



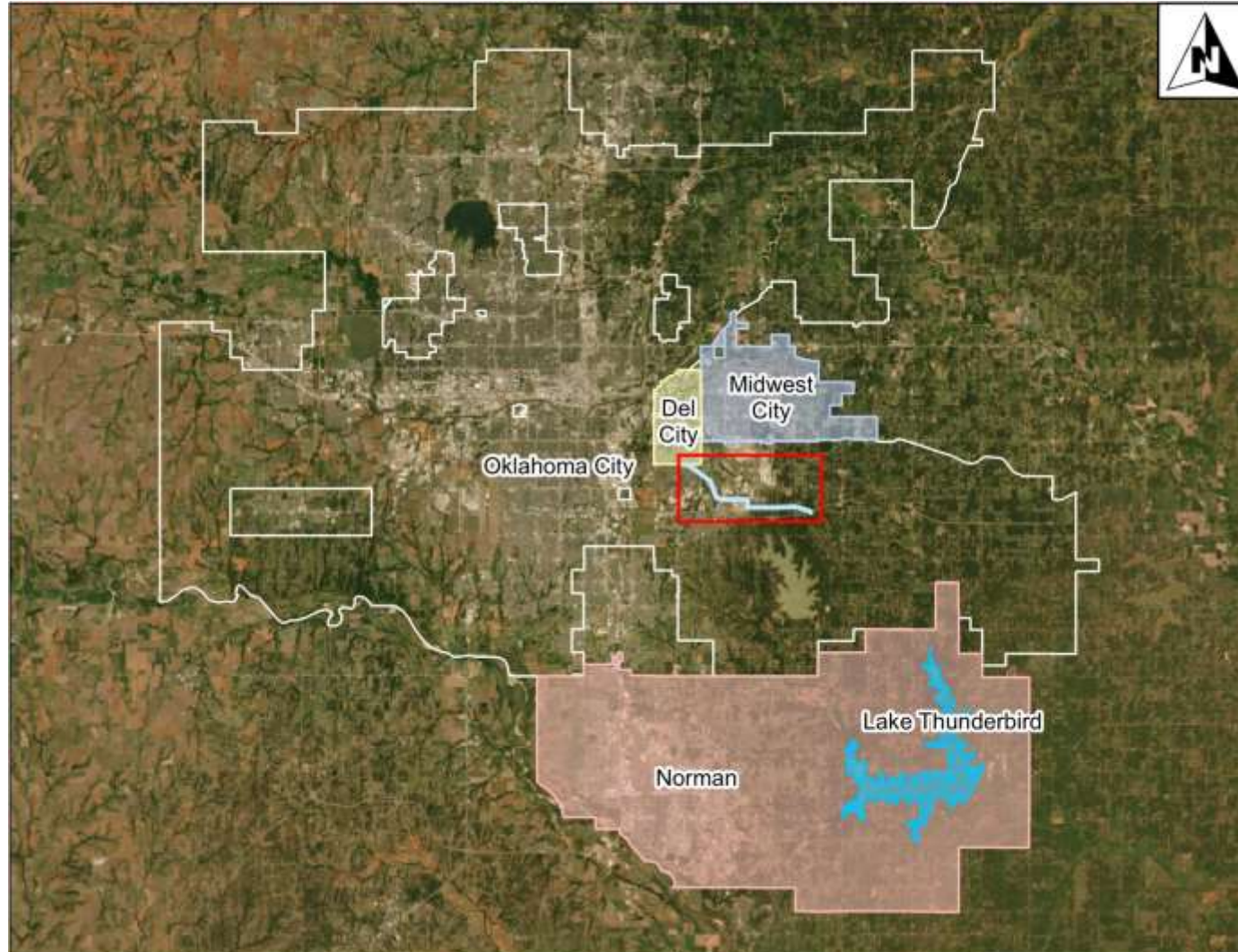
# Developing Accurate Cost Estimates on Pipelines

