

Porirua Wastewater Master Plan – Whaitua Committee discussion



Your public water company

Purpose



- To provide an update on the Stage 2 Master Plan work
- To seek input on potential improvement options and solution development

Structure

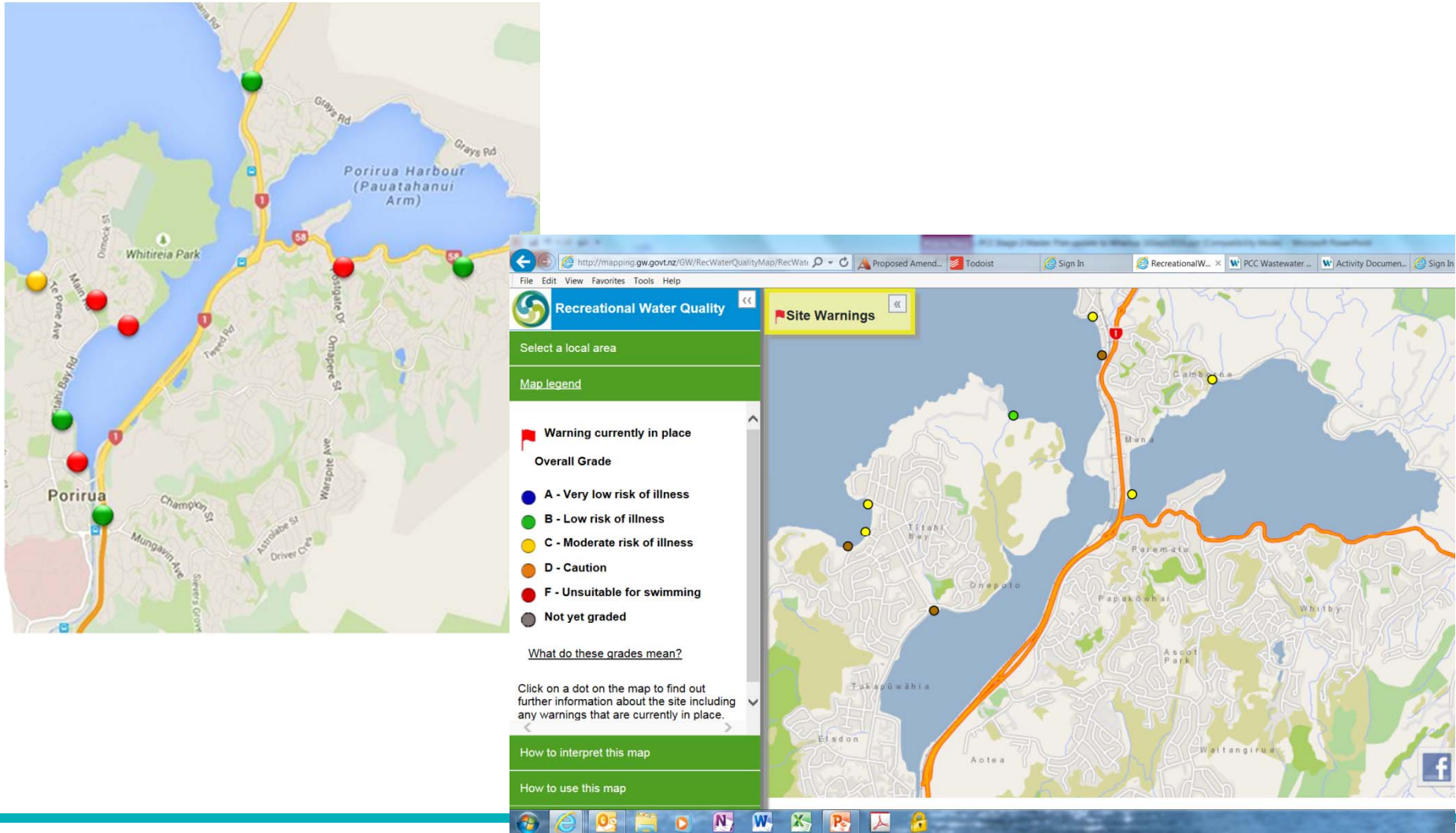


1. Water quality issues from wastewater
2. High Level Master Plan
3. Inflow and Infiltration issues
4. Growth
5. Stage 2 Master Plan findings to date
6. Improvement options
7. Solution design – levels of service
8. Next steps

Wastewater effects on water quality

- Dry weather pollution
 - Illegal cross connections
 - Cracked or leaking pipes
 - Wet weather overflows
 - System designed for 4 x ADWF
 - Inflow and infiltration can exceed capacity
 - Porirua system has limited spare capacity
 - Differences in receiving environments
 - Streams / Harbour / Coastal
-

