



THE **UNDERGROUND** UTILITIES EVENT

Underground Construction Technology | Jan. 29-31, 2019 | Fort Worth, TX

Spectrum of Asset Management in Water Utility Industry



**NORTH
TEXAS
MUNICIPAL
WATER
DISTRICT**

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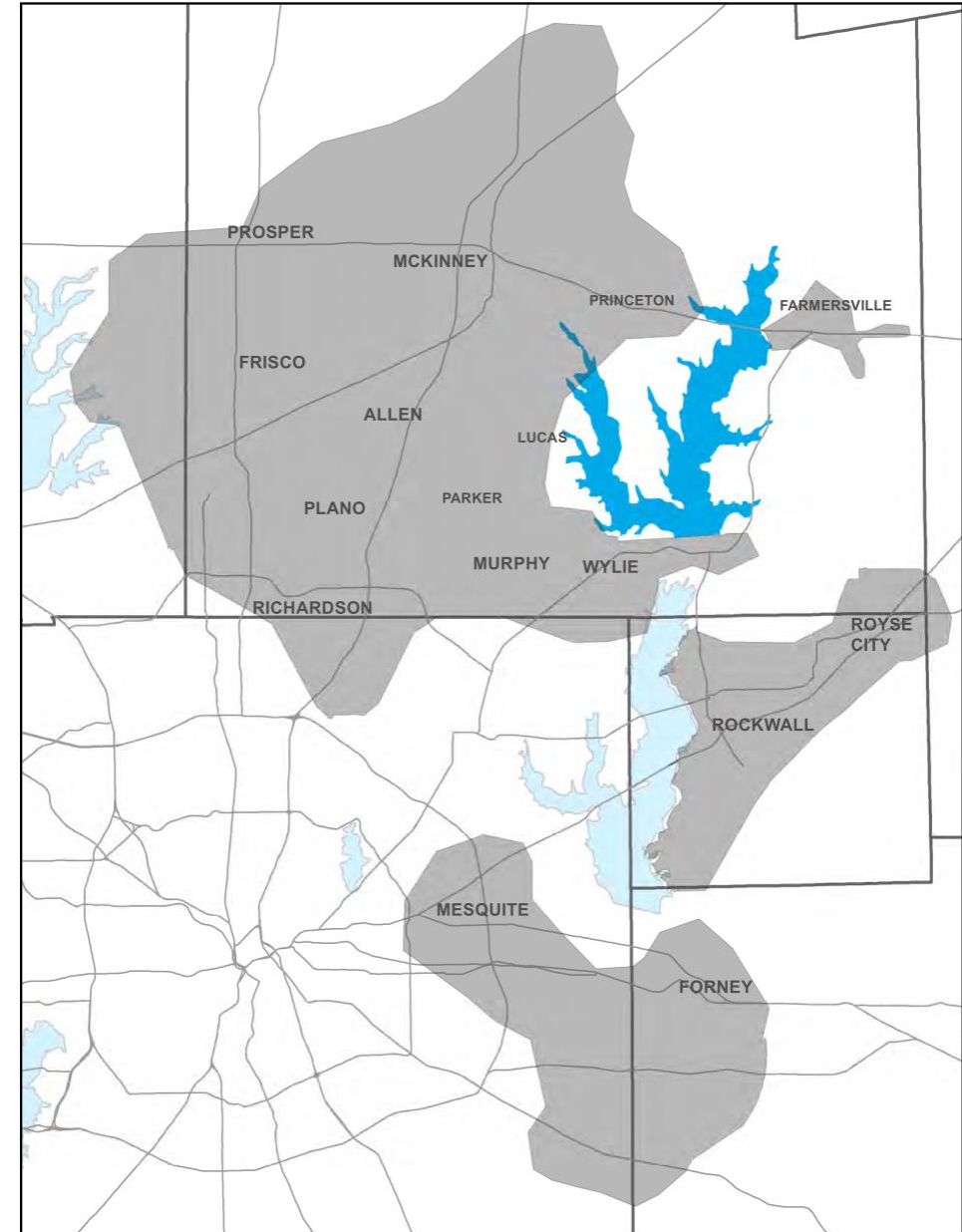


About NTMWD

- North and east Dallas suburbs
- Serve 1 million people with wastewater
- Wholesale

- Also provide drinking water, solid waste

- 13 WWTPs – 0.25 MGD to 56 MGD
- Complex conveyance
- 9 Wastewater departments
- **EVERYTHING IS CRITICAL**





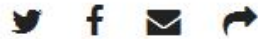
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1 million gallons of raw sewage could be headed to White Rock Lake

BY PRESCOTTE STOKES III

JUNE 28, 2018 04:44 PM, UPDATED JUNE 28, 2018 06:30 PM



Frisco officials: Drinking water safe after sanitary sewer overflow following rain, power outage

COLLIN COUNTY APR 17



Water crews testing smelly, bubbling material seen in Lavon

Dana Branham, Breaking news reporter



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Water quality crews are testing samples from Collin County's Lake Lavon after boaters raised concerns about smelly, bubbling debris in the lake.

Richardson Critical Water Shortage Due to Main Break Requires Immediate Conservation

The city of Richardson is advising residents to conserve water after a main break Thursday.

By Hannah Everman and Vanessa Brown

Published Aug 30, 2018 at 7:21 PM | Updated at 7:56 AM CDT on Sep 4, 2018



Richardson Homeowners Still Seeking Answers A Major Damage From Broken Water Line 2 Weeks

by Erin Jones | CBS11

September 13, 2018 at 9:17 pm

Filed Under: flooded homes, insurance companies, Local TV, North Texas Municipal Water District, Richardson, Texas, utility

Richardson Homeowners Still Seeking Answers A Major Damage From Broken Water Line 2 Weeks



Excessive rains result in sanitary sewer overflow at Lucas plant

Private water well owners should boil water before consumption or use

Staff Report Mar 1, 2018



SMELLY WATER INVESTIGATION

@FOX4

BOATERS ON LAKE LAVON REPORT FOUL-SMELLING MATERIAL BUBBLING TO SURFACE



History

- Mix of old and new assets
- Rapid served population growth
- Lean staff > Rapid staff growth
- Run-to-fail, minimize maintenance expense > Getting proactive



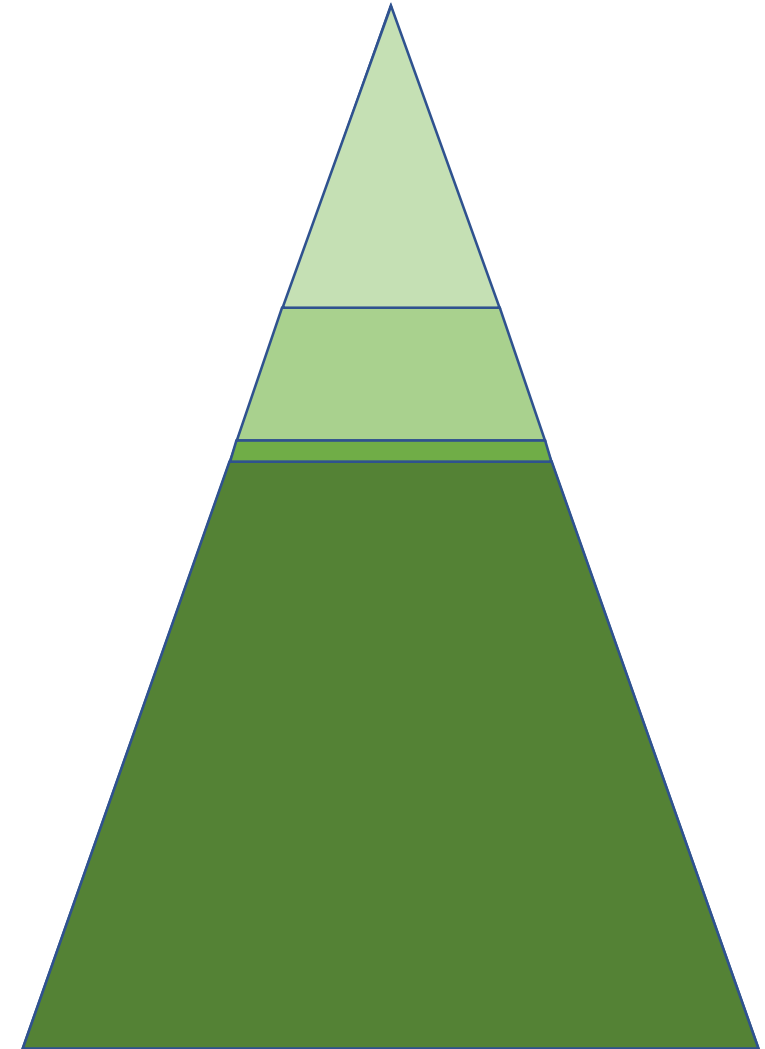
History - Data

- Late adopter of CMMS
 - Maximo in ~2007
 - Work orders in 2017
- Thin paper documentation before that
- Little analyzable information on performance history of our assets