## Takeaways from the Del City Pipeline



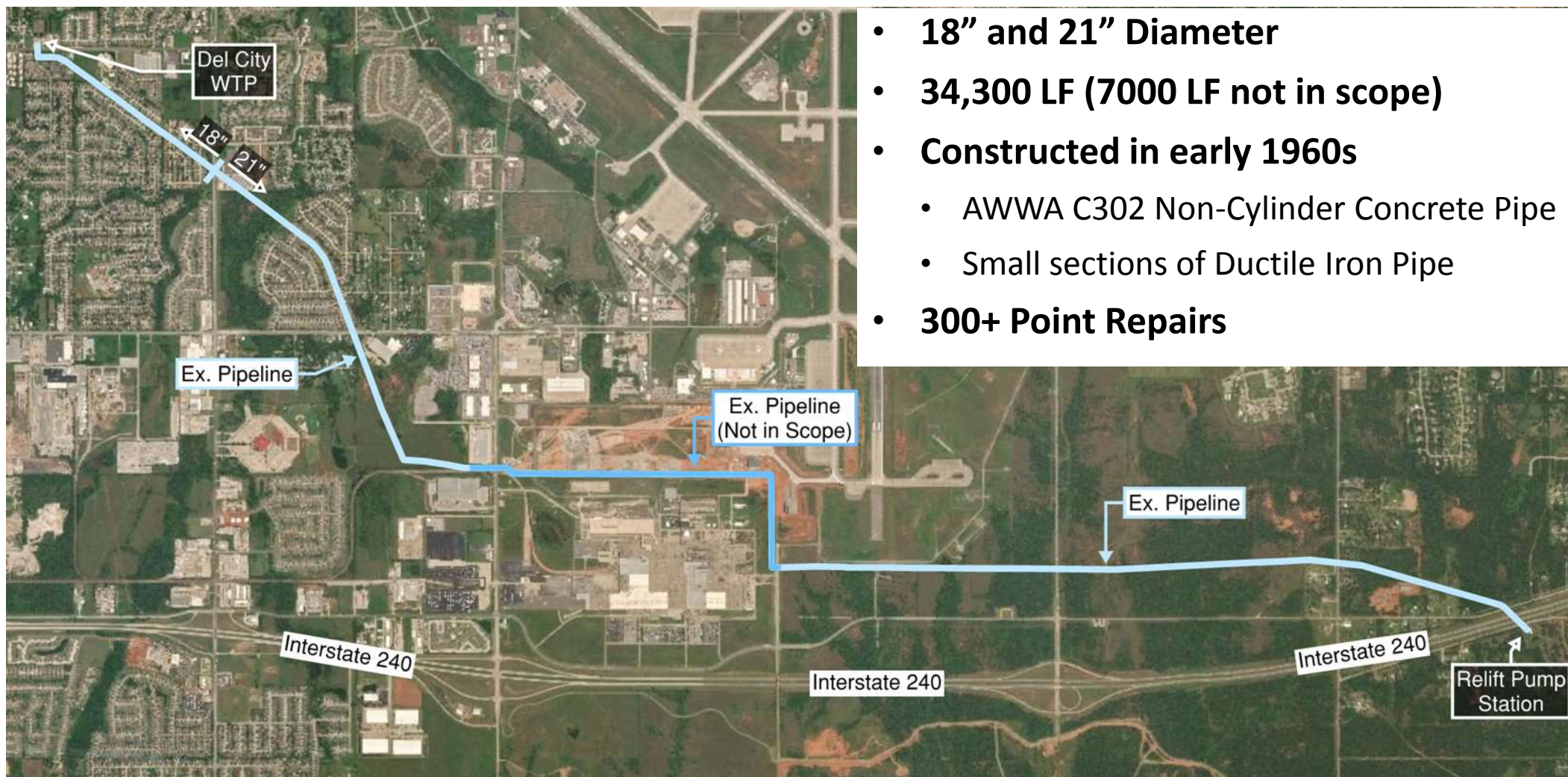
**PLUMMER**

# Central Oklahoma Master Conservancy District





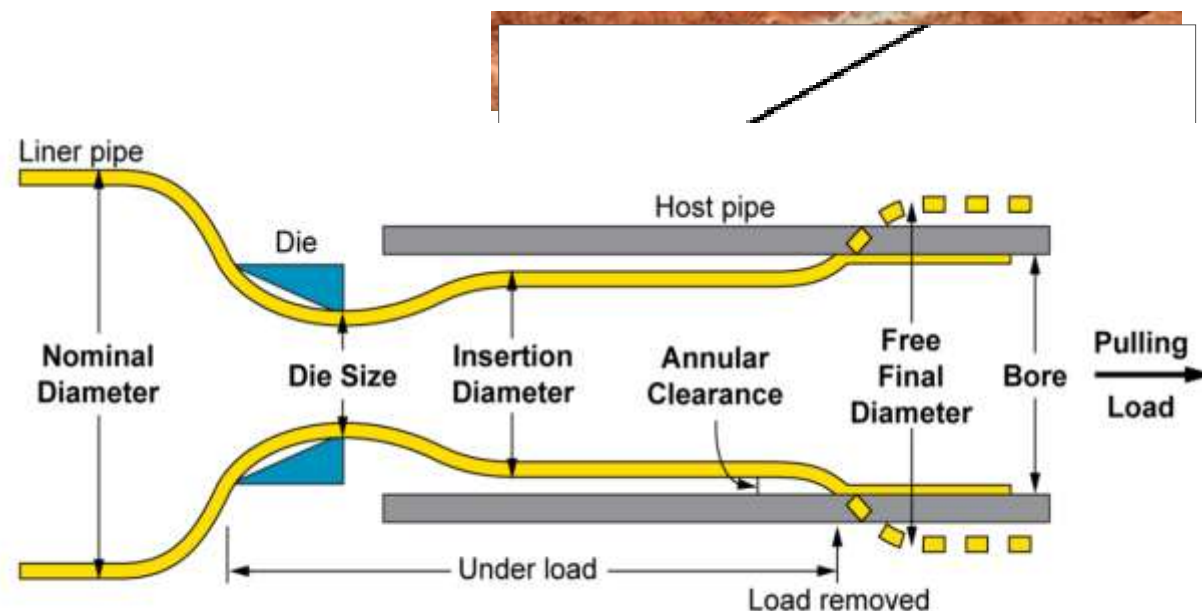
## Ex. Del City Pipeline



- **18" and 21" Diameter**
- **34,300 LF (7000 LF not in scope)**
- **Constructed in early 1960s**
  - AWWA C302 Non-Cylinder Concrete Pipe
  - Small sections of Ductile Iron Pipe
- **300+ Point Repairs**

