Te Whanganui-o-Tara Whaitua Committee Wastewater Issues Overview

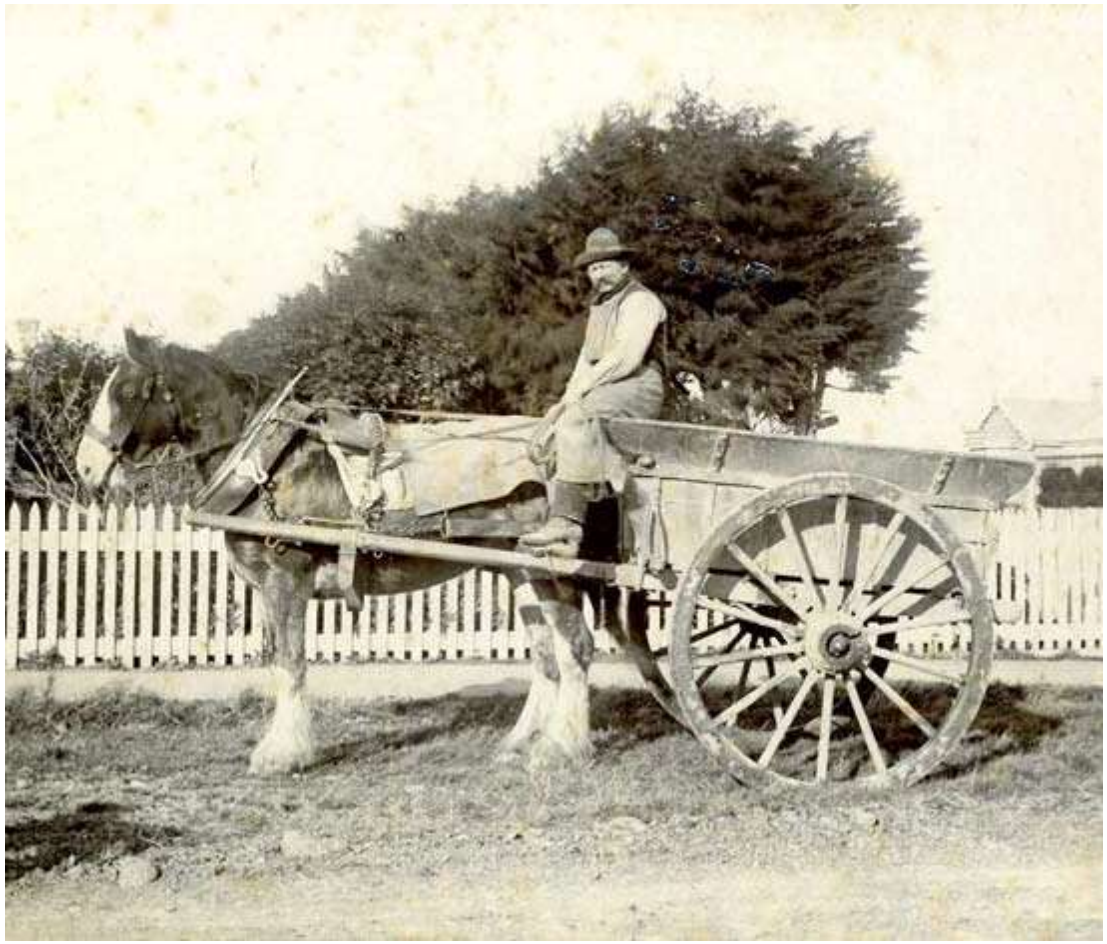
Steve Hutchison – Chief Advisor Wastewater

Wellington Water

Our water, our future.

History

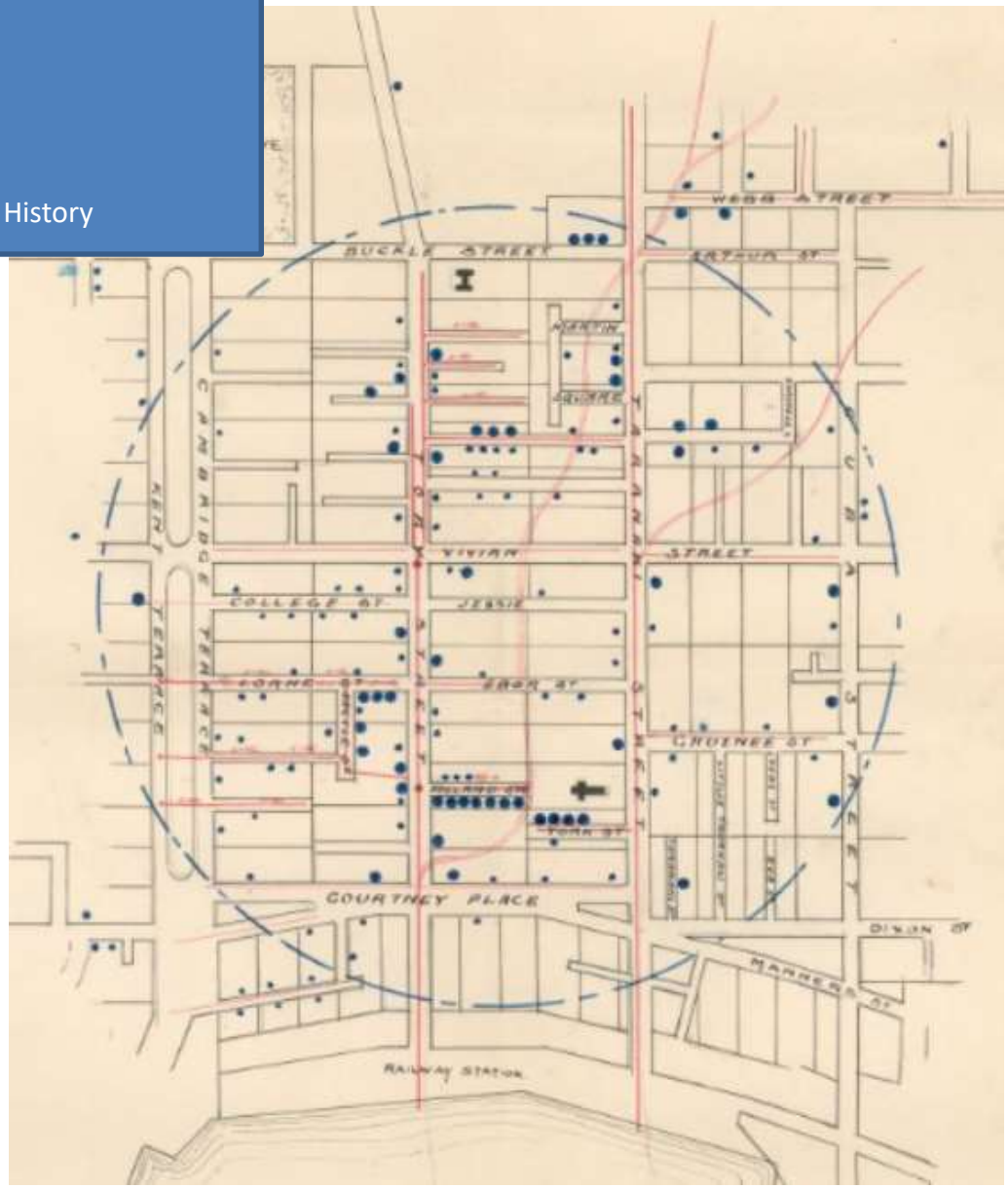
Wellington and Public Health



Night-man night-soil collection Dunedin, 1912
Otago Settlers Museum Ref 1989/268/13