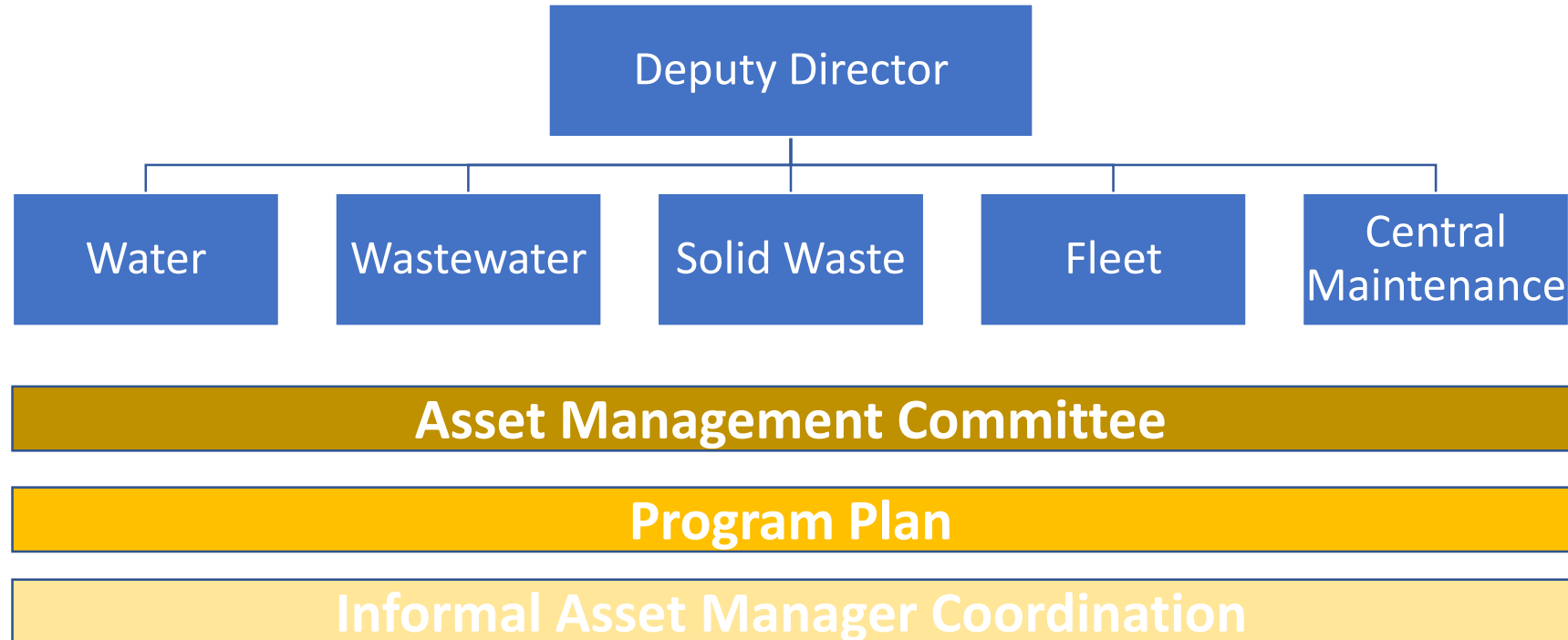
Landscape – Alignment Up

- Top Management
 - *Big picture – get me some*
- Middle Management
 - *I need information to manage my business*
- Asset Managers
 - *How to link long-term to daily activities?*
- Operations
 - *Yet another new thing to do*





Landscape – Alignment Across





Alignment Across 'Federated' Business Units

- Nine departments in Wastewater
- Each run relatively independently
- Strong department supervisors
- Geographically distributed



Alignment Across ‘Federated’ Business Units

Communication

- Patient
 - Repetition
- Tailored
 - Large group announcements, small group review, individual training
 - “Lift all boats” or “lead dog”?
- Documented
 - Why we do it this way
 - Clear expectations – “You shall do this...”
 - How to do this



Communication - Alignment Up

Linking long-term to daily?