# Trenchless Installation Methods

- Pipe Bursting
- Cured-in-Place-Pipe (CIPP)
- Traditional HDPE Sliplining
- **Compressed Fit HDPE Liner (“Swagelining” / “Tite Liner”)**
  - Long pull lengths
  - Quick installation
  - Most economical
  - Minimal reduction in hydraulic capacity



<https://images.app.goo.gl/NxawGskAxwMHu4Mj6>



## Proposed Design



# Usual OPCC Considerations

- Typical Items (seen on this project):
  - Open cut and bored pipe
  - ARV/BOVs in concrete vaults
  - Buried valves
- Typical OPCC Cost Sources:
  - Good: Knowledgeable experts within company
  - Better: Material quotes from suppliers
  - Best: Bid tabulations of recent, comparable projects
    - Be wary of incompatible projects
    - Create personal library of bid tabulations
  - **USE ALL OF THE ABOVE**





# Unusual OPCC Considerations

- Compressed Fit HDPE Liner
  - Specialty Liner
  - Wide variation in contractor cost estimates
- State Funding (DWSRF) Requirements
  - Davis-Bacon Wage Rates
  - Buy American Iron and Steel Requirement
- Uncertainty regarding project phasing
  - Work may be completed in stages
  - May have been bid as either 1 or 3 separate projects



## OPCC Risk Mitigation Steps

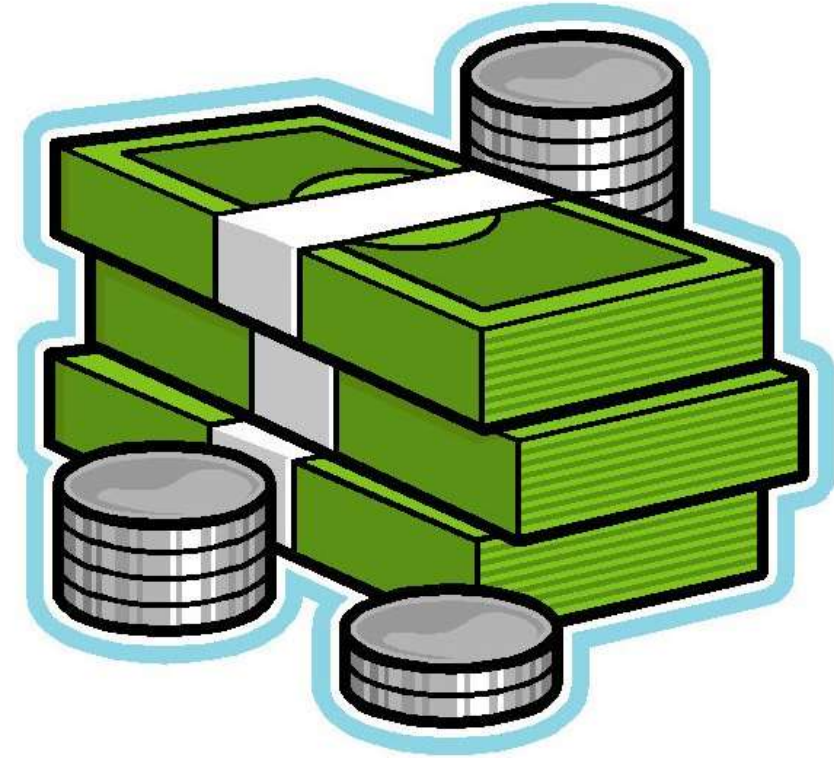
- Coordinated with:
  - General contractors
  - HDPE Lining Contractors
  - Material suppliers
  - Ductile Iron Pipe Manufacturers
- Coordinated with Plummer Construction Manager
- Coordinated with Client
  - Plummer OPCC in line with conceptual estimates





# Bid Opening

- Goal: OPCC in middle of all bidders
- Four Bidders:
  - Low Bidder: ~\$5.6 million
  - High Bidder: ~\$8.9 million
- Plummer estimate came in above high bidder



## Bid Opening Analysis

### Expectation

- Conservative bids
- Material costs at quoted numbers
- HDPE lining cost unknown
- Transition from three individual OPCCs to one combined OPCC

### Reality

- Very aggressive bids
- Material costs well below quoted numbers
- HDPE lining cost well below OPCC price
- Compounded safety factors



# Takeaways

- Know materials market
  - Obtain multiple quotes for every important item
  - Verify product availability
- Know contractor market
  - Get feel for current workload
  - Ask contractors about their construction plan
- Account for specialty considerations
  - Determine the cost drivers up front
  - Continually inform client of uncertainties
  - Hedge the right bets



# Questions?

## Contact Information:

Robert Weinert, PE

[rweinert@plummer.com](mailto:rweinert@plummer.com)

(405) 440-2725