

Optimizing Buried Assets

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MDWASD Overview

- Largest water and sewer utility in Florida, serving more than 2.3 million residents, created as a regional system in 1972
- Water and Sewer System:
 - 3 large regional and 5 small water treatment plants
 - Supplying 300+ million gallons per day (MGD)
 - 3 regional sewer plants
 - 14,000 miles of water and sewer lines
 - 1050 sewer pump stations
 - 430,000 retail customers
 - 14 Municipal wholesale customers
 - \$13.6 Billion Capital Improvements Program
 - 2500 Employees
 - Average Monthly Water and Sewer Residential Bill: \$51/month



Water Distribution Assets

- 5393 miles of distribution mains
- 410 miles of transmission mains
- 2” to 120” diameter
- 40% more than 40 years old
- Half ductile iron
- 120 miles of large diameter PCCP
- Coastal area is salt-intruded

Condition Assessment

- Actual Failures
- Visual Inspection of Aerial Crossings
- Leak Detection
- Electromagnetic Monitoring
- 95 miles of PCCP monitored, \$13.8 Million, 269 pipe segments renewed
- Cost of post-failure replacement up to 25 times more than pre-failure replacement



Water Main Fixes

- Carbon Fiber Lining
- Dig and Replace
- Redundant Lines
- Slip or Swedge Lining
- Polyethylene Encasement (External Corrosion Protection)
- Pipe Bursting (tuberculation; ACM)

Sewer Collection Assets

- 5300 miles of gravity sewers
- 900 miles of force mains
- 110 miles of PCCP
- A third of force mains >40 years old
- Ductile iron has been material of choice
- Coastal area is salt intruded

Condition Assessment

- 92 miles of PCCP assessed electromagnetically
- Frequency of breaks
- Visual inspection of aerial crossings
- Televising gravity systems
- CMOM Assessment and Prioritization Process

Force Main Fixes

- Dig and Replace
- Hoop Tendon Repair (PCCP)
- Slip Lining
- Material Standards Changes (HDPE in Salt Intruded Areas)
- Redundancy
- Replacing All ACM (pipe-bursting)



72" FM BREAK







Hoop Tendon Solution

Conclusions

- Condition Assessment Still an Art
- Redundancy Critical to Renew Mains
- Replacement Prior to Failure Saves
- Experience in one part of the system may inform decisions in other parts
- Renewing to meet size standards incentivizes condition renewal

Buried Assets Should:

