

Water and Wastewater Asset Renewals

1. Background on Asset Renewal Programmes:

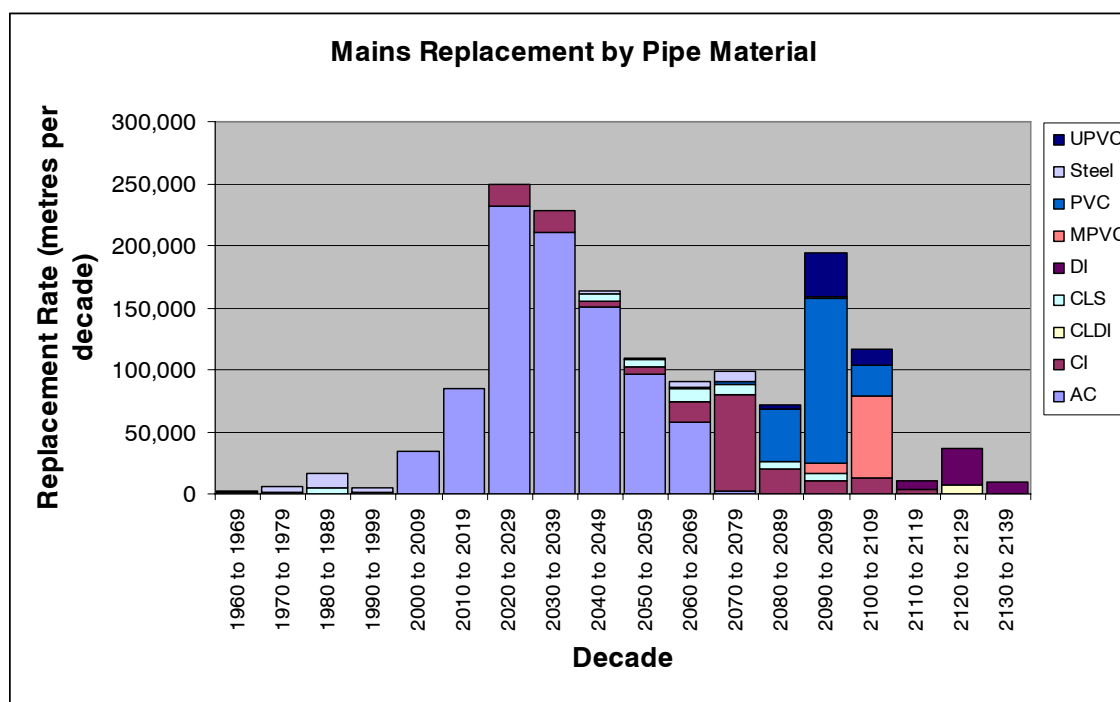
The Water Supply and Wastewater Asset Management Plans (AMPs), both include an assessment of future requirements for renewals of each asset class. These assessments include consideration of installation date, expected life, economics (replacement compared with ongoing maintenance costs), consideration of impact on other infrastructure (e.g. roads, other utilities) and community (Levels of Service).

The two charts below show the assessed future renewal rates for water supply mains and wastewater sewer pipes. Other assets (Pumps, buildings, electrical switchboards, wells etc) have been similarly analysed and incorporated into the draft 06-16 LTCCP renewal and replacement programmes.

Although the renewal profile differs for each asset group, the underlying fundamental is that much of the cities infrastructure was installed in the 1950s, 1960s, and 1970s. Thus many assets with moderate life expectancy (e.g. pumps, electrics) are presently well into their first generation of renewals, while long life assets (pipes, wells buildings) are early in their renewal cycle and renewals will need to increase significantly in the future years to maintain levels of current service through integrity of the underground assets.

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2. Water Supply - Main Renewal Programme



Key points to note about this programme and graph above:

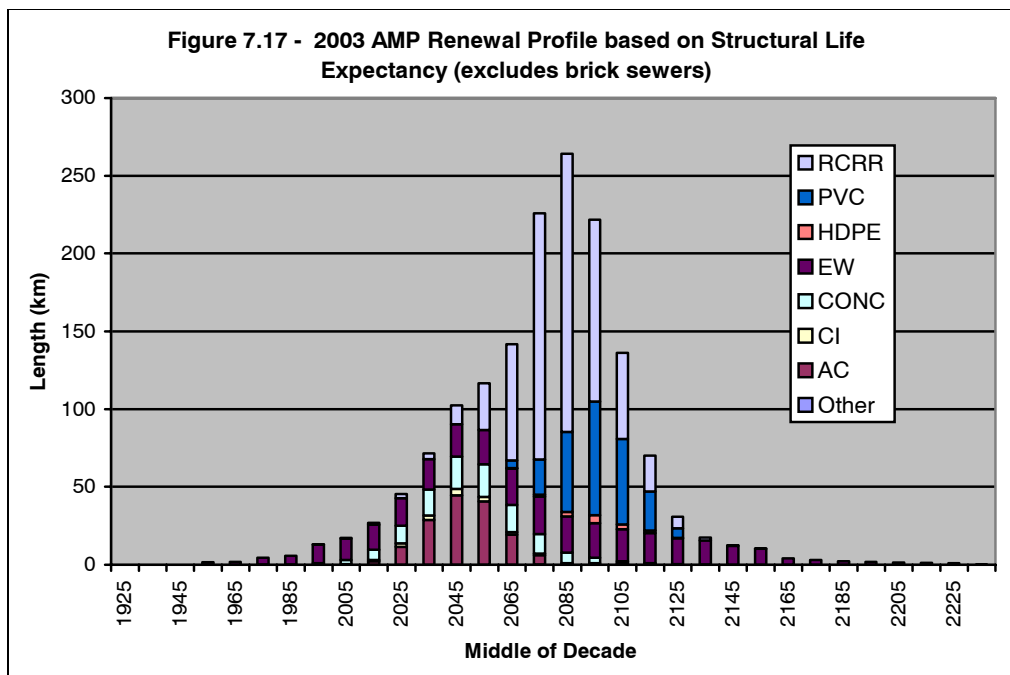
- Bar chart of renewal needs does not include allowances for opportunities/ needs for early renewal (e.g. capacity for growth, roading programme etc).
- AMP assessment is 8 km per annum rising to 10 km in 2 years time and then up 25 km from 2020 onward (estimated at \$18 m pa).
- 06-16 LTCCP draft presently allows for 8 km (\$1.85m) pa rising to 10 km in 2 years.
- Pressure on programme now due to increasing number of AC fibrolite pipe failures. Delay in renewal programme will further increase upcoming bow wave.
- Asset project currently underway (in 2006) to look at how bow wave will be managed in future LTCCP's taking account of capacity in market, streets renewal programmes, role of technology in programme.
- Impact of reducing renewals will increase maintenance costs due to more blow outs, potential system contamination (impact on water grading/compliance with DWSNZ by MoH), increased water loss in networks, momentum of programme will be lost and programme will become unmanageable in future decades.
- **Conclusion:** LTCCP funding should remain as per draft (8 km for 2006/07 and 2007/08)

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3. Water Supply Sub main Renewal Programme

- AMP assessment is 15 km per annum for the next 2 years then reducing to 10 km in 2009/10 and then to 5 km in 2012/13
- LTCCP draft presently allows funding for the AMP assessment.
- Present programme is relatively easily catering for demand for work.
- There is a slight risk that maintenance costs will increase on Submains as a result of slowing renewal for two years. Risk considered small.
- **Conclusion:** LTCCP funding can be reduced by \$240,000 (to \$960,000 for 12 km) for 2006/07 and 2007/08. thereafter remain as projected

4. Wastewater Pipe Renewal Programme



Key points to note about this programme and graph above:

- Renewal needs does not include allowances for opportunities / needs for early renewal (e.g. capacity for growth, roading programme etc).
- AMP assessment is 3.2 km per annum rising to 4.2 km in 5 years time.
- LTCCP draft presently reflects AMP assessment
- Programme is not presently under a lot of pressure to maintain LoS however no renewal programme for sewer laterals exists. AM team evaluating impact of incorporating lateral renewal into sewer renewal programme.

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- Risks in renewal programme for gravity and pressure sewers are different. Full condition analysis is yet to be fully evaluated in long term programme.
- Impact risk of reducing renewal programme includes increase in pipe collapses (leads to road damage as well) and un-consented discharges/overflows (and associated health issues), increase in infiltration which will utilise hydraulic capacity in network and lead to breach of consent conditions.
- **Conclusion:** LTCCP funding is sound given probable inclusion of lateral renewal requirement.

5. Water Supply Wells

- AMP assessment is for 1 well replacement per year
- LTCCP (draft) allows for this (typically \$400,000 pa)
- Programme is presently struggling to maintain LoS as old wells deteriorate.
- Drinking water Standards and associated definitions of secure and non-secure water could place additional pressure on Well Renewal/replacement programme.
- demand, potential water quality problems and potential issues in grading of the cities water supply.
- **Conclusion:** Well renewal funding should remain as in draft 06-16 LTCCP.

6. Increased Maintenance Costs from Growth

A few key points to remember with growth of the city's water and wastewater infrastructure are:

- Last four years we have been connecting approximately 2200 new premises per annum.
- AMP predicts \$ 21 m in new infrastructure will be vested in city in next 18 years. We have been seeing this sort of vesting of assets to the city by developers.
- We have new mechanical and electrical plant coming on line. This all requires maintenance even during the warranty period (usually 12 months). Maintenance costs at 2.5% of the capital value of the plant is an average industry benchmark. The new Ocean Outfall will have a predicted maintenance and inspection budget of around \$ 50,000 per annum when it comes on line! This is just one of several large new assets due to come on line in next LTCCP.

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