Condition Assessment of Critical Creek Crossing Main

Bribie Island Bridge Water Main
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## Critical Crossing Water Mains

| Unitywater has approximately 135 critical crossing water mains. | Cost of duplicating or renewing these mains is in excess of $40 million. | In order to understand the potential risk of failure of these mains, UW decided to undertake a comprehensive condition assessment of the top ten most critical water mains crossing water courses. | In order to undertake these inspections, we need to consider the most appropriate method of inspection i.e visual, destructive, thickness testing etc. and what the limitations may be of the various methods. | Due to very limited or no accessibility to these water mains traditional and current method of performing a condition assessment is not possible. |
Bribie Island Bridge Water Main

Out of this Top 10 List Bribie island bridge is highly recommended to trail using technology due to several factors:

- Old / Aged Assets (1982)
- High Pressure flow
- Difficult to Access
- Single source of water supply.
- No alternate supply
- Failure will affect the water supply to the whole Bribie

Critical Top 10 Creek Crossing Water Mains

<table>
<thead>
<tr>
<th>Asset ID</th>
<th>Asset Location</th>
<th>Asset Description</th>
<th>Total Length (m)</th>
<th>Flow Velocity</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>506647</td>
<td>North Pine (Proserpine Road)</td>
<td>914 mm MS (1984)</td>
<td>2110</td>
<td>Flow 30 to 155 L/s, Velocity 0.15 to 0.75 m/s</td>
<td>Pressure 60 to 100m</td>
</tr>
<tr>
<td>2001161</td>
<td>Bli Bli (David Low Way)</td>
<td>800 mm MS (1987)</td>
<td>186</td>
<td>Flow 120 to 365 L/s, Velocity 0.2 to 1.15 m/s</td>
<td>Pressure 70 to 130m</td>
</tr>
<tr>
<td>2078170</td>
<td>Houghton Highway trunk water main</td>
<td>610 mm MS (1958)</td>
<td>570</td>
<td>Flow 30 to 155 L/s, Velocity 0.15 to 0.65 m/s</td>
<td>Pressure 62 to 95m</td>
</tr>
<tr>
<td>5064914</td>
<td>South Pine</td>
<td>610 mm MS (1983)</td>
<td>118</td>
<td>Flow 0 to 50 L/s, Velocity 0 to 1 m/s</td>
<td>Pressure 38 to 60m</td>
</tr>
<tr>
<td>3209112</td>
<td>Brighton to Glentaft</td>
<td>500 mm DI (2012)</td>
<td>2750</td>
<td>Flow 0 to 95 L/s, Velocity 0 to 0.9 m/s</td>
<td>Pressure 50 to 55m</td>
</tr>
<tr>
<td>2071912</td>
<td>Bribie Island Bridge</td>
<td>508 mm MS (1982)</td>
<td>387</td>
<td>Flow 0 to 170 L/s, Velocity 0.15 to 0.65 m/s</td>
<td>Pressure 55 to 120m</td>
</tr>
<tr>
<td>2015129</td>
<td>Currimundi</td>
<td>406 mm MS (1996)</td>
<td>100</td>
<td>Flow 40 to 155 L/s, Velocity 0.4 to 0.75 m/s</td>
<td>Pressure 42 to 49m</td>
</tr>
<tr>
<td>2008061</td>
<td>Kunda Park – Eudlo Creek</td>
<td>500 mm DI (1982)</td>
<td>14</td>
<td>Flow 116 to 355 L/s, Velocity 0.55 to 1.65 m/s</td>
<td>Pressure 85 to 120m</td>
</tr>
<tr>
<td>2014589</td>
<td>Eerlie Creek Road (Lake Weyba, Sunshine Beach)</td>
<td>450 mm DI (1990)</td>
<td>447</td>
<td>Flow 7.6 to 125 L/s, Velocity 0.04 to 0.72/m</td>
<td>Pressure 125 to 140m</td>
</tr>
<tr>
<td>5033532</td>
<td>Bruce Highway (Caboolture River)</td>
<td>450 mm DI (2008)</td>
<td>77</td>
<td>Flow 85 to 230 L/s, Velocity 0.45 to 1.45 m/s</td>
<td>Pressure 40 to 45m</td>
</tr>
<tr>
<td>5001305</td>
<td>Al Wylie Bridge Gympie Road, Lawnton</td>
<td>419 mm MS (2013)</td>
<td>56</td>
<td>Flow 14 to 66 L/s, Velocity 0.14 to 0.74 m/s</td>
<td>Pressure 40 to 60m</td>
</tr>
</tbody>
</table>
Unitywater went out to the market to find out the suitable technology to do a condition assessment.

Sahara technology

- Internal pipe assessment tool for water and sewage mains.
- Detects leaks and performs pipe condition assessments

ARUP Panaromic and Marq

- External Pipe assessment tool.
- Virtual walk through along the difficult to access pipeline
Project Planning

- Insertion Point / tapping point for Sahara
- Operation requirement to maintain flowrate
- Contingency plan
- TMR Permit
- Traffic Control on the day of inspection
- 3 day allowance (Considering Weather and other factors)
Sahara Trial

Project Photos
Lesson Learnt

What Went well?

What did not go well?

What needs to change?

What was learned about the project in general?
Thank you!