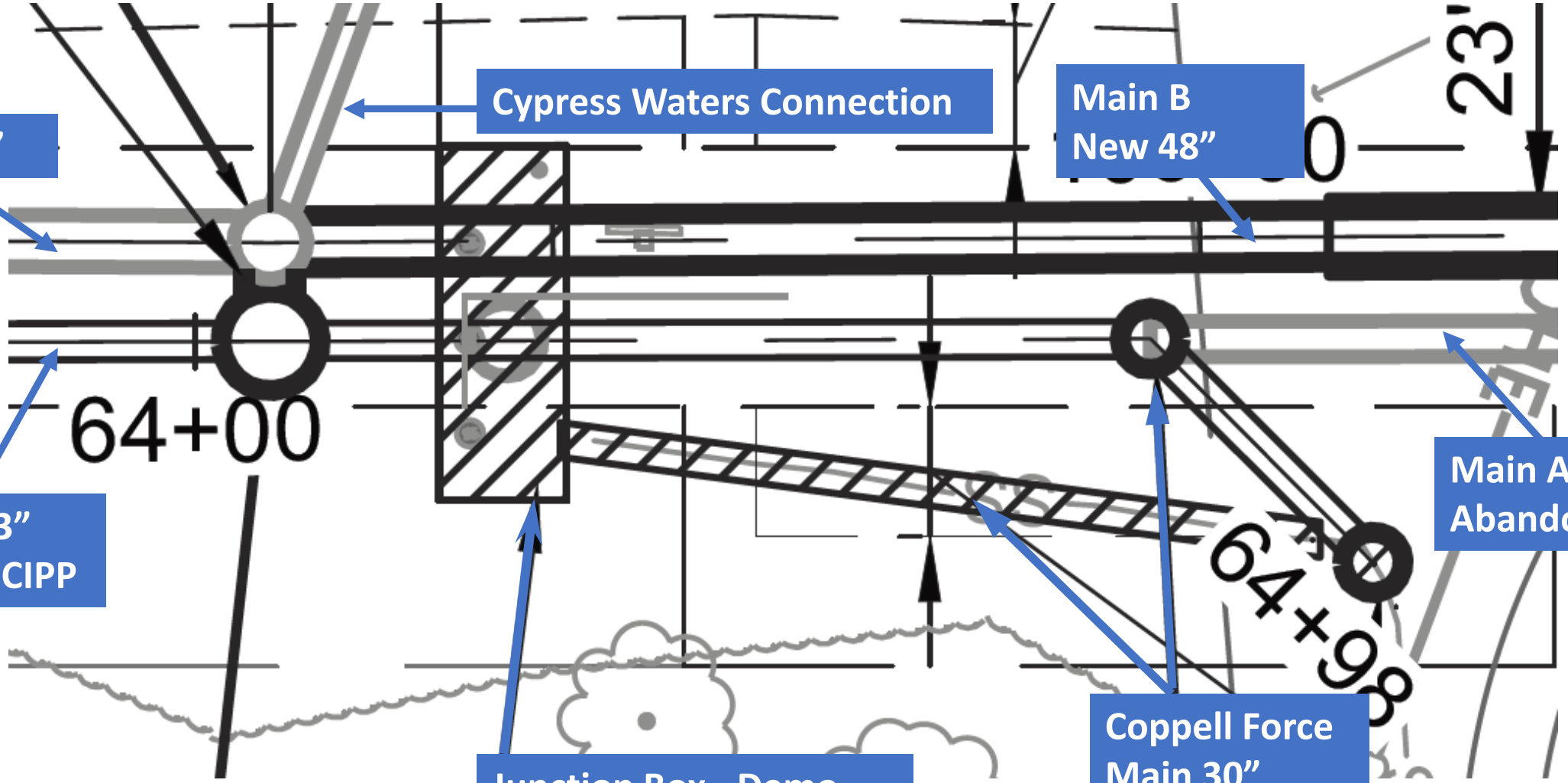
Debris as water recede

Takeaway Message

Anticipate and sequence for weather…

(then add more time the unforeseen)

