

IPWEAQ Central & North  
Queensland Branches Conference  
Winton 7 – 9 April 2005

Cost Effectiveness Of CCTV  
Inspection Of Underground Assets

V

Do nothing and hope for the best

# Identify High Risk Pipelines

- ☹️ Lines downstream of rising main discharge manholes
- ☹️ Pipelines constructed of concrete or AC materials
- ☹️ Pipelines under buildings, roads and railways etc
- ☹️ Pipelines in water charged ground

# How much too investigate?

- ☹️ Discharge lines – approx 500mtrs from discharge point
- ☹️ Concrete or AC lines – as much as possible particularly when downstream of discharge mains
- ☹️ Under structures – as required
- ☹️ Water charged ground – whole catchment

# What does it cost?

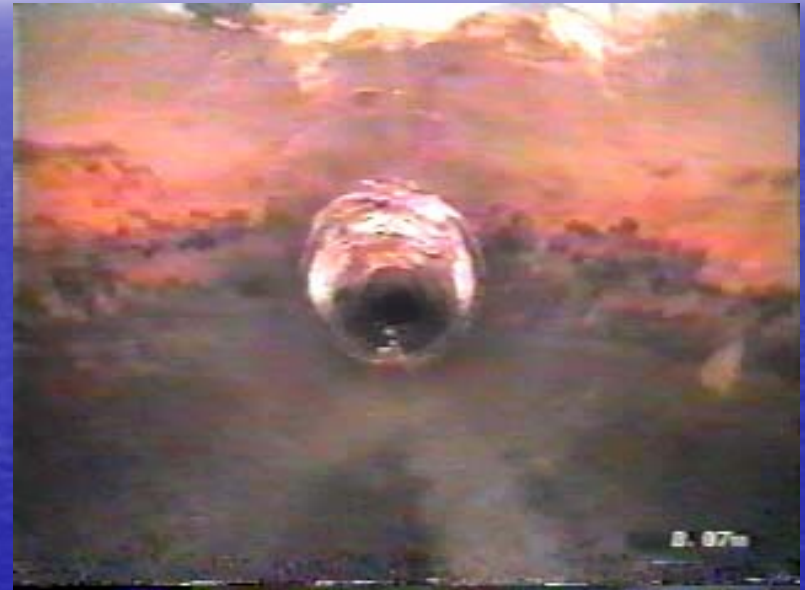
Straight CCTV Inspection –  
Approx \$3 p/m (starting price)

CCTV & Clean Inspection –  
Approx \$6p/m

# CCTV Only or Clean & CCTV


- 👍 CCTV only can result in large number of "survey abandoned" surveys due to blockages, roots etc
- 👍 Clean & CCTV gives more image and restores certain amount of serviceability
- ⌚ Jury is out on this one!


# Why spend money on CCTV?




**So you don't end up with pipelines looking like this!**

# Lifespan v Risk Assessment

 As asset owner/managers you have responsibility to maximise the asset lifespan but plan for replacement, rehabilitation before ultimate failure

 Programmed CCTV inspection can assist and prevent costly failures

Ultimate failure repair costs v  
programmed replacement/rehabilitation  
costs

 Replacement/rehabilitation of a failed pipeline can result in costs many times greater than programmed repair costs as shown on the following slides

# Complete Failure Replacement Costs

Brisbane Water –  
Jesmond Rd

600dia trunk sewer downstream  
of discharge manhole

Total failure resulting in a collapse  
of residential road

Large overflow of sewer into  
stormwater drain system

Emergency action required to  
repair pipeline



# Complete Failure Replacement Costs

## Cairns Water – Lake St

600dia trunk sewer downstream  
of discharge manhole

Total failure resulting in a collapse  
of residential road

Large overflow of sewer into  
stormwater drain system

Emergency action required to  
repair pipeline



# Complete Failure Replacement Costs

Brisbane Water –  
Jesmond Rd

Rate to clean severely  
deteriorated AC pipe, install Rib  
Loc liner – Approx \$900p/m

Brisbane Water paid for initial  
emergency clean up, installing  
road plates, traffic control for 2  
weeks

Cairns Water –  
Lake St

\$36,000 establishment costs  
Approx \$650p/m

Cairns Water paid for initial  
emergency clean up, traffic  
control




# Programmed replacement costs

Normal contract rates for relining 600 dia  
sewer is between  
\$470 and \$520 p/m

Establishment to Cairns is normally \$15,000

You can do the maths!

# Other examples of oops!

-  150mm VC sewer under a detached laundry in water charged sand allowed a cavity to form that eventually caved in causing severe damage to building – repair \$15,000 plus
-  375mm AC trunk sewer in backyard collapsed due to gas attack causing large blockage and surcharge into backyards, swimming pools and the stormwater drain system
-  225mm Concrete sewer downstream of rising main collapsed due to gas attack. Investigation revealed a void in excess of 12m<sup>3</sup>

# Proactive v Reactive

- ☹️ Pipeline collapse will on average cost \$20,000 (minimum) to repair compared to programmed replacement
- 😊 \$20,000 will CCTV over 3,000 mtr's of critical pipelines today and again in 5 years time (based on 5% increase pa)

# Do your pipes look like these?



# All is not lost!

☹️ Even with the best most proactive assessment program there are bound to be problems

😊 Don't fear, Interflows here!



# Expanda Pipe is the solution

- Expanda PipeFaster installation with no waiting for curing or heat treatment.
- Smaller support vehicles leading to less traffic disruption and the ability to reline where other systems cannot.
- Quiet – no noisy boilers.
- Possible installation under live flow conditions.
- Efficient circular cross section with constant wall thickness – no “ballooning” in unsupported areas.
- An ‘as new’ pipe from manhole to manhole.
- No shrinkage after installation.
- All the pipes on the previous slide have been relined using the Expanda Pipe system with no pre lining repairs