- **1840** – Wellington European settlement commenced – first ship of 150 settlers - 'Aurora'
- **1841** – population 3,227 most waste to cesspits
- **1865** –Wellington becomes NZ Capital. Sewage washed into grounds from surrounding streets
- **1870** – no well water was safe to drink
- **1872** – NZ Public Health Act – sewerage systems required - cesspits banned
- **1875** – John Plimmer and other businessman strongly opposed to sewers and high cost of scheme
- **1876** – Population 10,956. Mortality of 26.01 per 1000 per year

History



Wellington Typhoid outbreak 1892

Wellington City Archives (Ref 00233:84:1892/740 Typhoid Map

- **1878** – First sewer scheme developed by W.Clark (£145,000) – 25% combined – 1 inch rainfall
- **1880** – population 20,000 – night soil collection
- **1888** – Shone pneumatic ejector system proposed (H.P Higginson).
- **1890** – 77 deaths linked to sewage soaked backyards. Drainage Commission appointed by Wellington Council - consisting of Engineers E. Cuthbert and W Ferguson. Scheme recommended.
- **1893** – Sewerage scheme construction started
- **1899** – Sewer network largely completed at a cost of £175,000
- **1901** – population 50,000 -

Our wastewater network

Our homes

Private laterals

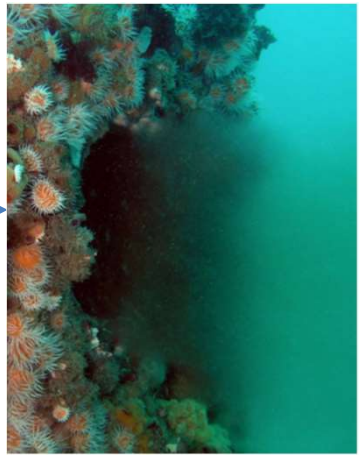
Council mains

Business and trade waste

Pumping stations

Reticulation network 2400 km

Treatment plants



Coastal discharge

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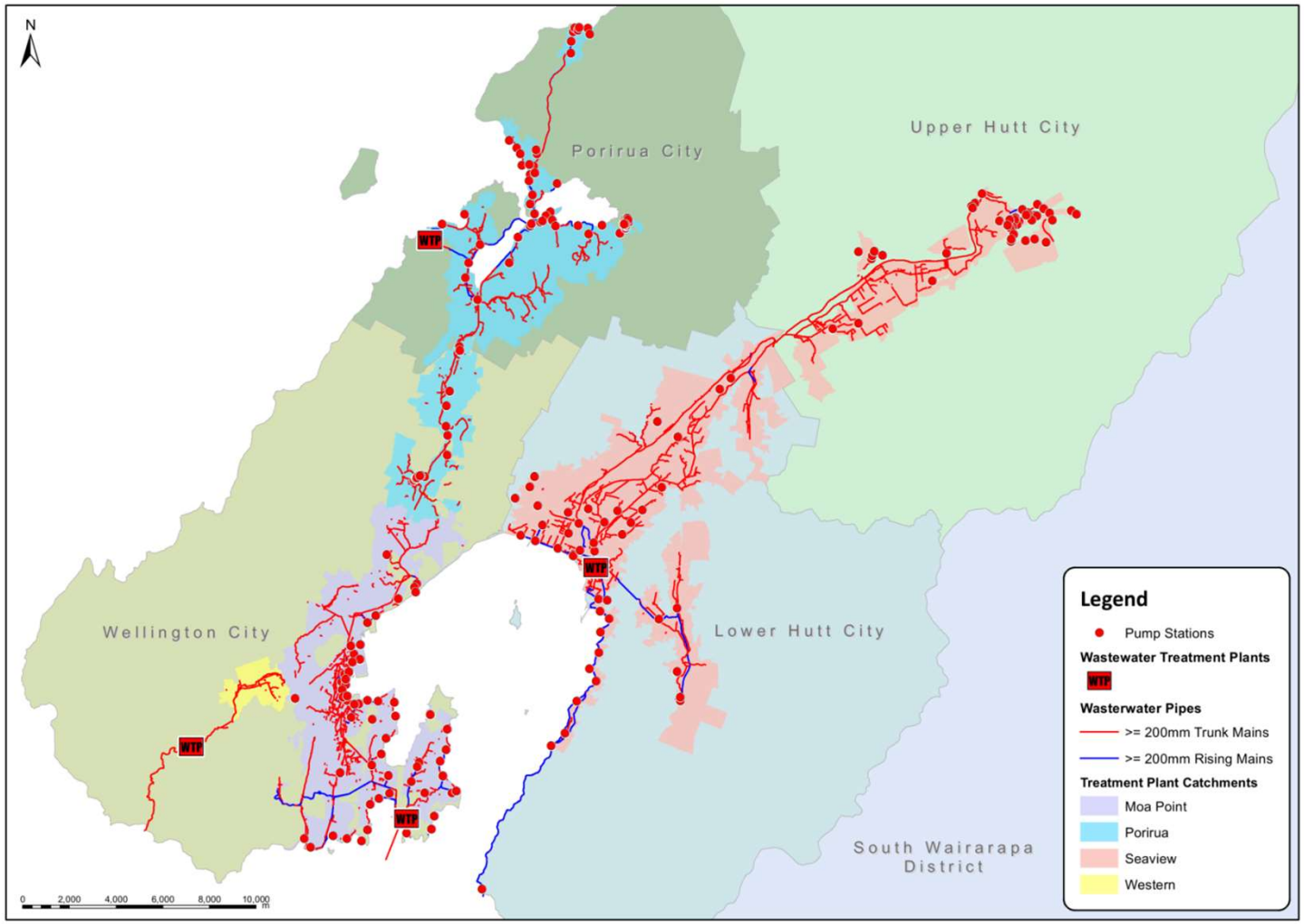
Network layout