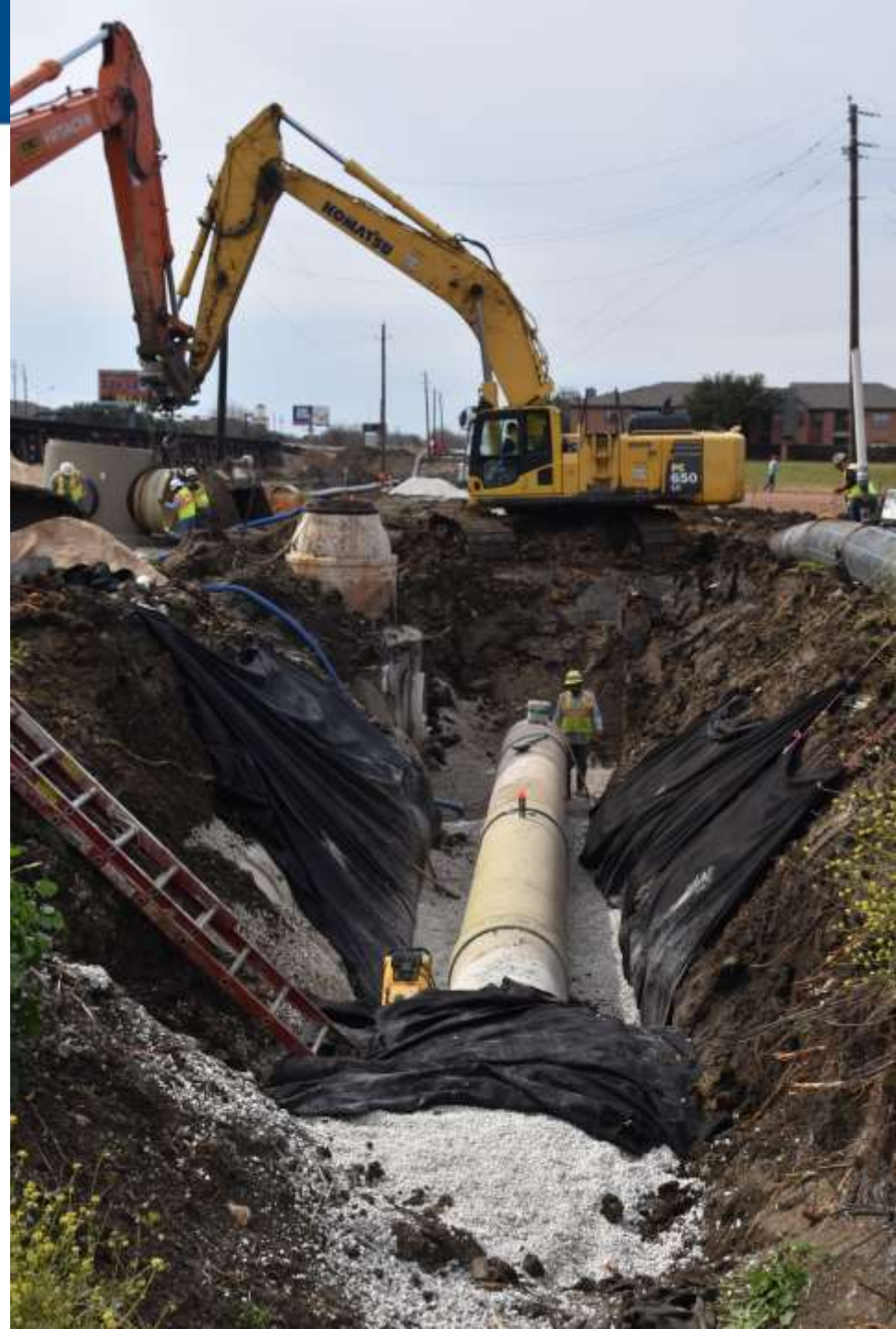
Critical Connections



Critical Connections

- Old Interceptor
- 48” EFG Line
- 30” Coppell Force Main
- Cypress Waters
- New 48” Line
- Junction Box – poor condition

Construction Photos



Construction Photos

Takeaway Message

Be flexible in construction, but do not yield your due diligence to your client and profession

Public Impacts

- Golf Course
- Apartments
- Resident Parking
- Traffic Impacts
- Emergency/Fire Access

