

# Financial Intelligence of Pipe Bursting

---

MIKE WOODCOCK

VICE PRESIDENT OF PORTLAND UTILITIES CONSTRUCTION COMPANY, LLC



# Overview

---

- The Cost Benefits of Pipe Bursting
  - What Impacts the Cost of Pipe Bursting
  - Where The Savings Are
- The Comparison of Pipe Bursting to Other Rehabilitation Techniques
  - The Cost Position of Pipe Bursting Versus the Other Methods in a Perfect World
  - What Conditions Change the Cost Comparison
- When Life Cycle Costs Are Considered Pipe Bursting Does Very Well
  - Knoxville Utility Board Example
  - Jacksonville (FL) Electric Authority (JEA)
  - Houston
- Water Rehabilitation Considerations

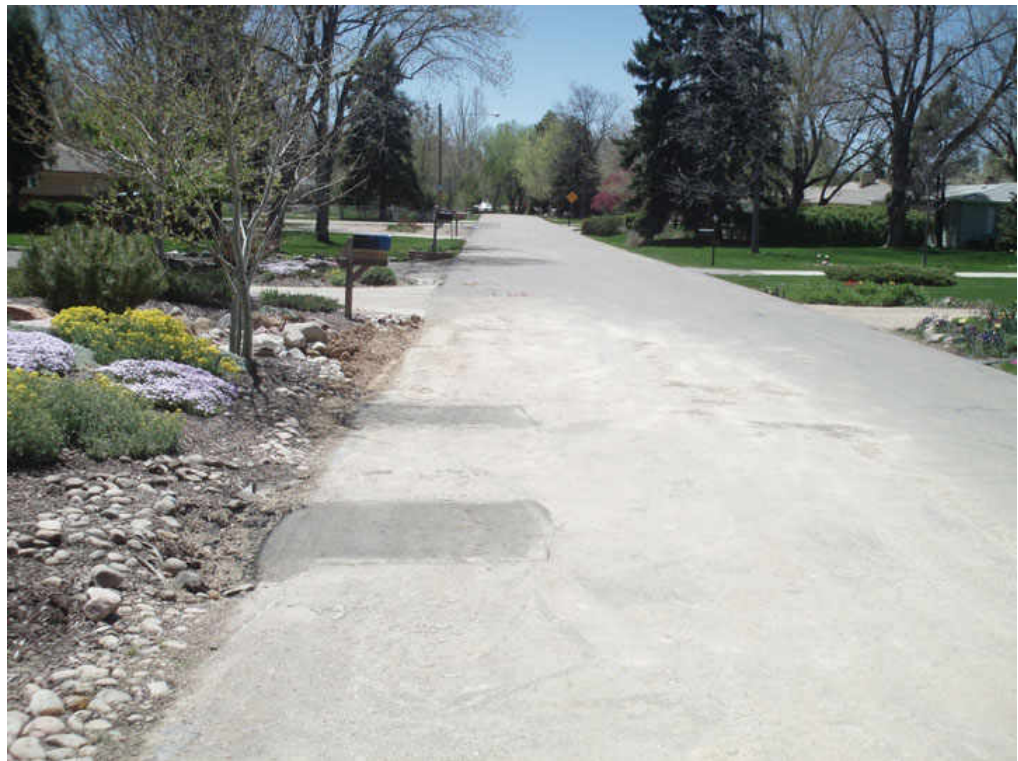
# The Cost Benefits of Pipe Bursting

---

- What Impacts The Cost of Pipe Bursting

- Pits

- Couplings
    - Connections to the Manhole
    - Backfill Material
    - Asphalt/Concrete Restoration
    - General Surface Restoration
    - Run Length = Costs Per Foot for Pits



# The Cost Benefits of Pipe Bursting

---

- What Impacts The Cost of Pipe Bursting

- Productivity = Labor/Equipment

- How many feet can be installed per day on average

- Run Length - Average Length – The Longer the Average Run, The More Footage Installed for Each Burst

- Obstacles to Productivity

- Depth

- Public

- Traffic Control

- Layout

- Type of Material

- Static or Pneumatic (Reversible Tools)

# The Cost Benefits of Pipe Bursting

---

- What Impacts The Cost of Pipe Bursting

- Soil Conditions

- Sand
    - Mucky Soils
    - Hard Pan
    - Water
    - Risk

# The Cost Benefits of Pipe Bursting

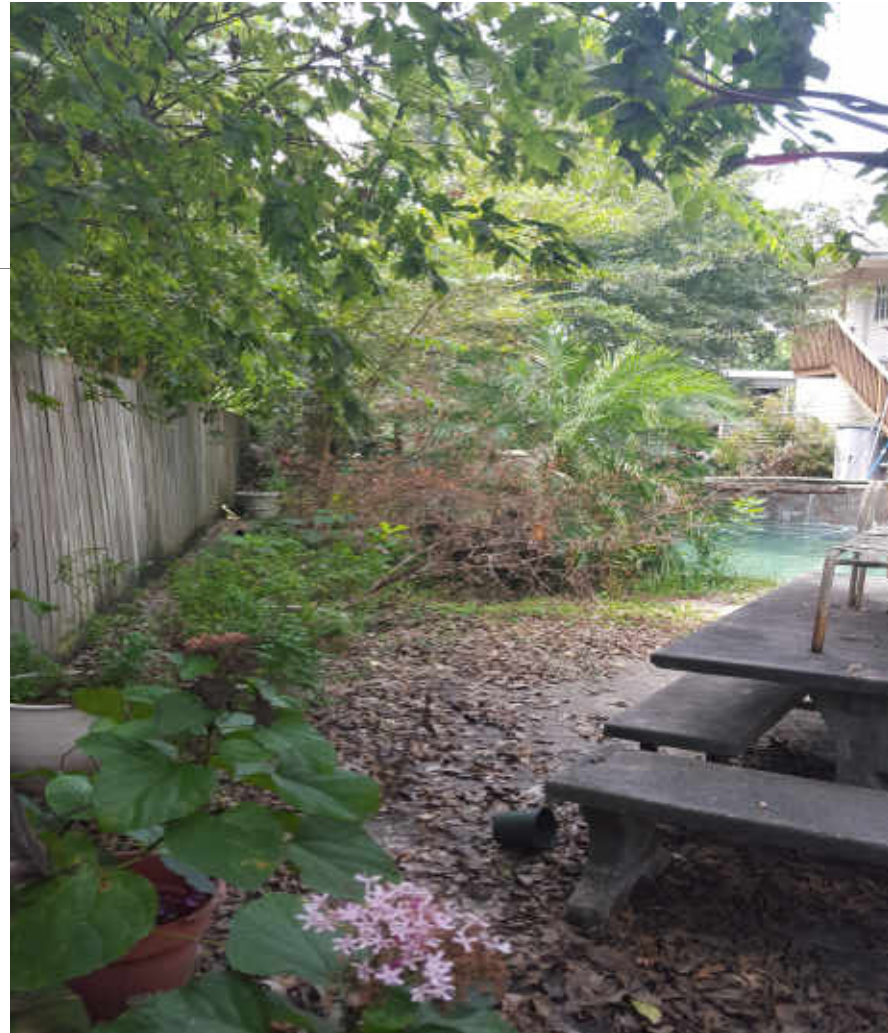
---

- What Impacts The Cost of Pipe Bursting
  - Pipe Material
    - HDPE
    - Fusible PVC
    - Restrained Joint PVC
    - Restrained Joint Ductile Iron Pipe

# The Cost Benefits of Pipe Bursting

---

- Where Are the Savings (Open Cut)
  - Labor
  - Backfill Material
  - Asphalt Restoration
  - Concrete Restoration
  - Yard Restoration
  - Yards with Many Improvements
- Where Aren't the Savings
  - Open Yards/Fields with Few Improvements







# The Comparison of Pipe Bursting to Other Rehab Techniques

---

- No Other Trenchless Method Can Upsize An Existing Line
  - When Upsizing is Required – It's Pipe Bursting Or Open Cut
- No Other Trenchless Method Can Offer New Pipe
  - Only Pipe Bursting & Open Cut Offer New Pipe – Replacement Not Rehabilitation
- The Cost Position of Pipe Bursting Versus the Other Methods in a Perfect World
  - CIPP - \$25-\$35 (8")
  - Pipe Bursting - \$35-\$50 (8")
  - Open Cut In Easements - \$80-\$120 (8")
  - Open Cut In Roadways - \$100-\$150 (8")

# The Comparison of Pipe Bursting to Other Rehab Techniques

---

## ■ What Conditions Change the Cost Comparison

### ■ For CIPP

- Point Repairs – Typically 1 or Two Point Repairs @ \$2500 Each Would Make Pipe Bursting More Economical = \$10 Per LF on 250' Section – Point Repairs Rarely Impact Pipe Bursting Costs
  - Lake City, TN – Set Up 2 Point Repairs on Each Line Segment and Specified CIPP
- Heavy Cleaning will have a Negative Cost Impact On CIPP – Not on Pipe Bursting
- Active Infiltration will have a Negative Cost Impact on CIPP – Not on Pipe Bursting
- If Services Do Not Exist or Are Ignored (Internally Reinstated) CIPP will Dominate
  - Reconnecting Services Will Cost Between \$1,200-\$2,500 (Same for Both CIPP or Pipe Bursting)

### ■ Cost Impact When Little Information is Available - No CCTV Investigation

- CIPP – Heavy Roots, Active Infiltration, and Point Repairs could be Budget Breakers
- Pipe Bursting – Heavy Roots, Active Infiltration, & Point Repairs will Have little Impact on Pipe Bursting Costs



# No Impact On Pipe Bursting

---



# No Impact on Pipe Bursting

---



# Point Repair Required – Even for Pipe Bursting

---



# When Life Cycle Costs Are Considered Pipe Bursting Does Very Well

---

Pipe Bursting & Open Cut Can Install Products with 100 Year Design Lives

CIPP Can only Provide 50 Year Design Life

Many Programs Favor Whichever Method is Cheaper Today

Many Programs Favor Whichever Method is Cheaper Over the Product Life Cycle – Pipe Bursting

Many Programs Use A Hybrid of Ideologies

- Pipe Bursting When Possible
- Open Cut When Necessary
- CIPP When Necessary
  - Knoxville Utility Board (KUB)
  - Jacksonville Electric Authority (JEA)
  - Houston, Texas

# KUB Program – Experiment

---

- 3 Projects – Rehabilitating Pipe & Replacing All Services – Some Open Cut
  - Bid CIPP Option
    - Added An Appropriate Amount Of Point Repairs
  - Bid Pipe Burst Option
    - Added More Asphalt to Cover Pipe Burst Pits
- Results
  - CIPP Option Was Low by an Average of 10% for the 3 Projects
  - On the 3<sup>rd</sup> Project They Awarded the Pipe Burst Option – Better Life Cycle Cost
  - For the Last 5 Years
    - Pipe Bursting When Possible
    - Open Cut When Necessary
    - CIPP When Necessary