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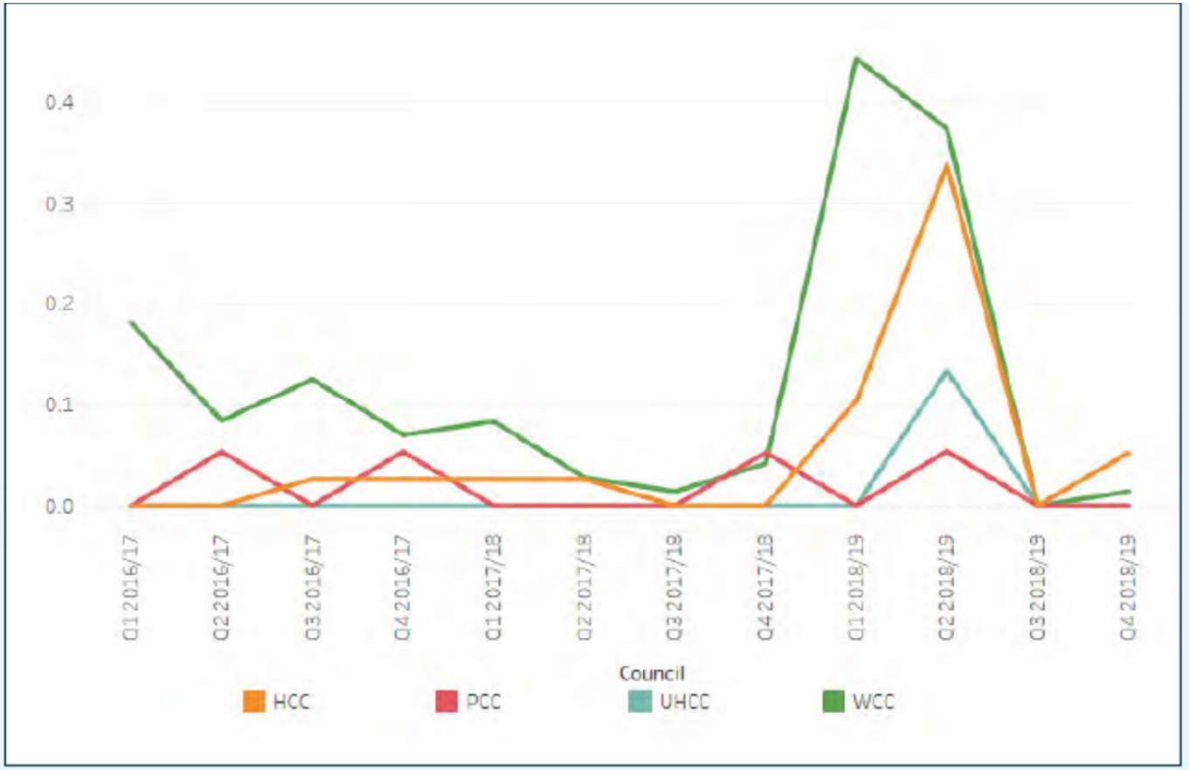
Wastewater components

- Currently 420,000 population
- Average 150 million litres wastewater daily
  - 50-60 tonnes faecal matter
  - 500,000 litres urine
  - Trade Waste
  - Groundwater infiltration
  - Mostly “greywater”
- Other solids / fats / rubbish

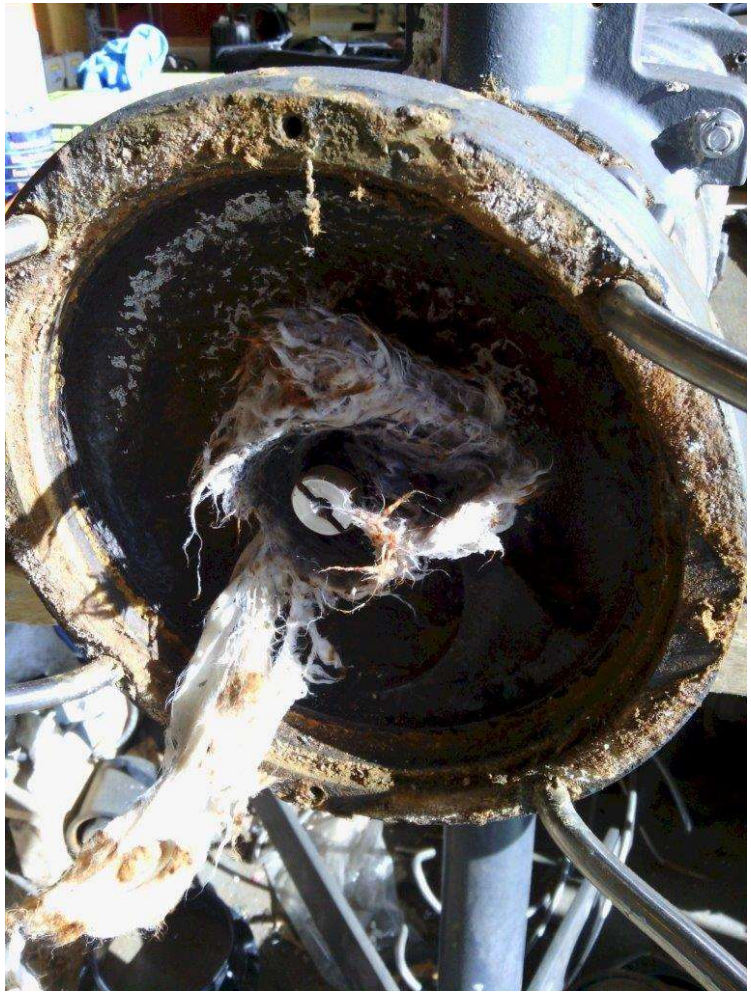
Challenge 1 - Dry weather blockages

Wastewater overflows (dry weather)

Eliminating dry-weather overflows continues to be a challenge. No dry weather overflows occurred in quarter three, however we will not achieve the target for year-end due to blockages in quarter one and two.