Water Quality Monitoring

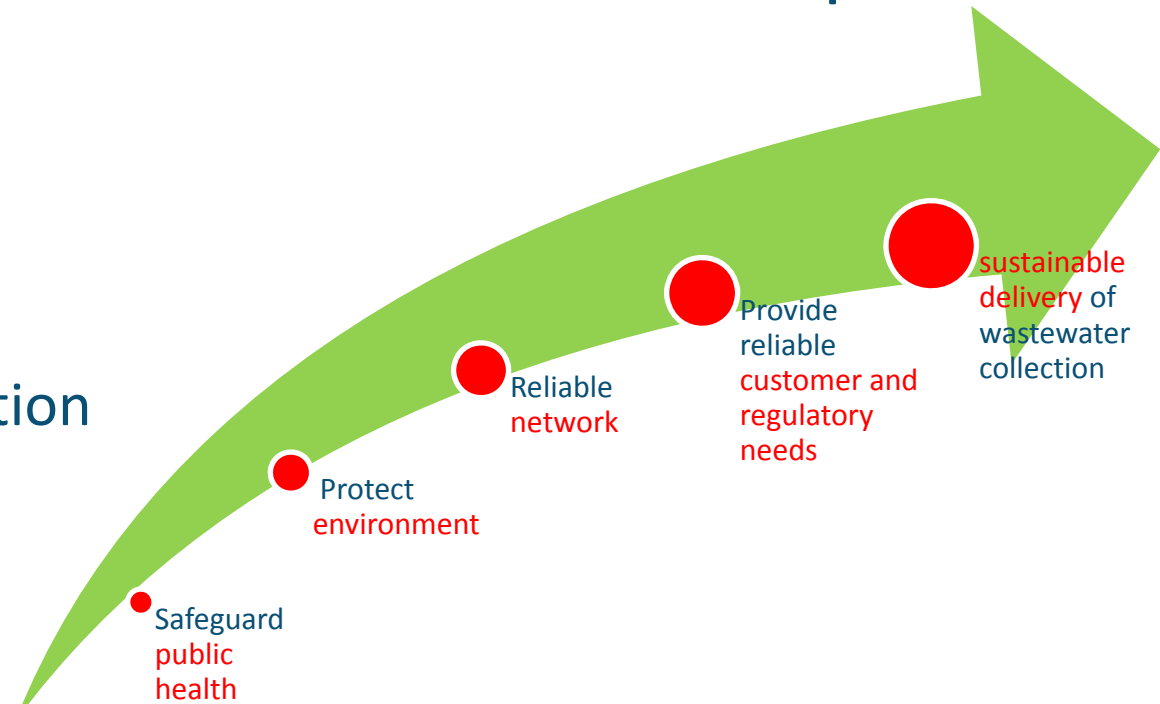


Our water, our future.

Master Plan



- Guidance for wastewater asset development
- Objectives
- Challenges:
 - Growth
 - Inflow / Infiltration
 - Capacity
- Council LTP
- Level of Service



Our water, our future.

Porirua W



Initial High Level Master Plan



- Three flow monitors
- High level model developed
- Key Inflow + Infiltration areas identified
- Initial conceptual options developed
- Further modelling + calibration recommended:
 - Stage 2 Master Plan 2015-17

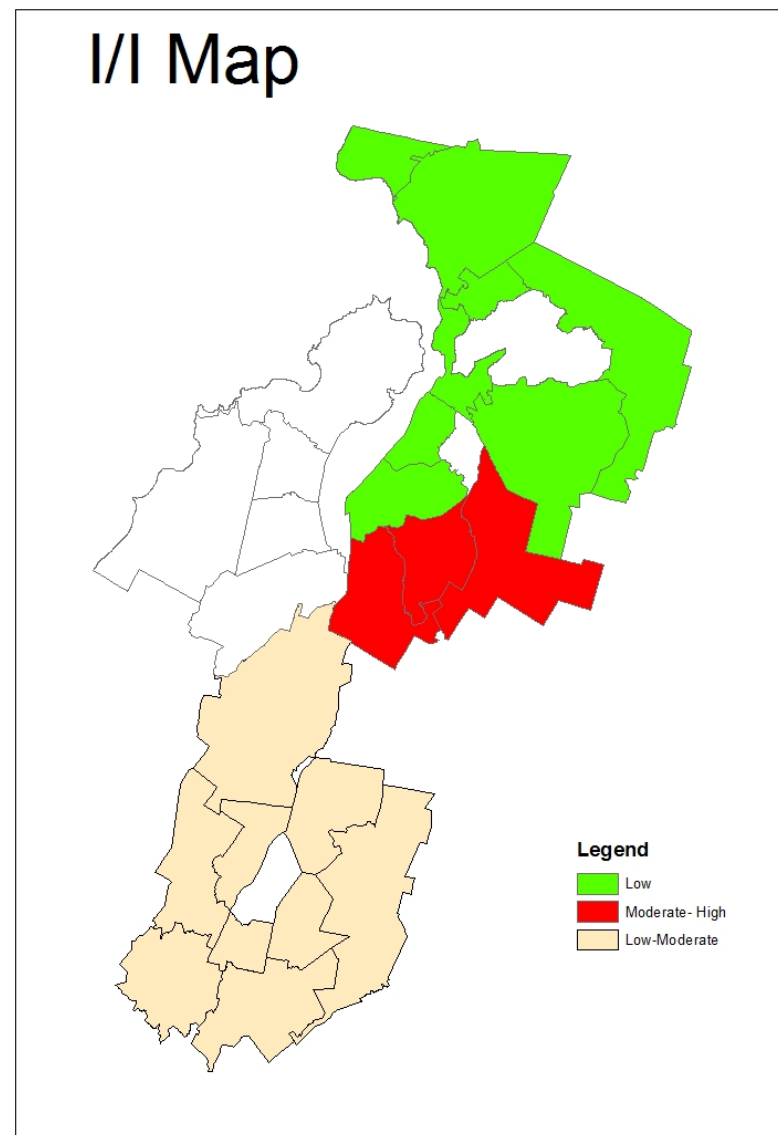
Inflow and Infiltration – High Level



- Significant I/I in:

- Cannons Creek
- Duck Creek
- Linden

I/I Map



Inflow and Infiltration causes

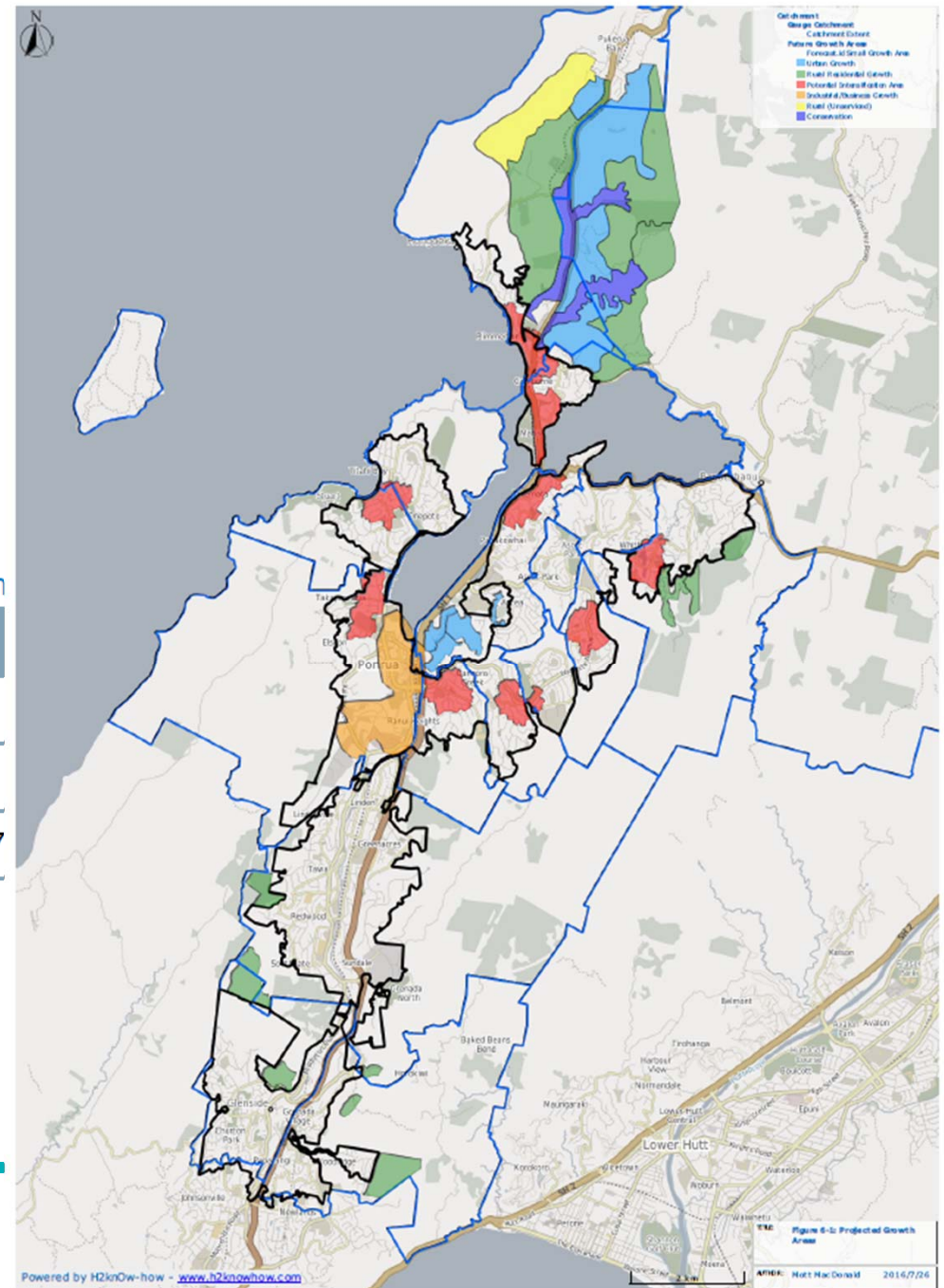


- Direct inflow of stormwater
 - Illegal down pipe connections
 - Stormwater overflowing into gully traps
- Infiltration of groundwater
 - Cracked pipes and ineffective joints
 - Manhole sealing and old connections