Public Impacts

- Apartments
- Day Care
- Water Relocation

Public Impacts

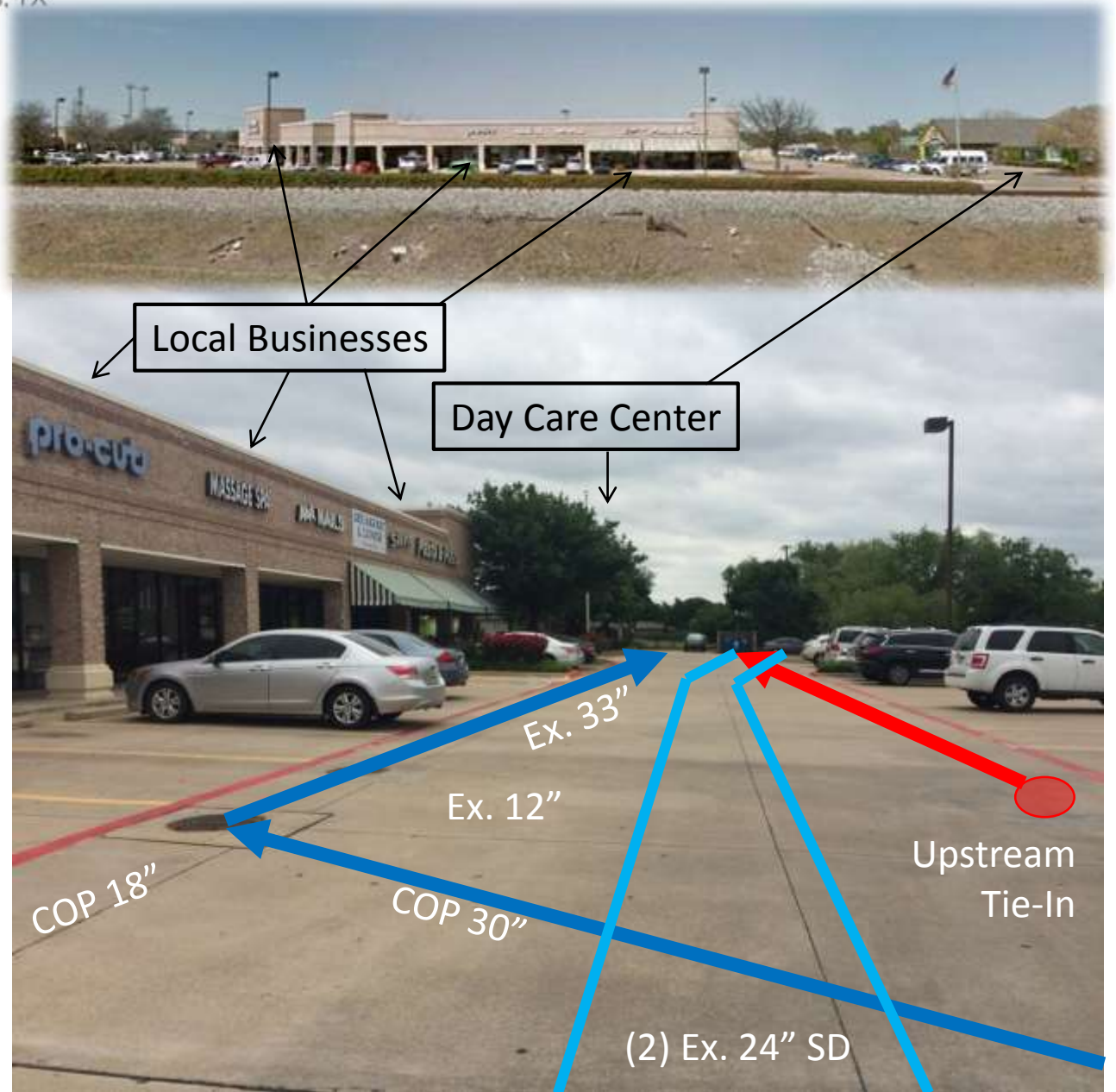
- Coordination with stakeholders throughout design and construction
- Specified for:
  - Impact limits
  - Timely pavement repair
  - Emergency Service Access
- Auger Bores to increase safety
- Weekly construction update to apartment complexes and businesses

Takeaway Message

Anticipate how staging, bypass, and sequencing will impact stakeholders during design

Public Impacts

Early and continued coordination with stakeholders can help with more than the expected impacts of construction…



Stakeholder trust is invaluable when the unexpected occurs!

Takeaway Message

Communication between all parties early and often…start in design and continue through construction

Anticipate extra time for delays, weather, and contractor coordination and issue resolution

Be flexible in construction, but do not yield your due diligence to your client and profession

Document!
Document!!
Document!!!

Communication between all parties early and often…start in design and continue through construction

Anticipate how staging, bypass, and sequencing will impact stakeholders during design

Q & A

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