

Memorandum

To: Ōtara-Papatoetoe Local Board

Cc: Elizabeth Stewart, Elected Member Relationship Advisor, Watercare Services Limited

From: Chhan Chau, Lead Wastewater Planner, Watercare Services Limited
Sharnae Morrell-Hopa, Technical Writer, Watercare Services Limited
Moana Williams, Stakeholder Engagement Manager, Watercare Services Limited

Subject: 2023 Wastewater Network Strategy

Date: 07 February 2023
This memo is an update from the original memo dated 10 November 2022.

Purpose

1. The quality of our waterways and beaches is linked to the performance of our wastewater network. Watercare's Wastewater Network Discharge Consent and the associated Wastewater Network Strategy help guide our journey towards fewer overflows and the improved operation of our pipes and pump stations. The purpose of this memo is to inform the Ōtara-Papatoetoe Local Board about the preparation of the Wastewater Network Strategy (WWNS), due for submission in June 2023.

Summary

2. Watercare is preparing the 2023 Wastewater Network Strategy ('the strategy') as part of the 35-year Network Discharge Consent with Auckland Council.
3. The strategy is a key implementation tool designed to reduce overflows and improve the public wastewater network.
4. This is a strategy that is reviewed every six (6) years, and which reports on network condition, performance, and the schedule of proposed improvement works.
5. Consent conditions require Watercare to consult with a variety of entities including Local Boards, Iwi, Auckland Council, Auckland Transport, the Auckland Regional Public Health Service, and Veolia.
6. For this strategy we intend to go beyond compliance holding conversations with key stakeholders, advocacy groups and the community – our desire is to help educate our communities on the complexities and challenges involved in operating the wastewater network, but more importantly to listen to their concerns values, priorities, and feedback.

Context

7. The wastewater network is made up of 7,999 kilometres of pipes and 518 pump stations. It operates to move sewage from homes, businesses, and industrial sites to treatment plants. Approximately 410 million litres of wastewater are treated daily in Auckland's treatment plants.
8. Watercare has five consents that cover our wastewater network. When combined these cover Auckland's network from Wellsford and Helensville in the north down to Waiuku, Kingseat, and Beachlands in the south.¹

¹ Note: These consents do not include Kawakawa Bay, for which the sewage system is under vacuum and has a separate consent.

9. Network discharges include both treated water from Watercare’s plants and unintended untreated wastewater overflows.
10. As part of these consents there is a Wastewater Network Strategy which covers a 35-year period and is reviewed every six years. The strategy is the key implementation tool used to report on current network condition and performance, and to outline the schedule of proposed works to improve the network.
11. The strategy focuses on unintended overflows from the network. A wastewater overflow occurs when wastewater spills out from gully traps, manholes, Engineered Overflow Points (EOPs) or pump stations and flows into public or private property, waterways, and the sea. Overflows occur primarily because of blockages in the system, lack of storage space, cracks and leaks in pipes, power outage, or broken parts. These are categorised into 3 types:
 - Type 1 from pump stations
 - Type 2 from EOPs
 - Type 3 uncontrolled overflows.
12. EOPs are structures in the network designed to overflow if something goes wrong in another part of the network such as a blockage. They control where the overflow takes place to ensure that it does not occur in someone’s home, business, or a school where there is a higher public health risk.

Discussion

13. Our next Wastewater Network Strategy will outline the works we plan to deliver in 14 Strategic Management Areas (SMAs). SMAs are based on wastewater flows to treatment plants and do not align with Local Board boundaries.
14. The wastewater network in the Ōtara-Papatoetoe Local Board area sits predominantly within the Upper Tāmaki River catchment in the southeast of Auckland. This is the largest geographical catchment of the Auckland wastewater network.
15. Land use within the Upper Tāmaki River catchment includes large industrial/commercial land areas around Mt Wellington and Richmond and significant areas of East Tamaki. There are also areas of the catchment which have very recently developed through expansion and growth.
16. Within the Upper Tāmaki River catchment area there are 1,093 kilometres of wastewater pipes with 59,977 connections and 55 engineered overflow points. See **Attachment A** for this map.
17. The Puhinui catchment area is also within the Ōtara-Papatoetoe Local Board area, with 106 kilometres of wastewater pipes, 5,039 connections and 7 engineered overflow points. The catchment consists predominantly of residential, industrial, and commercial land uses, with some land in horticulture. The Auckland Airport is to the west of the catchment, on the northern side of the Manukau Harbour. See **Attachment B** for this map.
18. Some SMAs will require more work than others, depending on how they are currently performing and how much they are expected to grow. When we prioritise the catchments, there are many factors we will consider, as shown in the diagram on the following page.
19. Based on this assessment the Upper Tāmaki River and Puhinui catchments have been classified as a high priority area due to the number of overflows and the age of the network.



Network Performance

20. Based on the Upper Tāmaki River and Puhinui catchment area, there are a total of 15 Engineered overflow points (Type 1 and 2 EOP’s) across the Ōtara-Papatoetoe Local Board area, currently 4 Type 2 EOP’s are monitored.

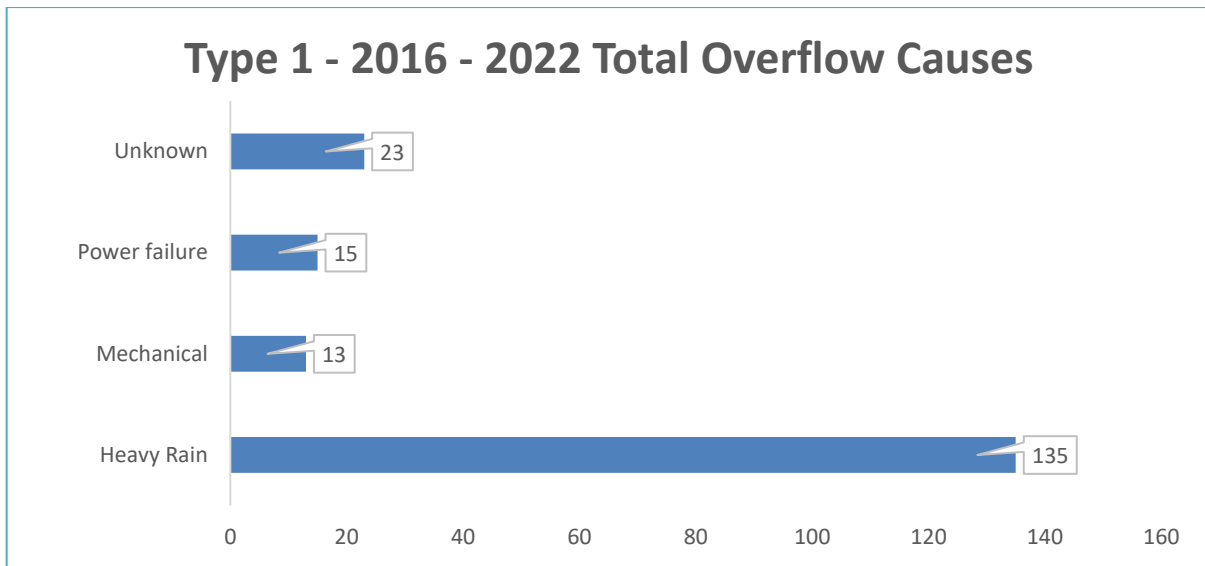
21. The tables below outline the causes of pump stations (Type 1) overflows by cause and year.

Type 1 – Upper Tāmaki River

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	Total
Heavy Rain	8	53	22	8	29	2	7	129
Mechanical		5		1			7	13
Power failure		3	2	1	1			7
Unknown	1	6	1	3	4	2	5	22
Total	9	67	25	13	34	4	19	171

Type 1 – Puhinui

	FY16	FY17	FY18	FY19	FY20	FY22	Total
Heavy Rain	1	3	2				6
Power failure		2	1	4	1		8
Unknown						1	1
Total	1	5	3	4	1	1	15



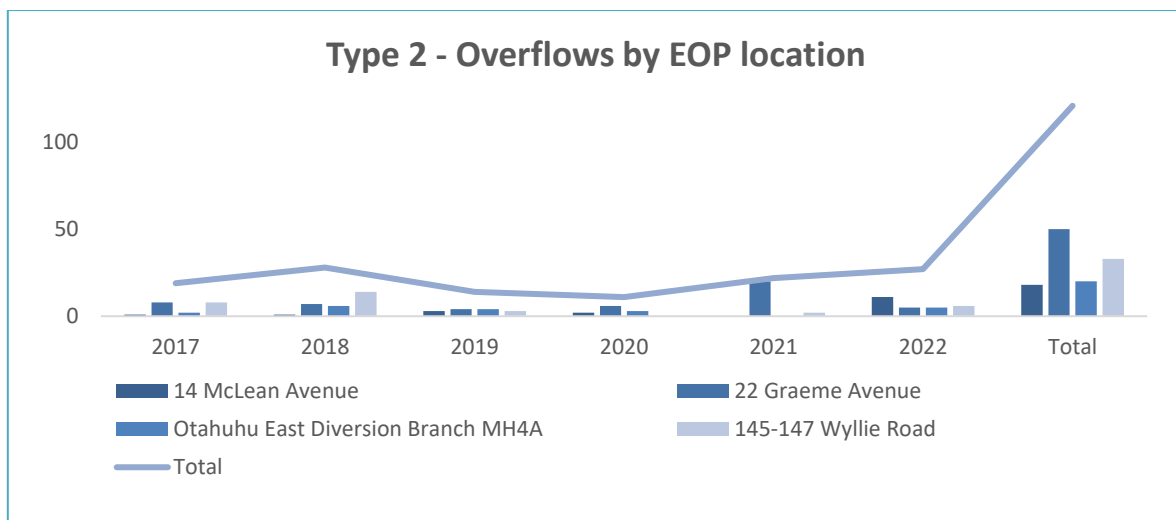
22. There are a number of Type 2 engineered overflow points in the Ōtara-Papatoetoe Local Board area. The table below reflects the spill rates from the monitored EOPs.

Type 2 – Upper Tāmaki River

Overflow Locations	2017	2018	2019	2020	2021	2022	Total
14 McLean Avenue	1	1	3	2		11	18
22 Graeme Avenue	8	7	4	6	20	5	50
Otahuhu East Diversion Branch MH4A	2	6	4	3		5	20
Total	11	14	11	11	20	21	88

Type 2 – Puhinui

Overflow Locations	2017	2018	2019	2020	2021	2022	Total
145-147 Wyllie Road	8	14	3		2	6	33
Total	8	14	3		2	6	33



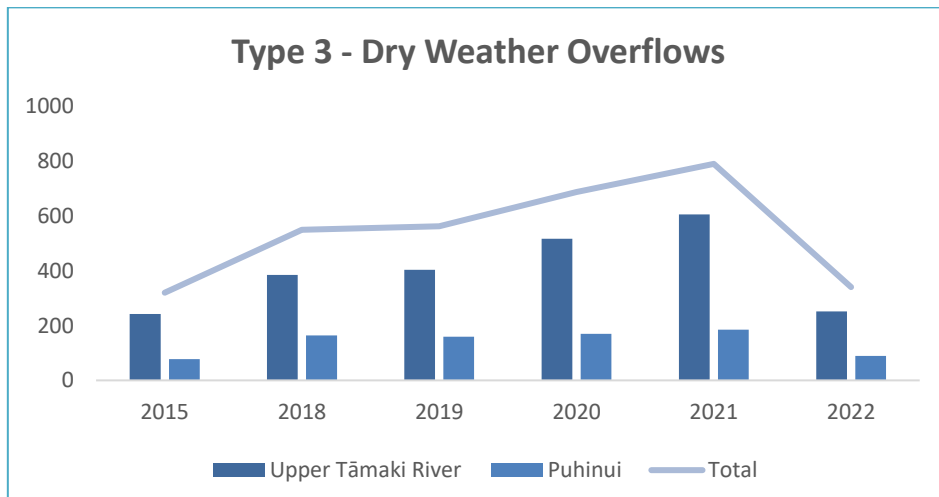
23. Type 3 overflows which are uncontrolled i.e. not from engineered overflow points, are split into dry weather and wet weather overflows. Dry weather overflows are a combination of domestic, commercial,

industrial loads, and groundwater infiltration. Wet weather overflows include the above but also rainfall that enters the wastewater network. The Upper Tāmaki River catchment consistently has some of the highest number of dry and wet weather overflows.

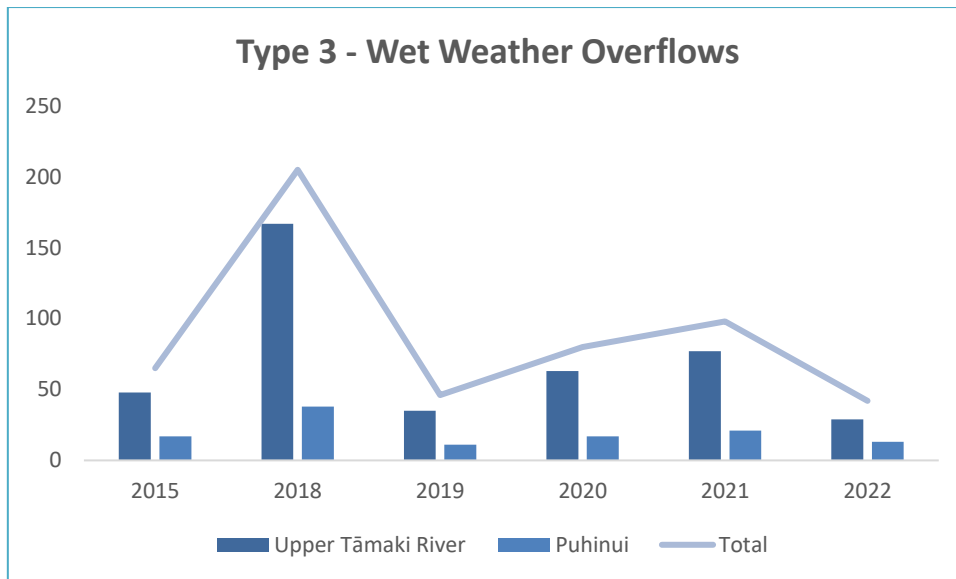
The tables below outline the overflow rates from dry weather and wet weather overflows.

Type 3: Dry Weather Overflows (DWO)²							
	2015	2018	2019	2020	2021	2022	Total
Upper Tāmaki River	242	385	403	517	605	252	3401
Puhinui	78	164	159	170	185	89	1237
Total	320	549	562	687	790	341	4638

Type 3 EOP							
	WWO (All causes)						
	2015	2018	2019	2020	2021	2022	Total
Upper Tāmaki River	48	167	35	63	77	29	762
Puhinui	17	38	11	17	21	13	198
Total	65	205	46	80	98	42	960



² DWO: Overflow caused by operational issues e.g. blockages from fat, root and rubbish and things that people put into the network.



Planned activities

24. In response to the overflows, we will identify the work we need to do to improve the performance of our wastewater network. This includes:
- Infrastructure delivery:** construction work to upgrade our assets. For information on major infrastructure investment to date in your local board area you can refer to the details in the Ōtara-Papatoetoe Local Board [information hub](#) on the Watercare website.
 - Inflow and infiltration (I&I) programme:** inspection work to identify where stormwater is entering the wastewater network and remove it.
 - Community education:** educating the public on the causes of overflows and how we all have a role to play in preventing them.

25. The following table outlines the major programmes of infrastructure works planned for the catchments over the next ten years:

Please note that the proposed works that was delivered in the Ōtara-Papatoetoe Local Board memo sent in November 2022, has been reviewed and updated as follows:

Change: Removed two projects listed below as they were not in the Ōtara -Papatoetoe Local Board area:

- Pump Station 14 Upgrade Tāmaki
- Southwestern Interceptor duplication Manurewa to Māngere

Forecast on improvement works subject to feasibility and budget.

Key driver for proposed work: **Overflows and population growth**

Project	Description	Timeframe	Cost (\$)
Ōtara pump station and associated pipe works	Upgrade of pump station and associated pipework to prevent overflows.	2030-2035	20M
Māngere wastewater sewer upgrade	Currently under investigation, project will resolve local capacity constraint and overflows in the Mangere and Middlemore networks.	in progress to next 6yr	Not available
Ōtara local wastewater sewer upgrade	Sewer upgrade to remove capacity constrain and prevent overflows.	2023-2026	27M

26. The following table outlines the inflow and infiltration planned works for 2023-2023

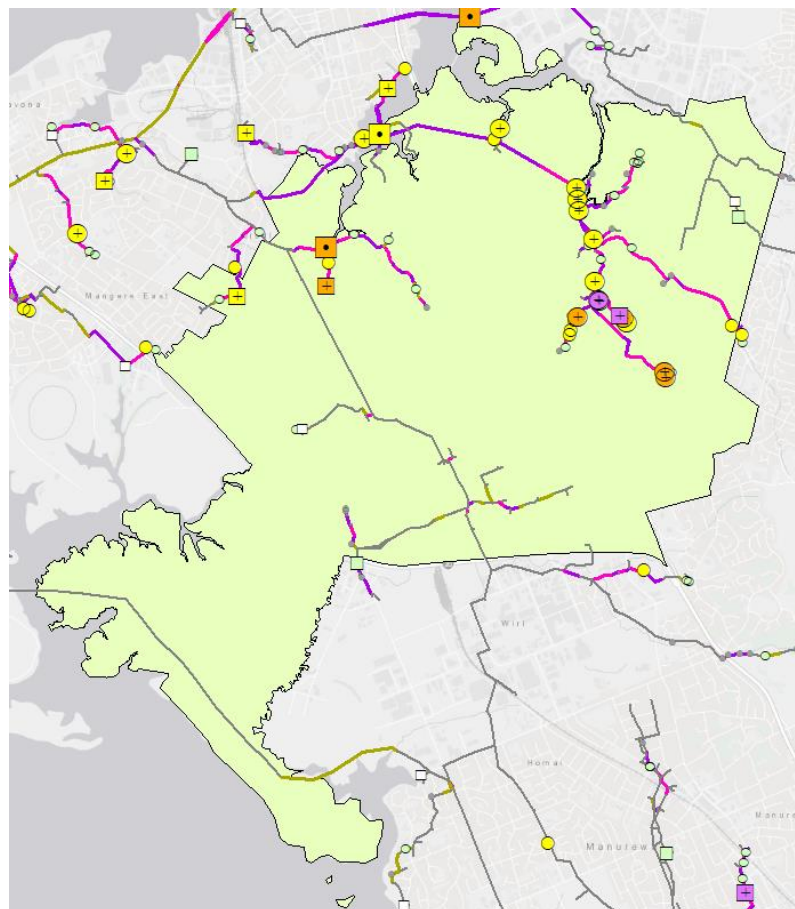
2021-22 Investigation Projects	Planned for 21-22	In Progress 21-22	Completed in 21-22	Planned for 22-23	Comments
Otara (Various) - FY22 (Planned)	1			1	Will now start in FY23

27. Community education occurs via a number of channels including the seasonal [‘Tapped In’](#) newsletter, ‘Local Matters’ newsletters, typically prepared in response to local overflow issues including blockages from fats oils and grease. Comprehensive information on how to care for your drains and to avoid overflows is also available on the [Watercare website](#) or the [Water for Life website](#).

Predicted future performance of the network:

28. With the forecasted proposed and planned works on the wastewater network over the next six years and based on 2030 population projections, Watercare have developed the 2023 modelling to demonstrate the expected improvements of the network and the reduction of overflows in the Ōtara-Papatoetoe Local Board area. The key projects in your area is the Ōtara Pump Station upgrade, Ōtara WW sewer upgrade and Mangere WW upgrade, these projects have the largest impact on overflow reduction. The maps below provide the base modelling from 2017 figure 1 which indicates the current network performance and map figure 2 includes proposed and committed works and the indicative reduction of overflows:

Figure 1 Māngere SMA Model 2017 - 2030 Population Projections



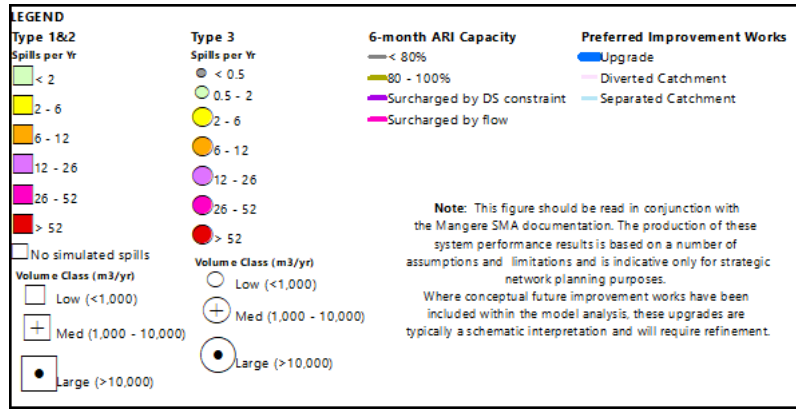
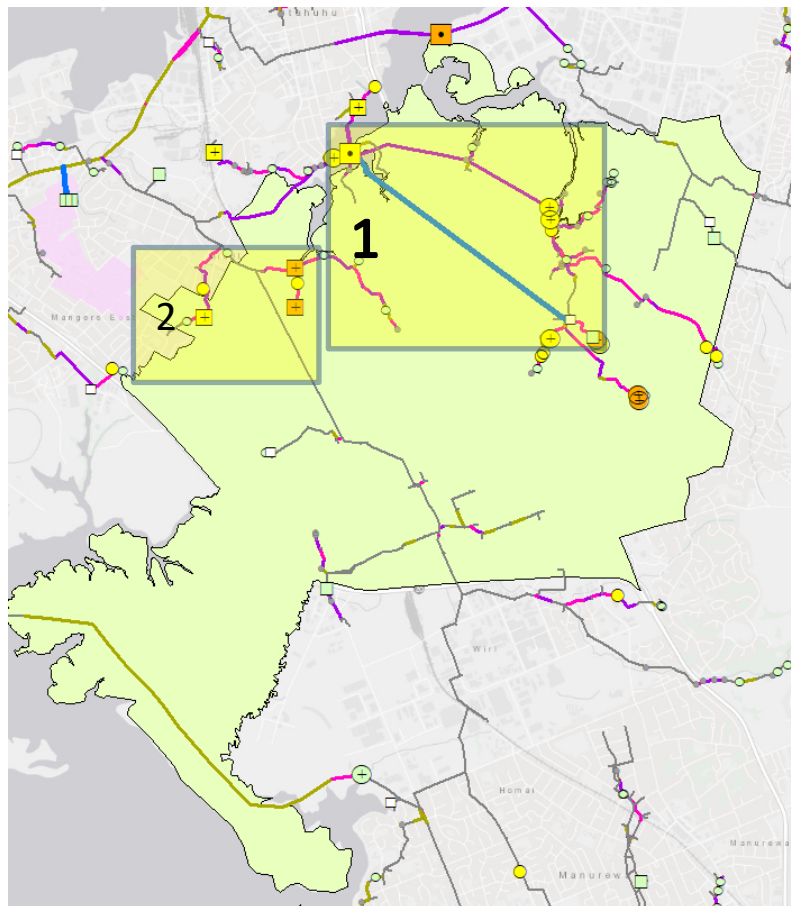


Figure 2 Māngere SMA Model 2023 - Incl. proposed and committed works 2030 population



Key projects:

1. O tara PS upgrade and O tara WW sewer upgrade
2. **Māngere WW upgrade** – have not added to the model as option is still under investigation.

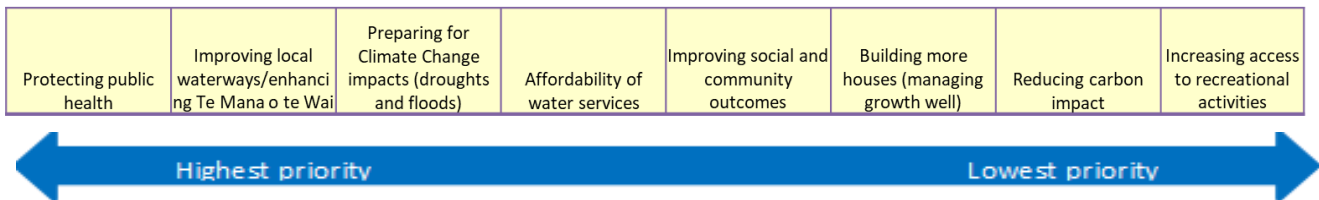
WWNS Community feedback and insights:

Preliminary Insights from Tāmaki Makaurau – Summary of public feedback

27. Watercare has received over 150 pieces of feedback via online survey’s and manual feedback forms from people all across Auckland, we are currently working through the feedback and identify key insights with the findings and outcomes from the feedback that will be available on 31 March 2023. While we work through the feedback, below are some of the insights we have discovered to date:

Key themes:

- **General support for the strategy** but belief that it does not go far enough
 - Community believes that any overflows are unacceptable
- **A need for general education** about Wastewater and disposing of items
- **Wastewater infrastructure** needs investment to:
 - Cope with Climate change
 - Minimise health risk and remove pollution on the awa/moana
- **Community priority areas**



28. Respondents of the survey had the option to provide their suburb details, of the 150 + pieces of feedback 127 respondents provided their suburb. Of those who provided their suburb, no respondent was identified from within the Ōtara-Papatoetoe local board area.

29. Voice of Aucklanders’ is an online survey conducted by Watercare that is representative of the Auckland population 18 and over. The water literacy survey objective is to understand Awareness, Trust, Reach, Consumption. The questions are categorised into 5 areas as shown below:

What is water literacy?

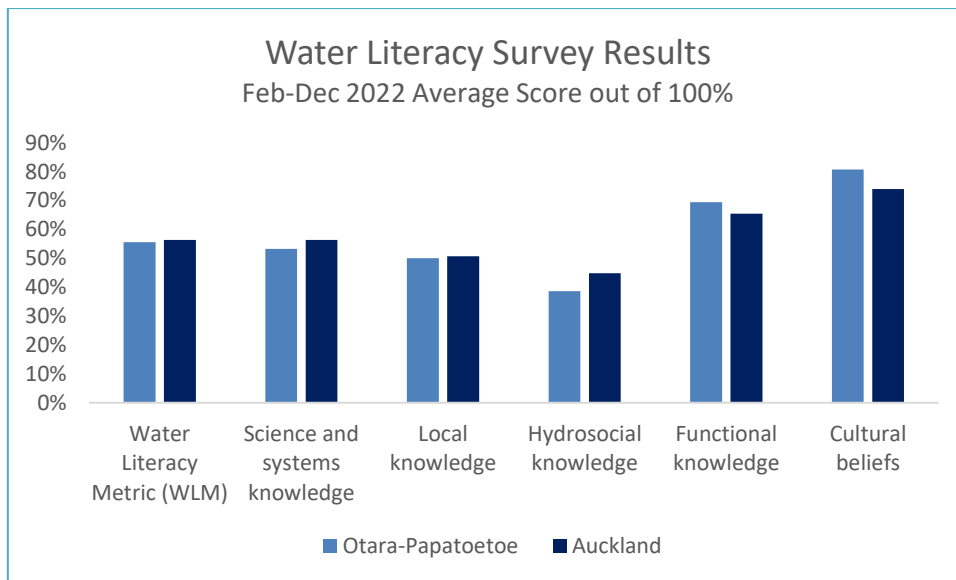
Water is a challenging topic because of its complexity and interdisciplinary nature. To be water literate, a person needs to possess knowledge in different areas.

Water literacy covers:

- **Science and systems knowledge:** scientific properties of water including the water cycle.
- **Hydrosocial knowledge:** how water underlies all human activity; and how human activity impacts water quality/health.
- **Local knowledge:** how water is sourced, treated, conveyed and used in an area.
- **Functional knowledge:** how to use water sustainably; and how to look after waterways and beaches.
- **Cultural knowledge:** aspects of mātauranga Māori which help us to understand and enhance te mauri o te wai*

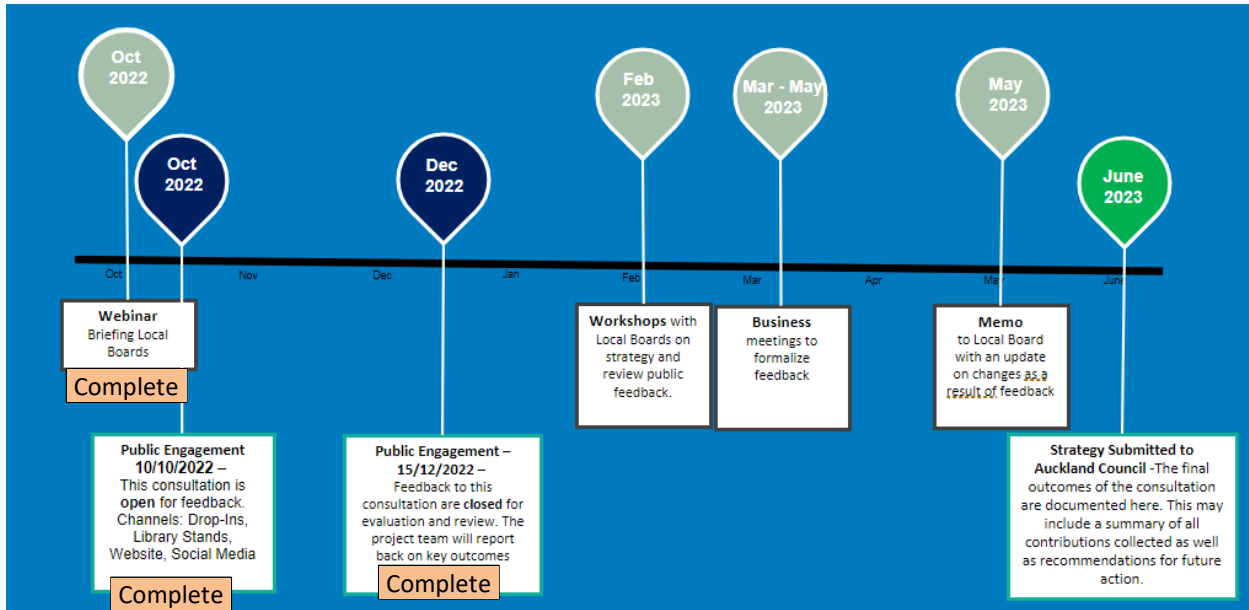
Source: McCarroll, M.; Hamann, H. What we know about water: A water literacy review. Water 2020

The survey helps us identify how well our communities understand the water and supports the development of pathways/tools to improve water literacy. 4,918 people were surveyed across Tāmaki Makaurau of this 195 were from the Ōtara-Papatoetoe Local Board Area. The graph below provides an overview of the results, which indicate that your community have a good understanding of water literacy and the community have a stronger understanding and awareness of functional and cultural knowledge than the general Auckland area:



Next Steps

29. The next update of the Wastewater Network Strategy is currently in the preparation stage with a submission due date to Auckland Council in June 2023. Feedback from the Local Boards, stakeholders and the community will be included.
30. Watercare is currently engaging with other entities such as Iwi, Auckland Council staff, