

# Stormwater pipe condition assessments – if only animals could talk

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# Introduction



- MBRC is an LGA in SEQ
- 3<sup>rd</sup> largest in Australia
- 2,037km<sup>2</sup> area
- 448,000 population increasing to 645,000 people in 2036
- 250,000 stormwater assets
- \$2 billion replacement value
- 2,400km pipe length (that's the driving distance from Brisbane to Hobart)

# Overview

- Inspection, renewal and maintenance programs
- Case studies
- Future direction including speed of inspection/review and inspecting submerged pipes
- Conclusions and recommendations
- Animals in CCTV





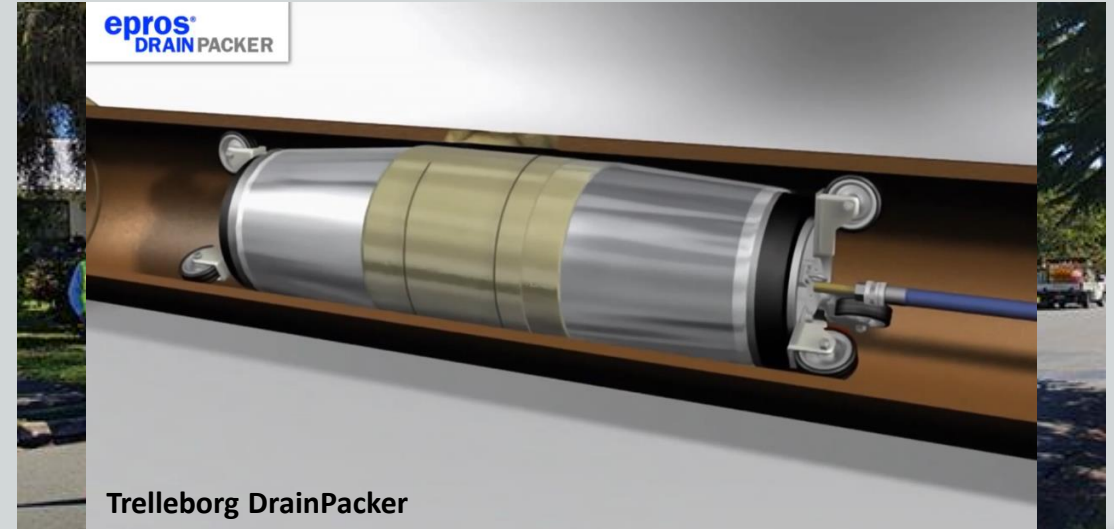
# Inspection Program

- Inspections – external and internal
- Staffing – operations and office
- Workload – customer, internal, catchment, capital, as constructed
- Data (2018) – 3.4% network inspected, 60% utilisation



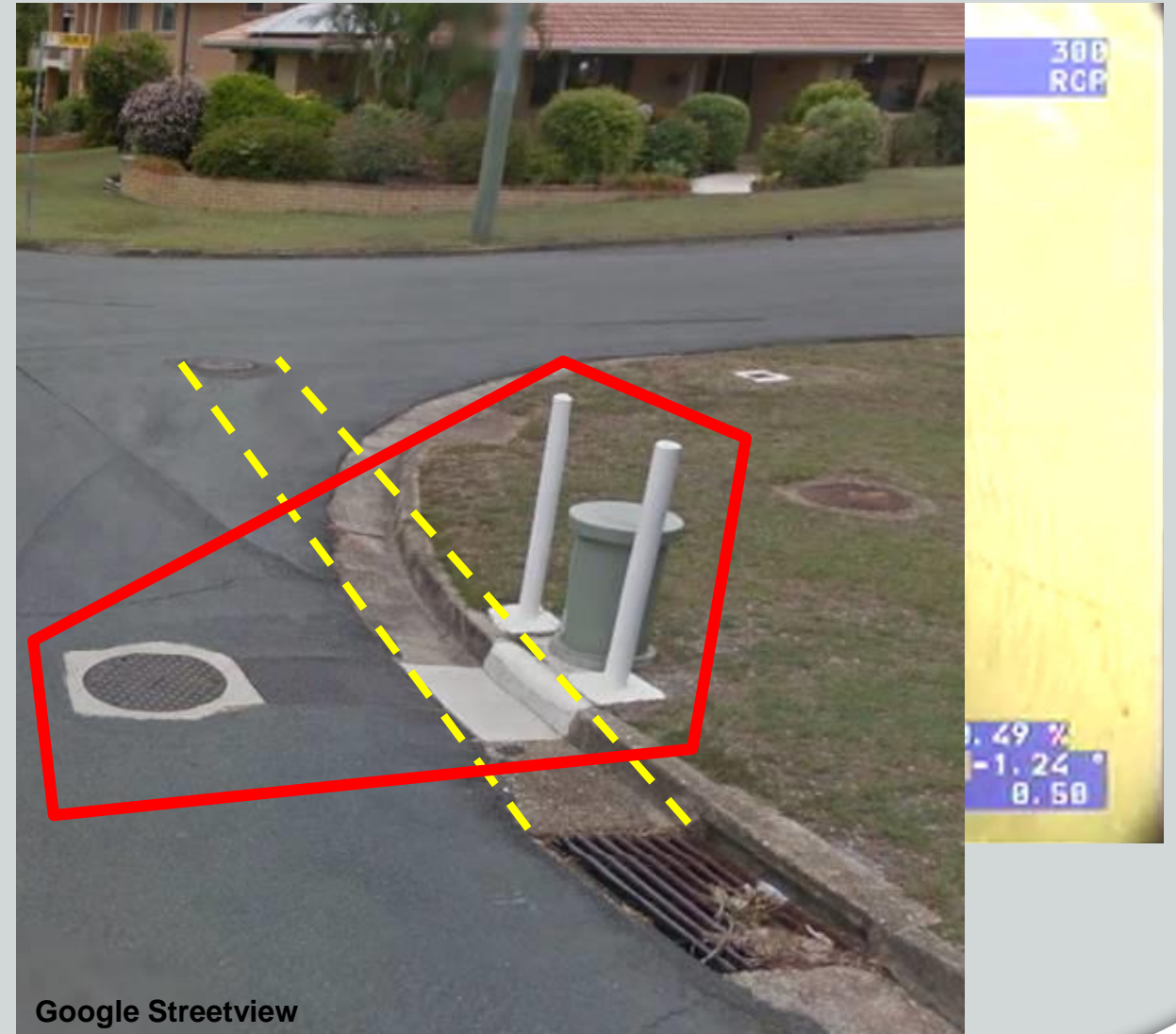
# Renewal and Maintenance Programs

- Budget – started at \$1M in 2015/16 increasing by \$250k per year
- Renewal projects – 15 to 25 per year
- Other projects – 15 to 20 per year
- Techniques – patching, relining, replacement
- Service conflicts
- Jetrodding trailer and truck



# Case Study 1: Clontarf Service Conflict Investigation

- Issue: Sewer vent pole connection built through stormwater pipe
- Outcome: Council are still working with Unitywater to get service relocated and stormwater pipe replaced





# Case Study 2: Elimbah Stormwater Network Renewal

- Issue: Two entire stormwater networks whose inverts had corroded away
- Outcome: Council replaced all 500m of FRC pipe with HDPE pipe (and imported fill)





# Case Study 3: Redcliffe Stormwater Network Investigation

- Issue: Collapsed pipe in a network that could not be located
- Outcome: Council plan to abandon this pipe at the upstream manhole and will monitor the location of the defect





# Case Study 4: Murrumba Downs Stormwater Pipe Renewal

- Issue: Large break in a pipe under a recent road rehabilitation
- Outcome: Council cut-back the concrete, patched the hole in the pipe and filled the void by core-drilling through the asphalt





# Case Study 5: Albany Creek Root Blockage Investigation

- Issue: Twin box culverts in private property blocked by tree roots
- Outcome: Council plan to remove the tree, install two manholes and remove the roots



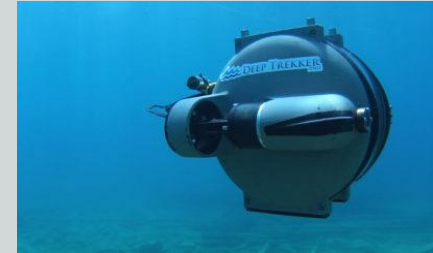
# Future Direction

## Speed of Inspections and Reviews

- Option 1
  - Prioritising inspections by pipe criticality
- Option 2
  - Using alternative technologies to prioritise detailed inspections
- Option 3
  - Incorporating Artificial Intelligence (AI) and Machine Learning

## Inspecting Submerged Pipes

- Option 1
  - Dewatering, Cleaning, CCTV Camera
- Option 2
  - Underwater Camera
- Option 3
  - Diver



Deep Trekker DTG3



SECA QuickView airHD, SoloPro Plus and iPEK Rovion



# Conclusions and Recommendations

- Asset Register
- Staff Training and Retention
- Inspection Techniques and Equipment
- Quality and Volume of Data
- Cause of Failures
- Coordinating with Other Projects and Organisations
- Renewal and Maintenance Budgets

# Animals in CCTV





# Animals in CCTV continued