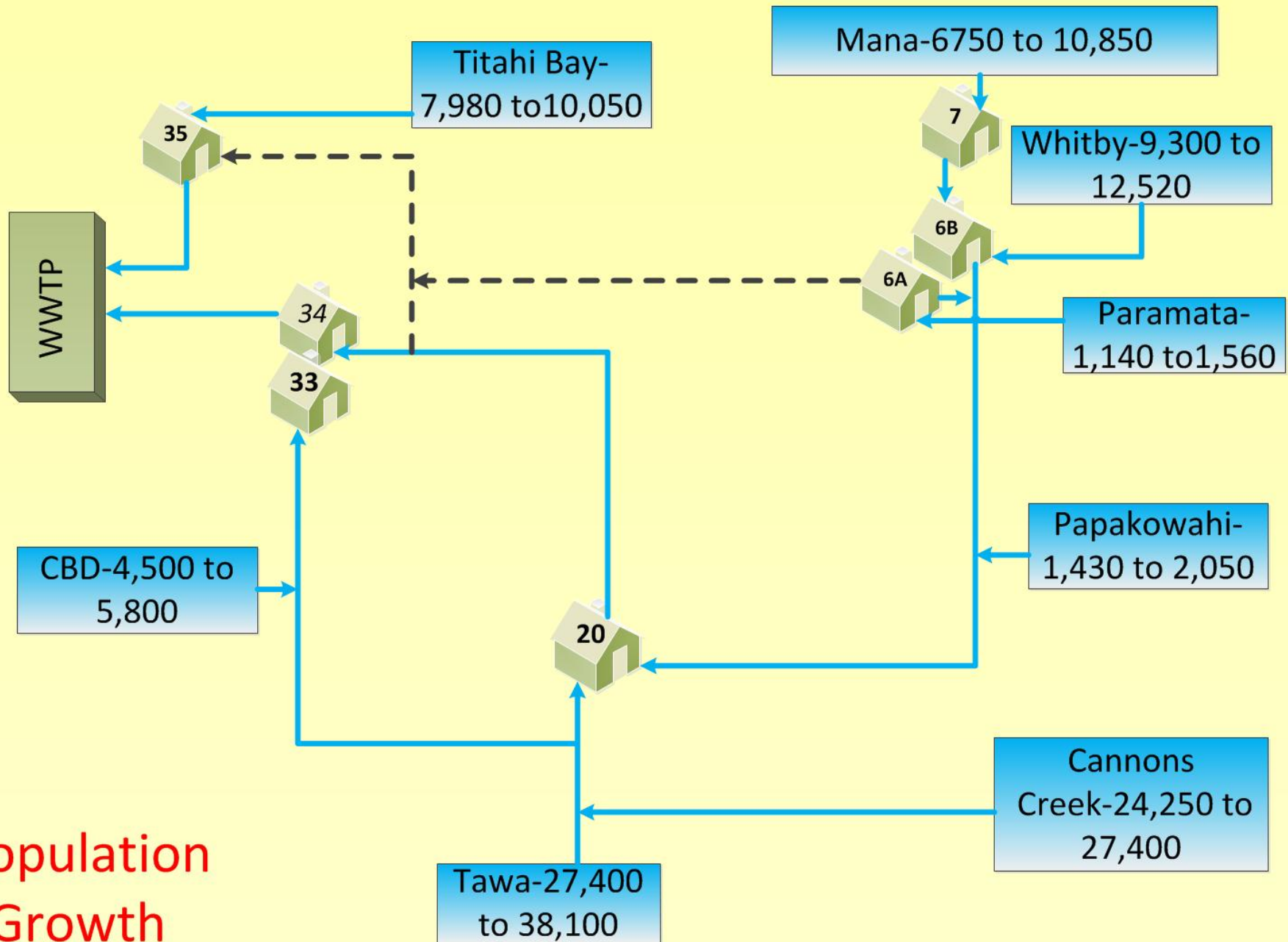
Growth planning projections

Table 6-1: Porirua and Tawa Existing and Future Population

Year	2013	2033	2051
Porirua	54,646	64,842	69,632
Tawa	24,396	30,072	39,935
Total	79,042	94,915	109,567



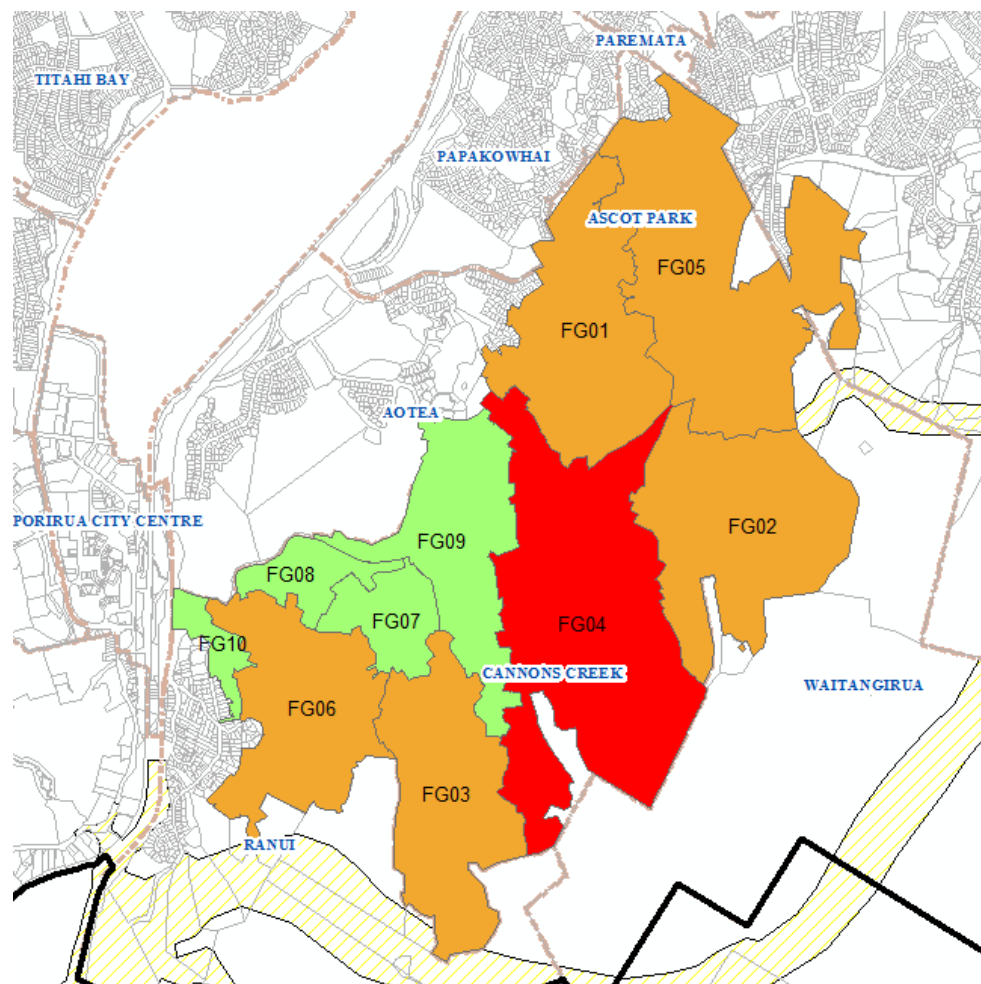
Population Growth



Stage 2 monitoring

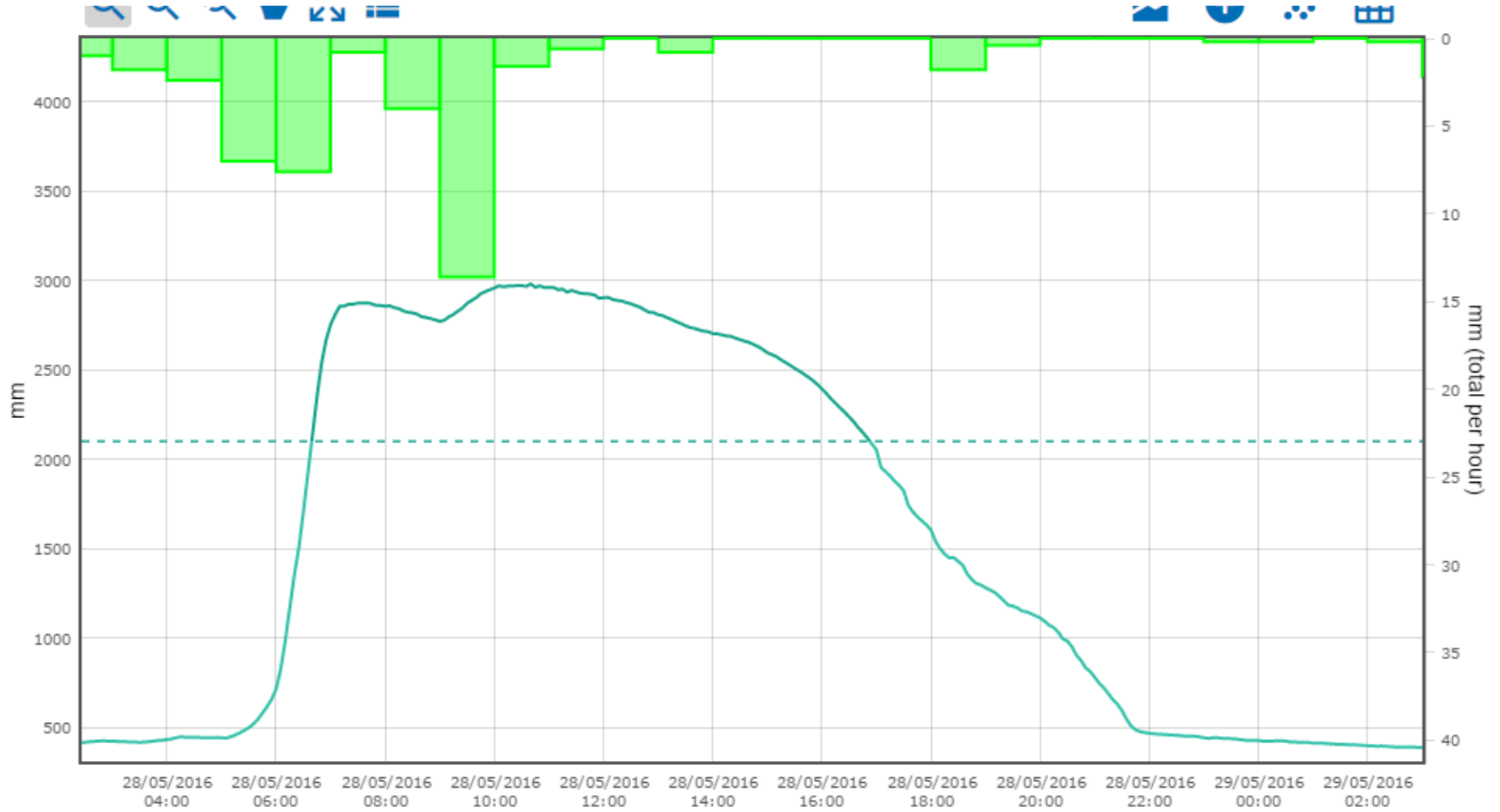


Inflow and Infiltration - Stage 2



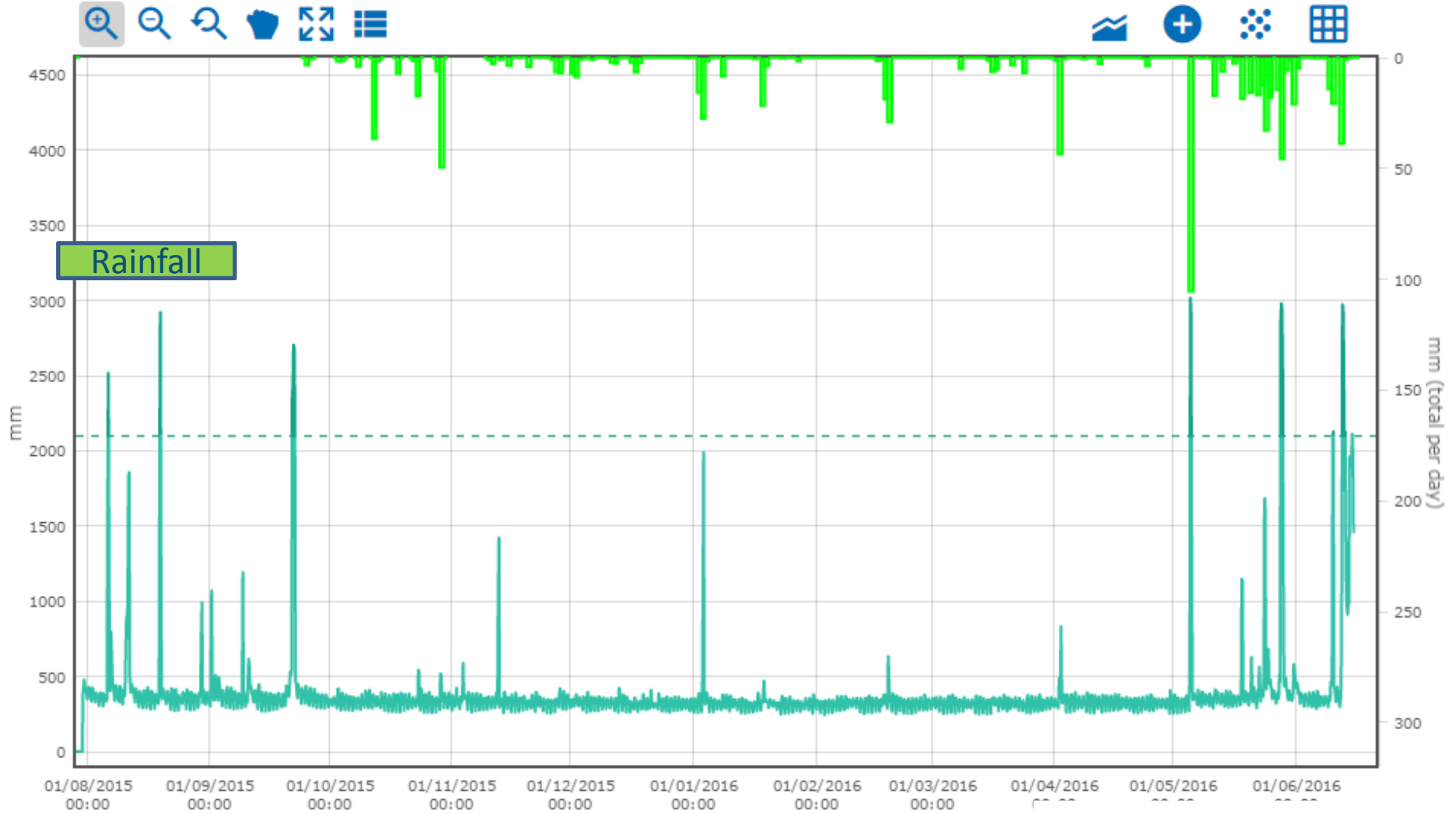
Our water, our future.