Wet wipe blockages



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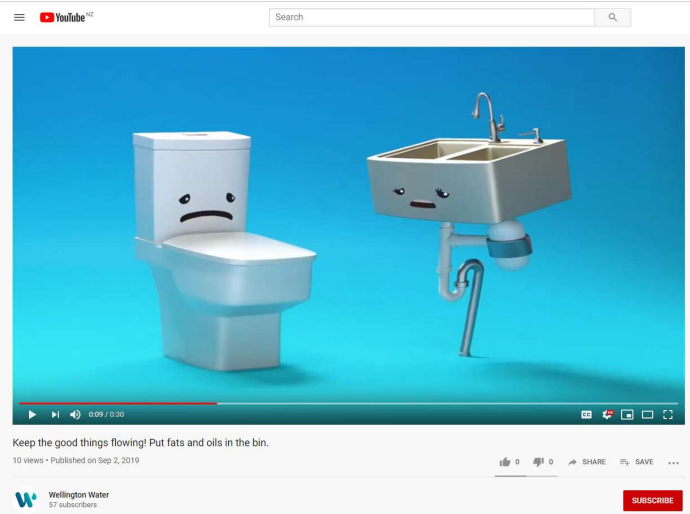
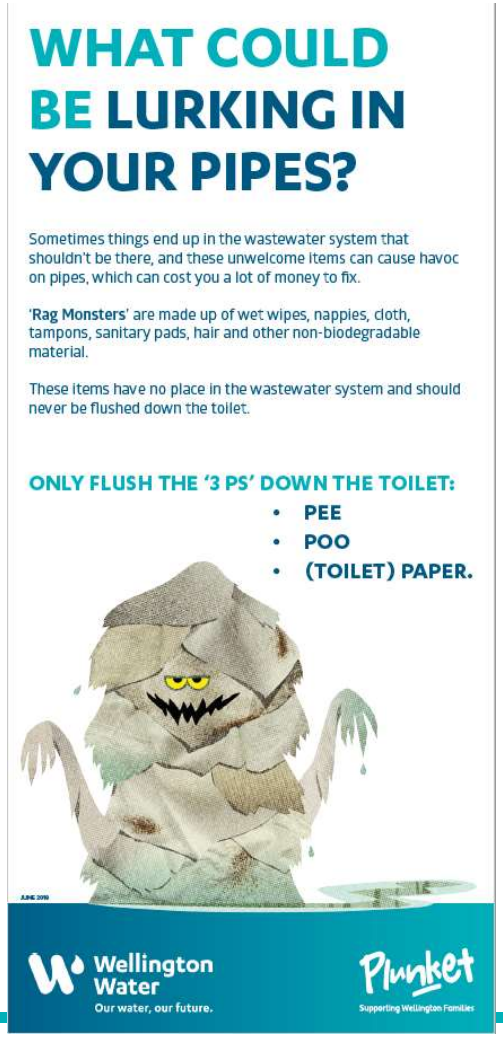
Public education campaigns



https://www.youtube.com/watch?v=omCOYw3C9lw



Challenge 2 – Leaks and overflows

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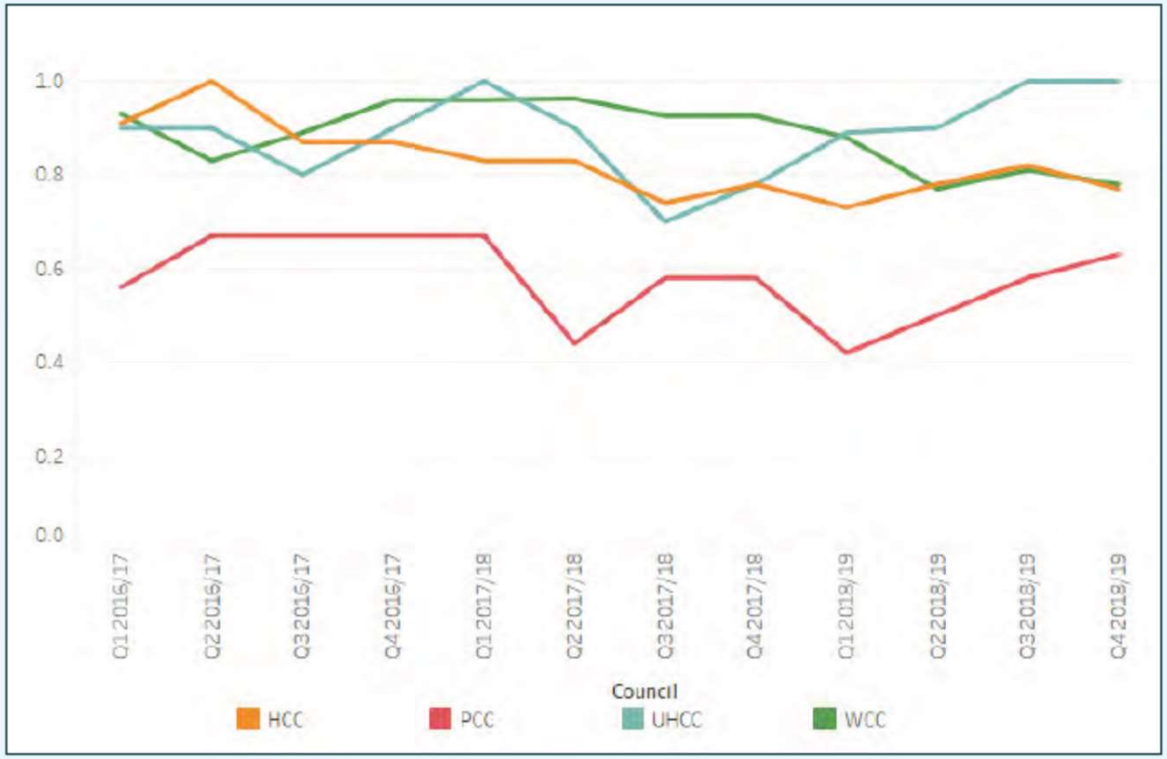
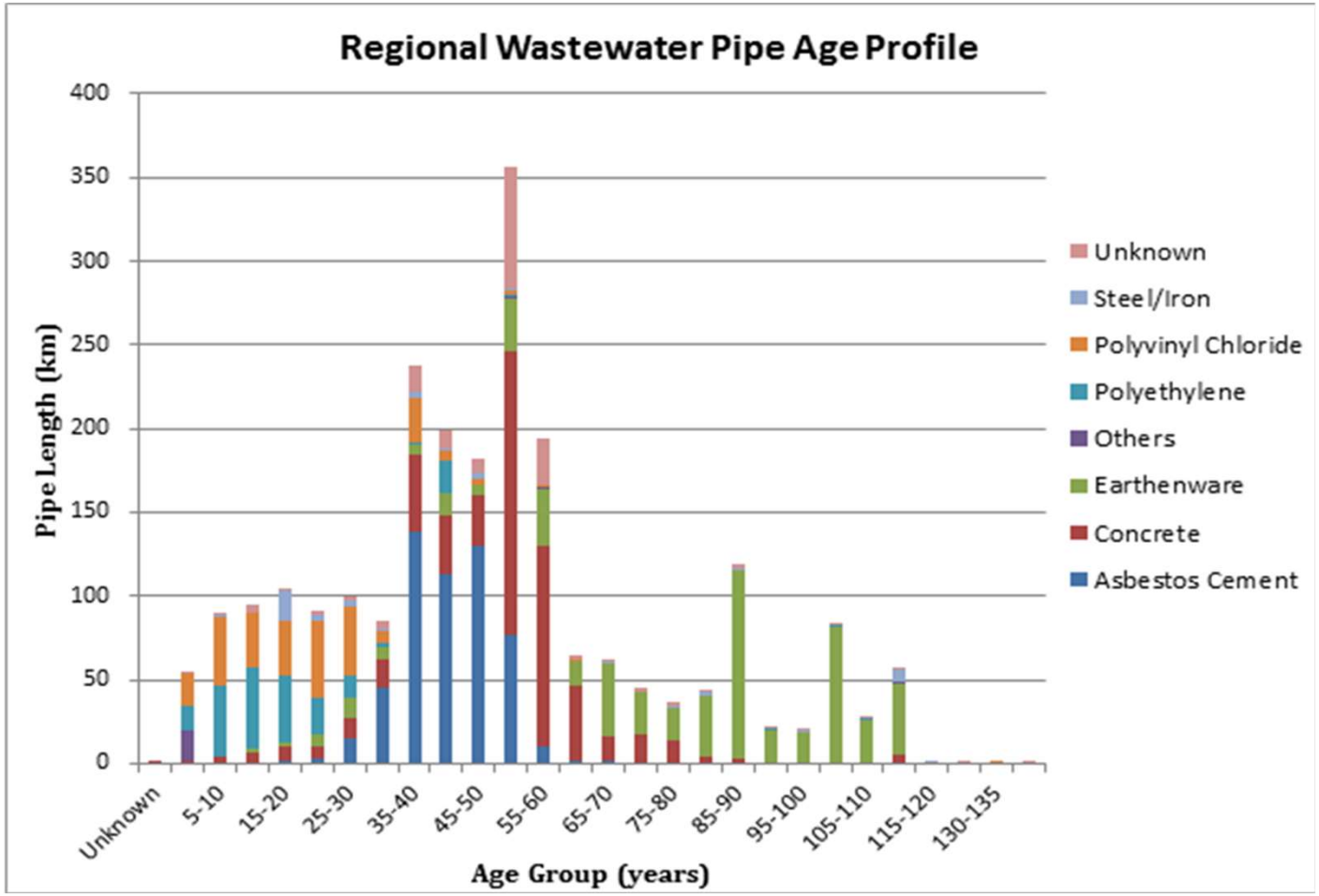
Freshwater quality