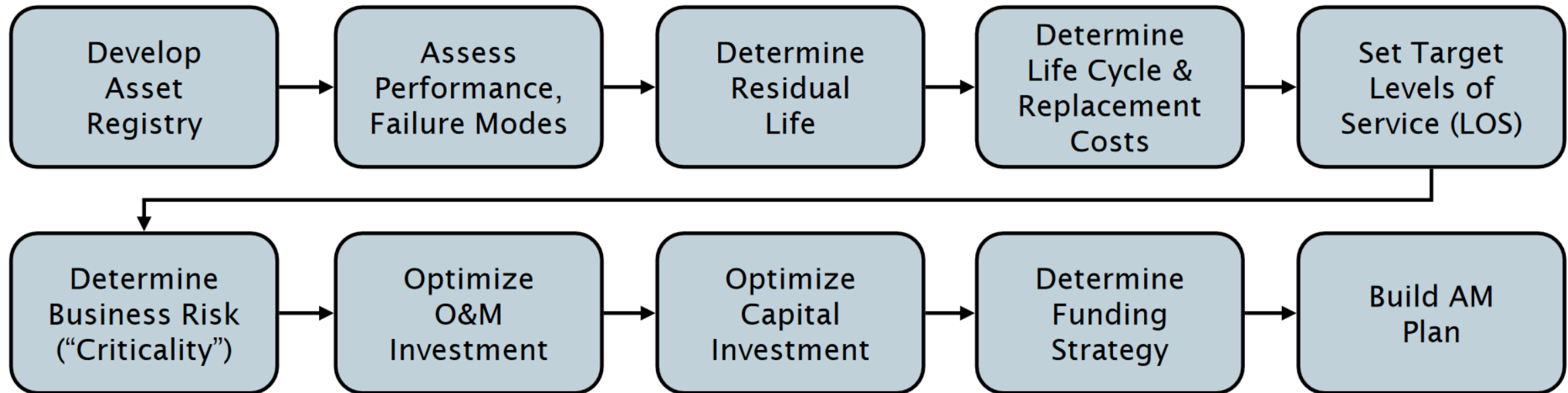
You make the case for or against an asset with every work order

Incomplete PMs and large backlog = case for more resources



Work Management Before Asset Management

- Time-dependent vs Retroactive

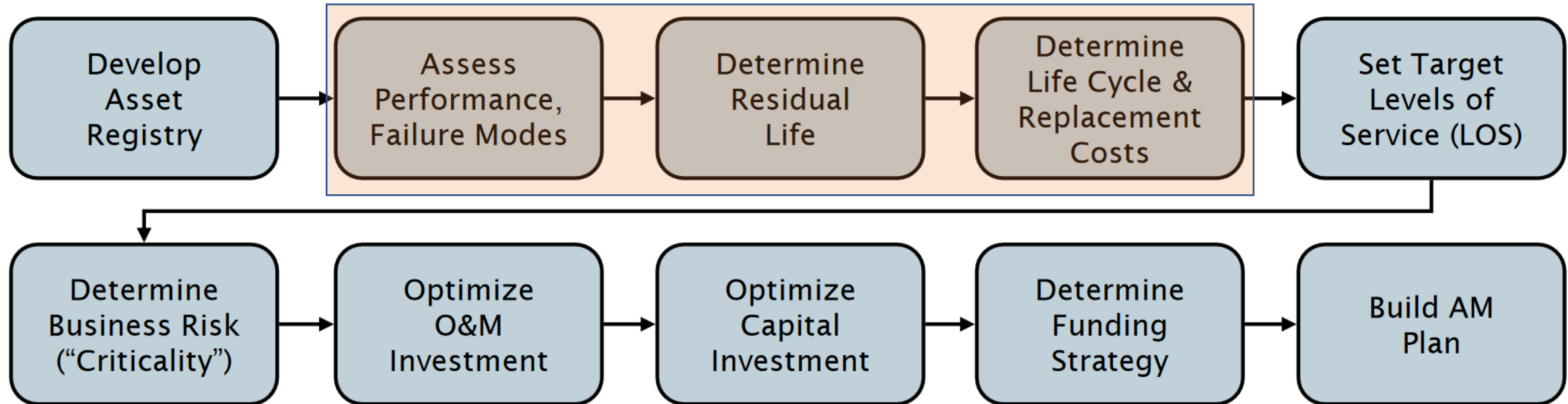




Work Management Before Asset Management

- Time-dependent vs Retro-active

Need trends





Work Management Before Asset Management

- Control work through work orders (*but still collect asset information*)
- Prioritize preventive maintenance
- Exploit predictive maintenance opportunities
- Identify truly critical assets, bad actors
- Share data

Greater, more-immediate payback than:

- Formalize business risk estimates, whole-life cost models
- Optimize investment
- Justify funding



Linear vs Vertical Assets

Termites

- High volume in *assets*
- Buried
- In neighborhoods
- Structural
- Point repair, rehab
- EPA CMOM

Squirrels

- High volume in *classes*
- Walk past them on rounds
- In plants
- Mechanical
- Rebuild, *swap*
- Industrial reliability



Linear vs Vertical Assets

- Same framework
 - Condition, risk, whole-life cost
- Different systems
 - GIS vs spreadsheets
- Different strategies
 - Opportunistic inspection vs rounds
 - Contracted vs in-house
 - Retail vs Wholesale
 - More EPA pressure vs less EPA pressure



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