Flow Monitoring - day



Flow level

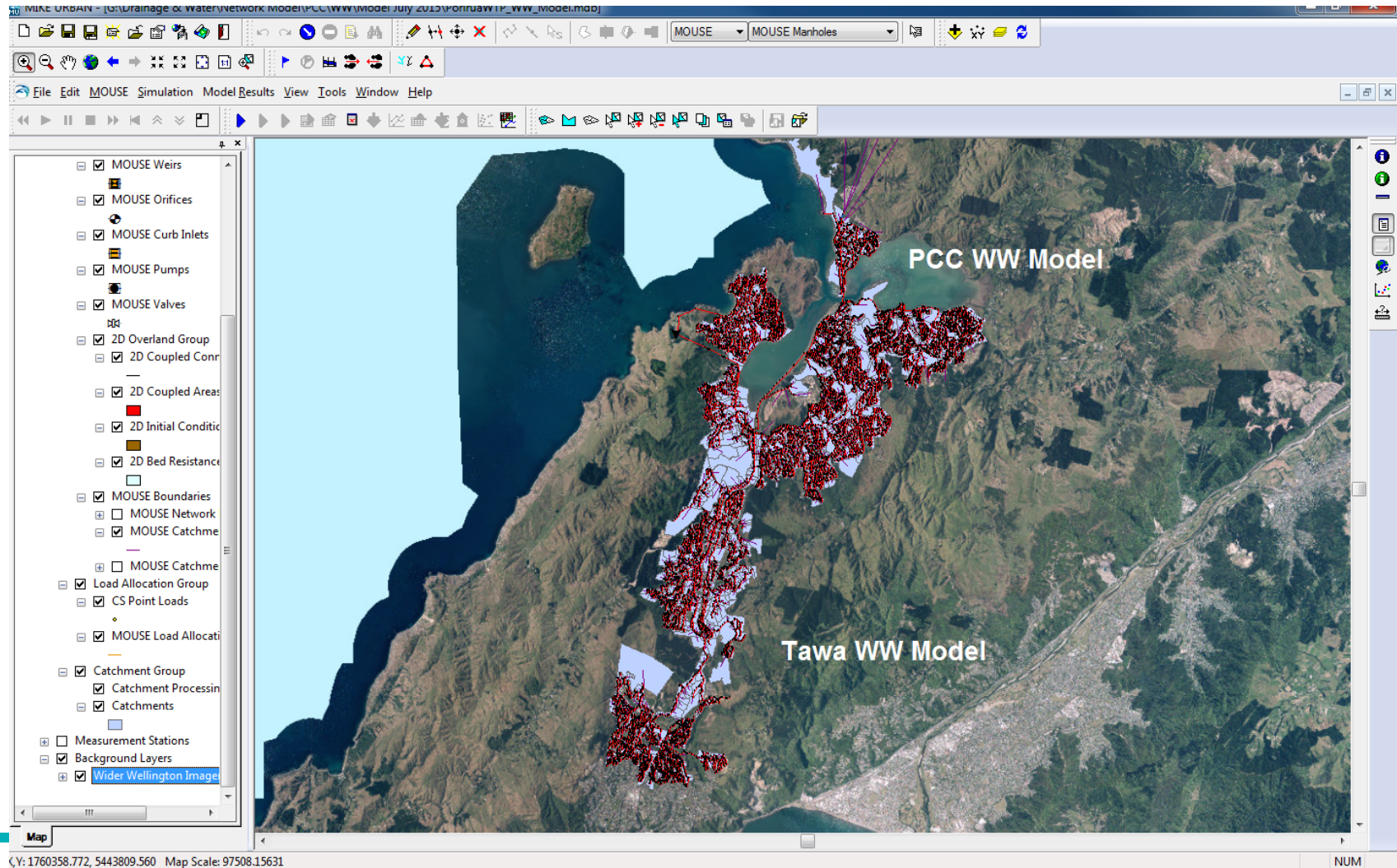
Flow Monitoring - year



Rainfall

Flow level

Model Calibration



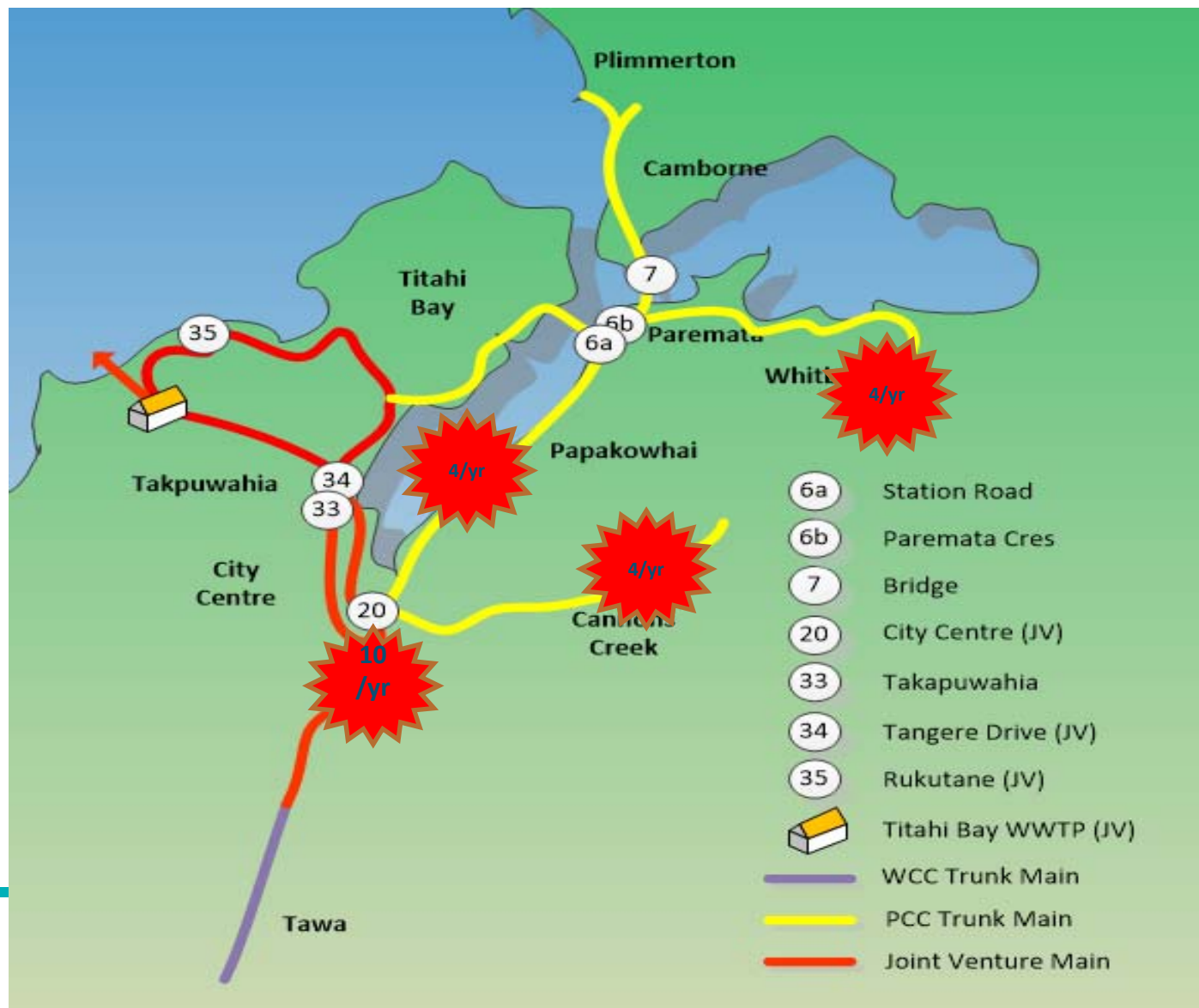
Our water, our future.

CBD Overflow Chamber



Our water, our future.

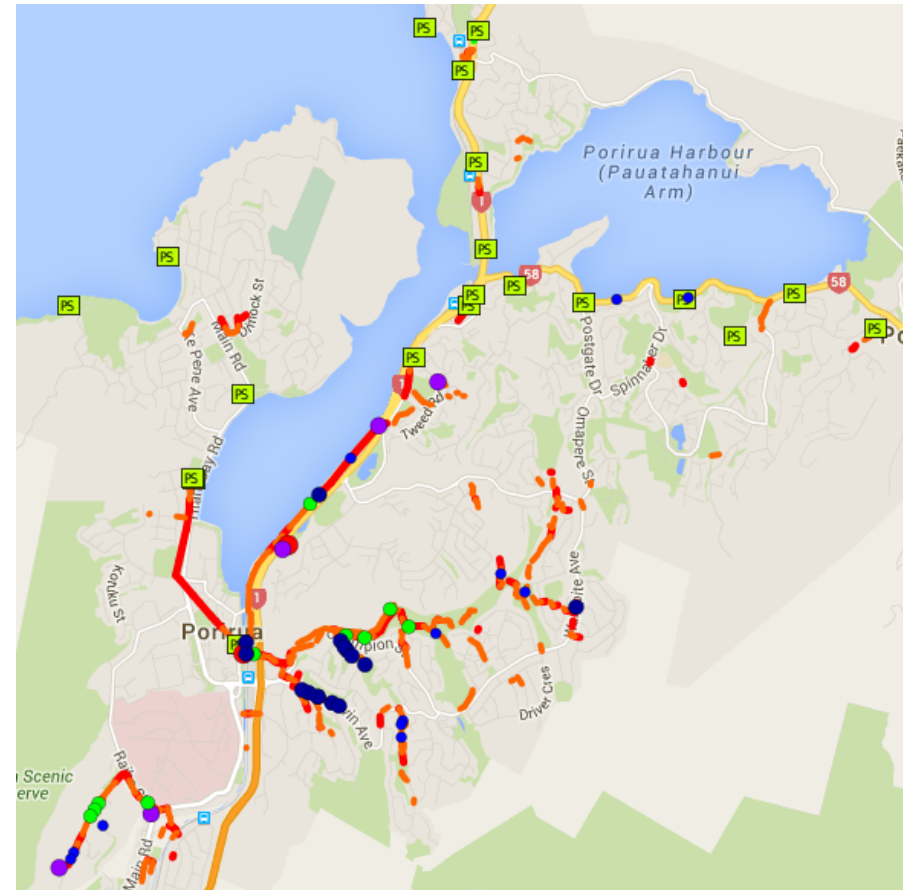
Current performance – high level



Current performance - detailed

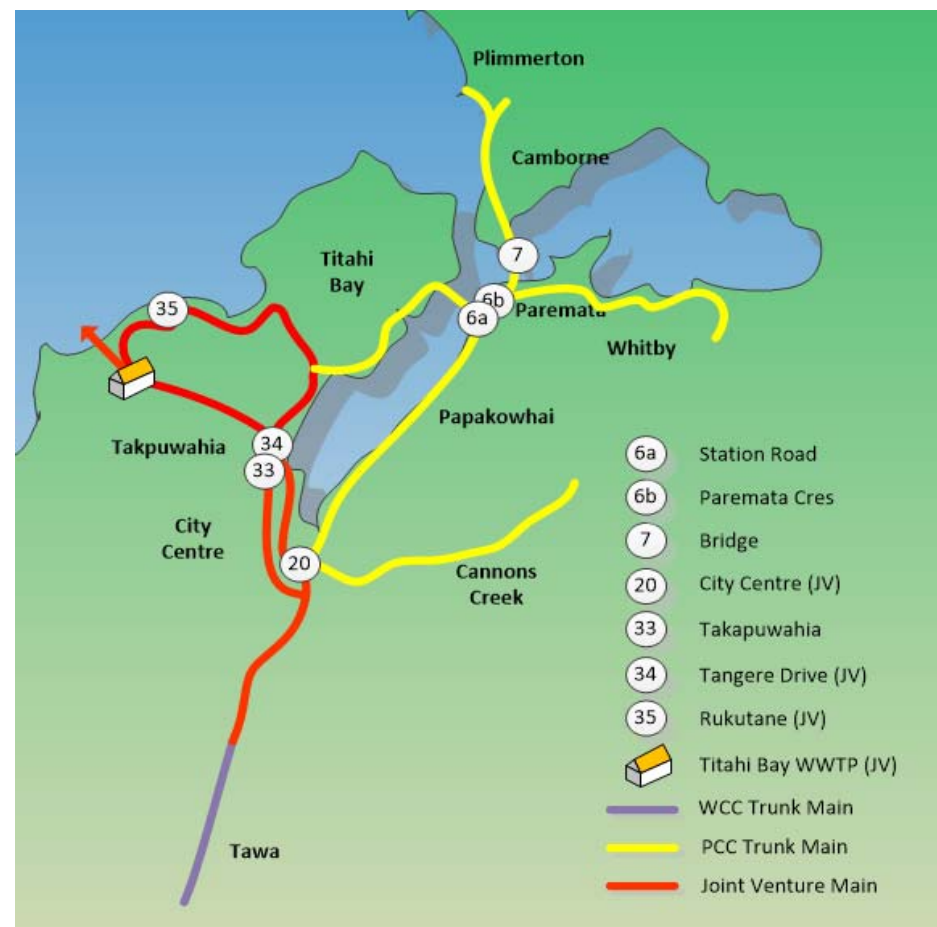


Orange pipes - approaching capacity during heavy rain events
Red pipes – too small during heavy rain events
Predicted overflows small to large (**blue** > **green** > **purple** > **red** dots)
Dark blue dots - confirmed overflows



Potential Options

- Conveyance
- Storage
- Screening
- Treatment
- Source reduction
 - I&I reduction
 - Laterals renewal
 - Greywater re-use
- New technologies
 - Pressure sewers?



Our water, our future.

Solution framework

– future Level of Service

- Discharge factors
 - Overflow frequency
 - Overflow volume
- Impacts:
 - Environmental
 - Cultural
 - Public Health
 - Amenity
 - Economic

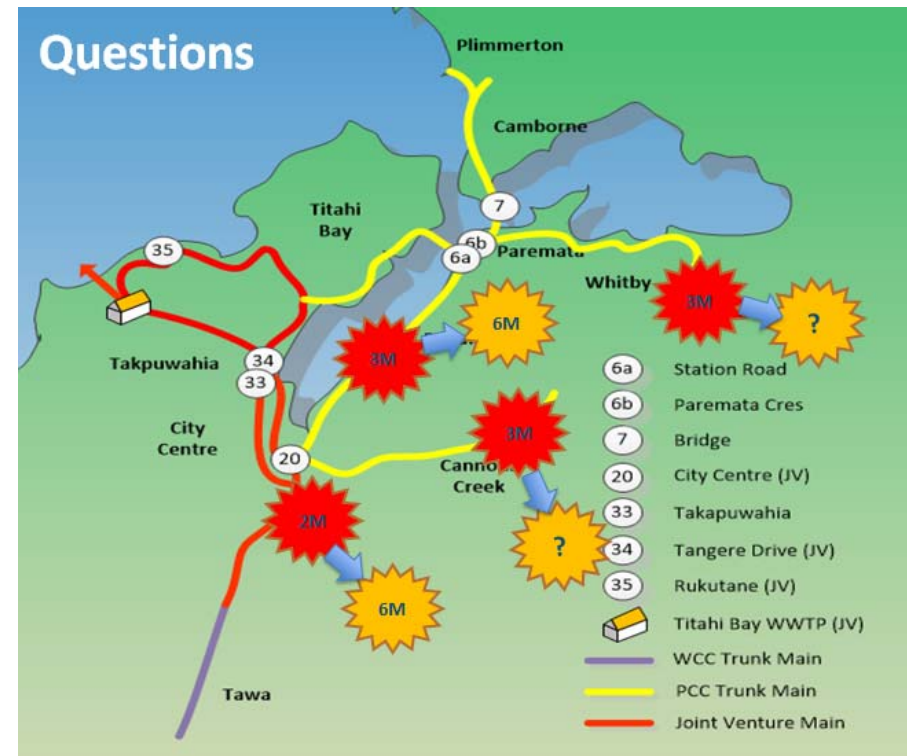


Solution framework considerations



- Future Level of Service

- How do wastewater discharges fit within community priorities?
- Do we sufficiently understand impacts?



Next steps



- Model outputs input to Whaitua CMP
- Level of service to be developed
- LTP cost estimates required
- Consenting decisions
- Stakeholder input
- Treatment plant development