Target: 90 per cent of all freshwater sites have a rolling 12 month median < or + 1000 colony forming units (cfu)/100ml.

We currently monitor freshwater sites and beaches. Some of these sites exceed pollution target levels. This is a long-term ongoing initiative to identify and remove sources of pollution. Test results from freshwater monitoring sites have shown a decline in water quality over the last 12 months.

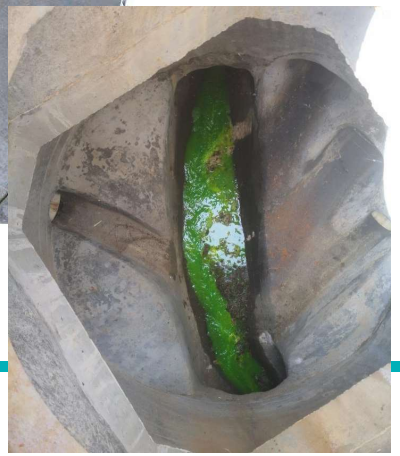


The wastewater pipe network



Inflow & Infiltration

- 10% fault rate



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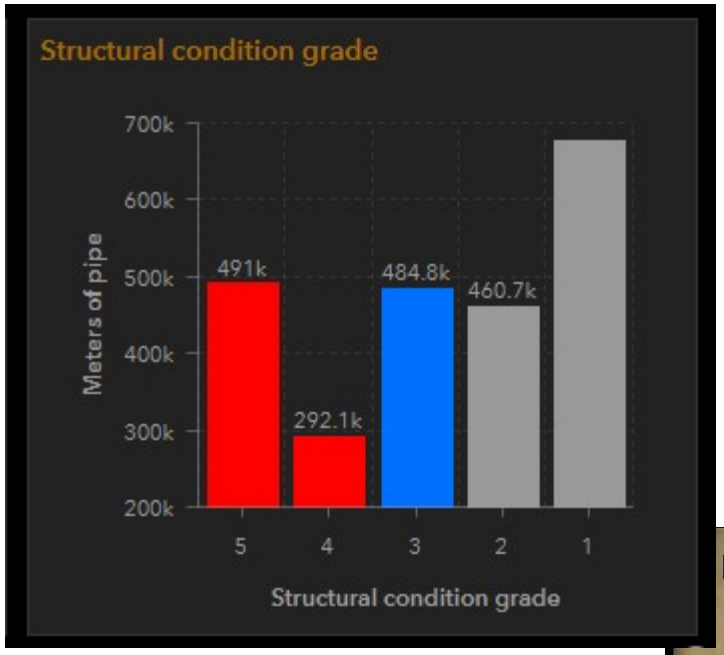
Network faults – CCTV inspection



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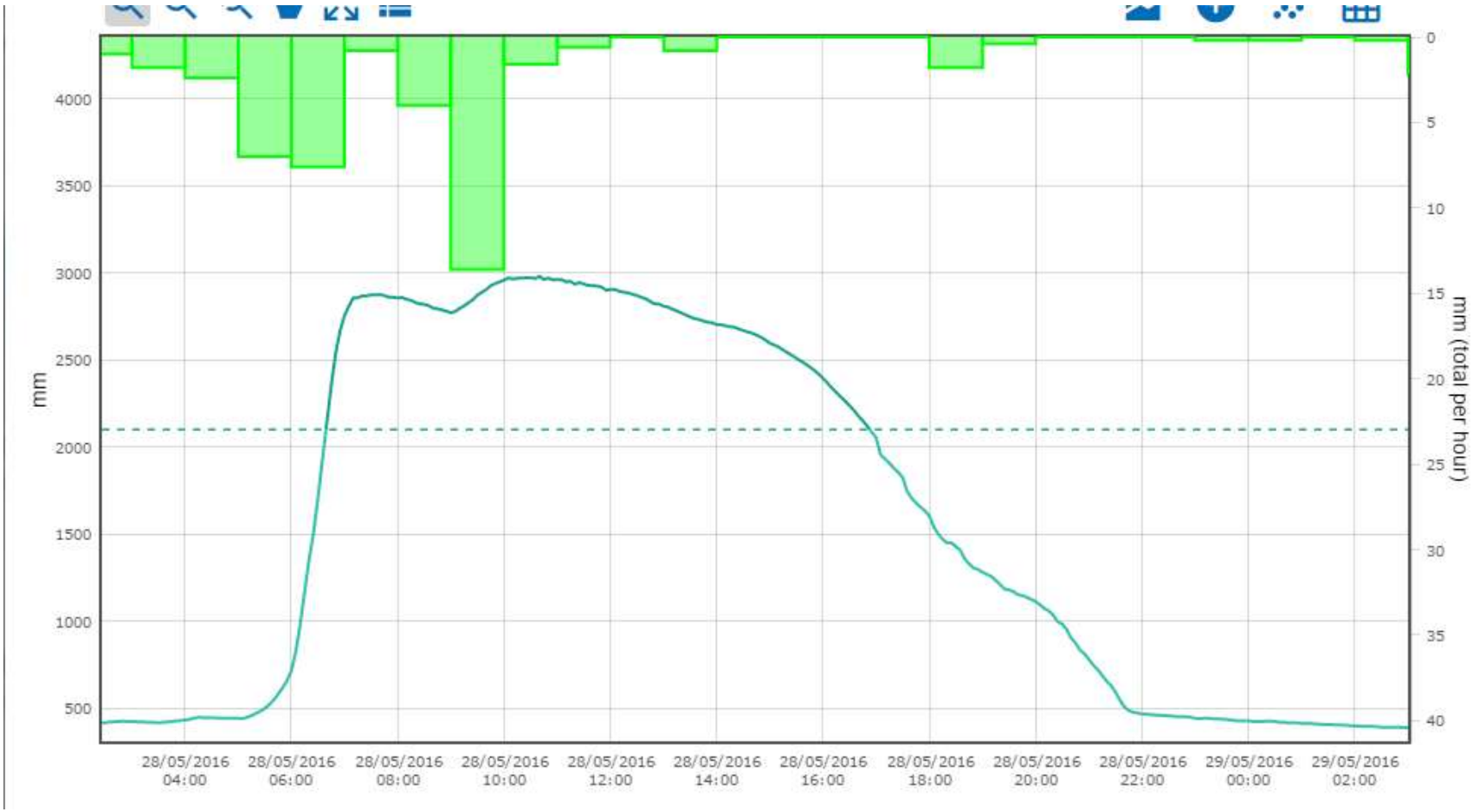
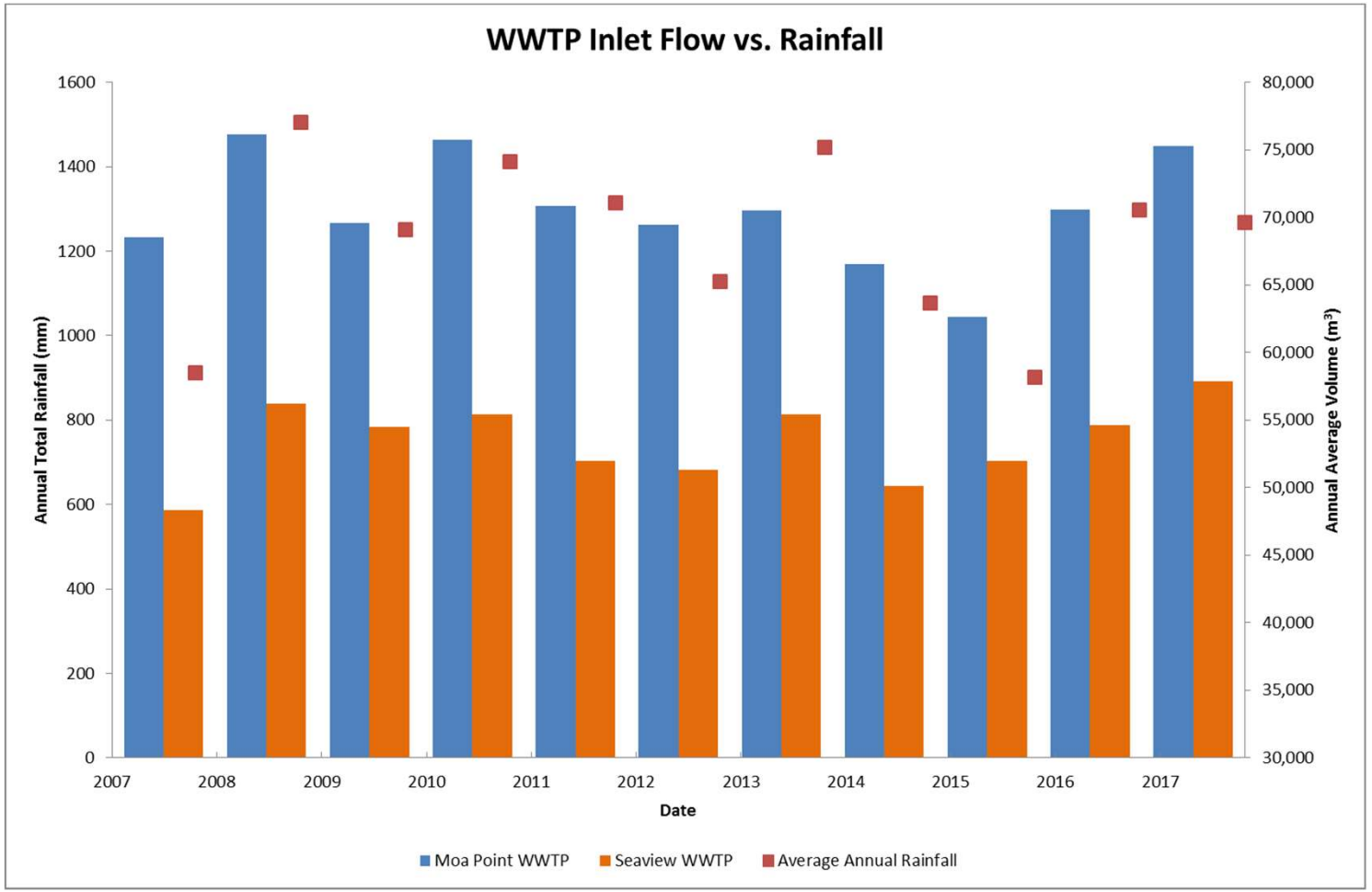
Example of storm event



Rainfall impact on wastewater flows



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Overflow overview

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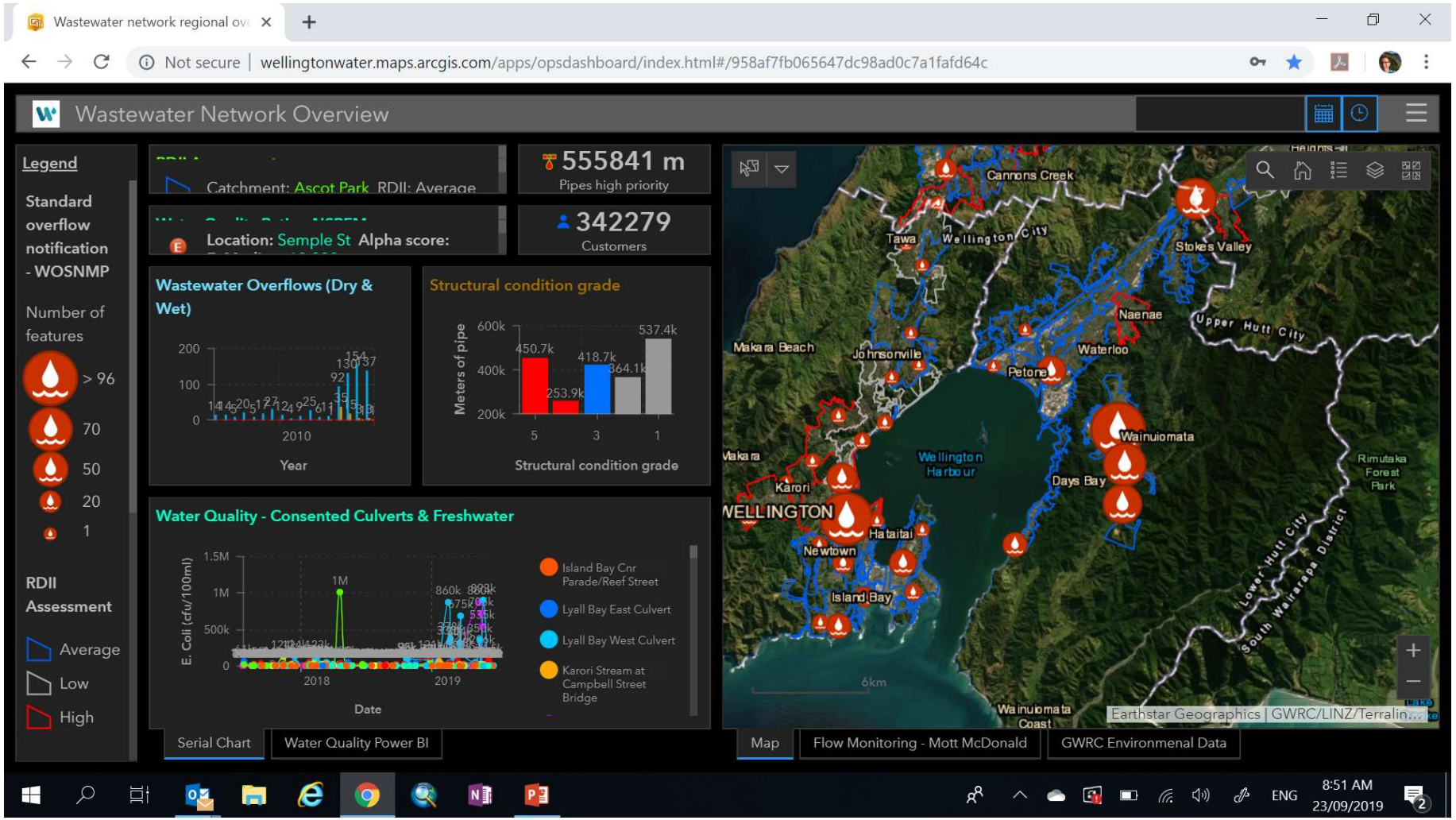

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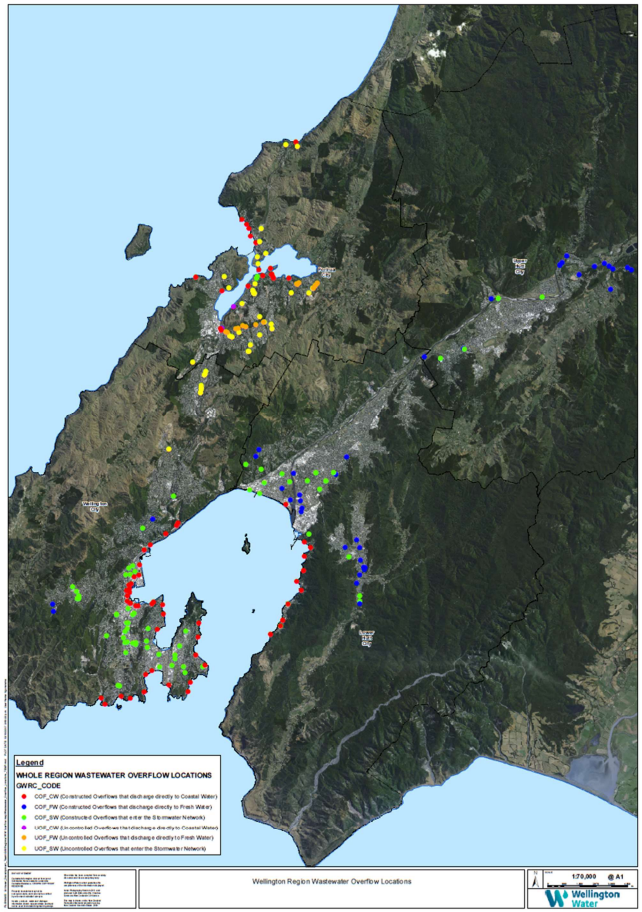
Reducing network impacts

1. Increasing capacity
2. Improving condition
3. Reducing infiltration



Challenge 3 - Wastewater treatment

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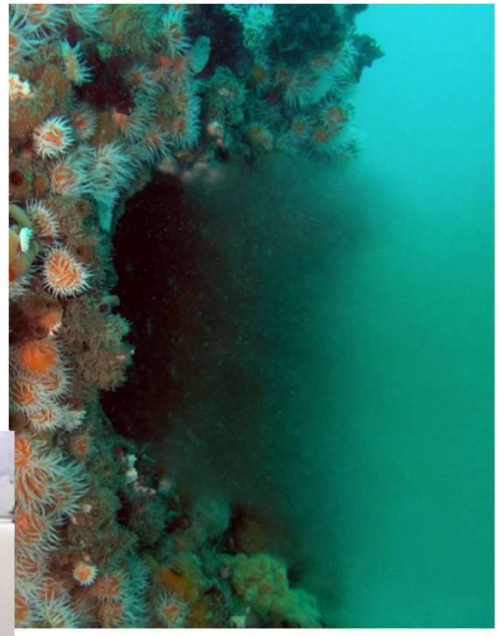

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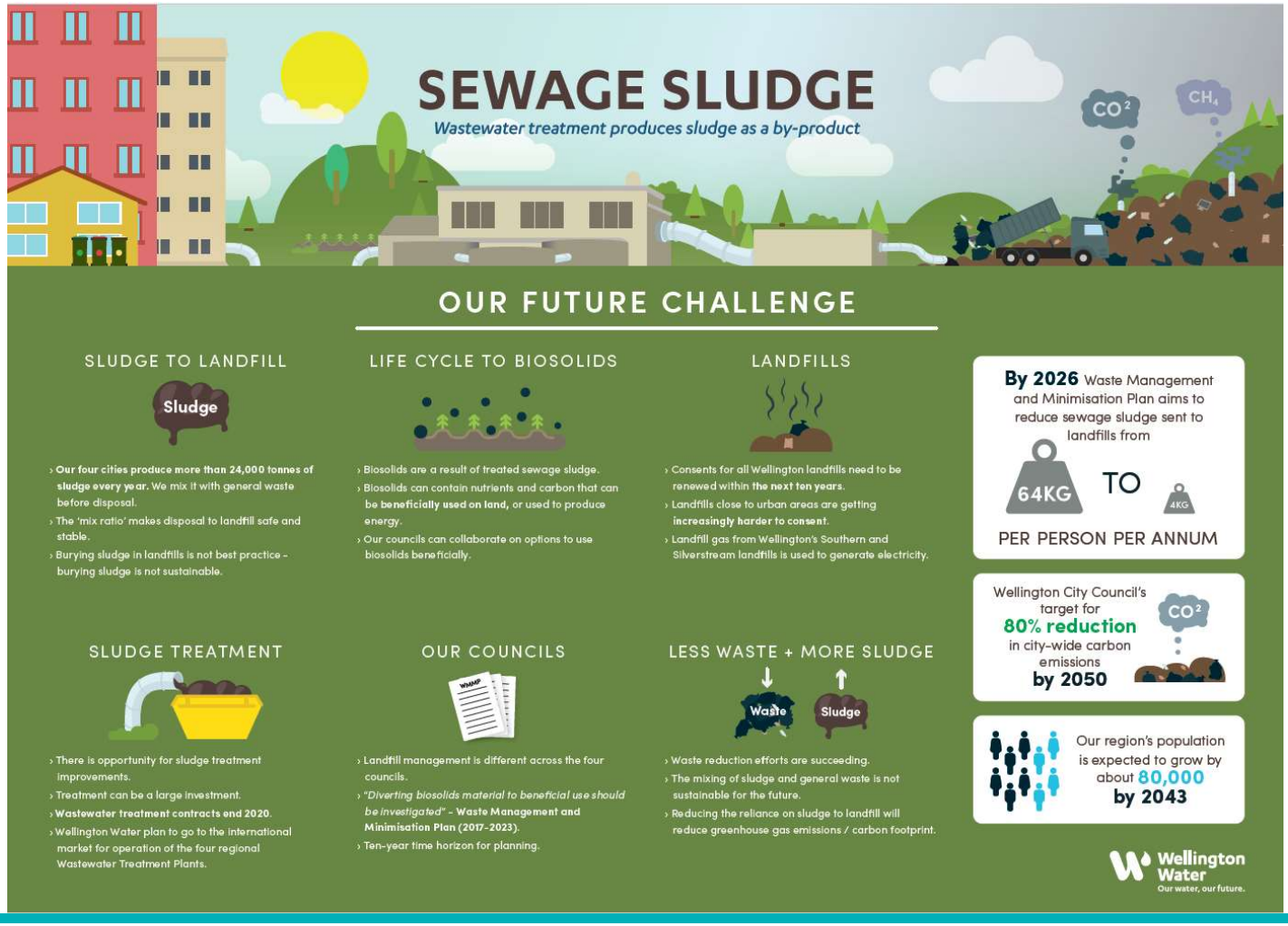
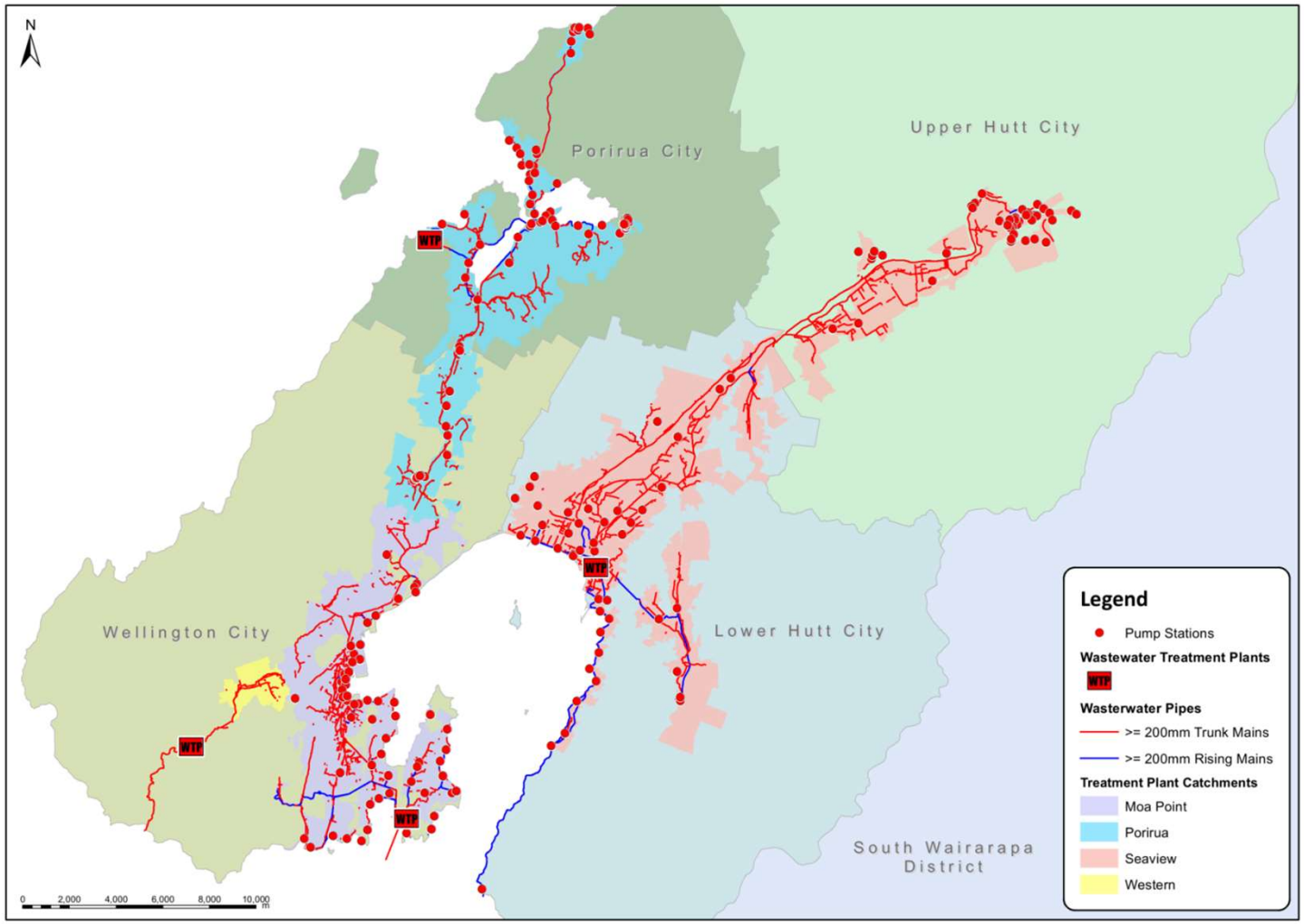
Sludge generation



Questions



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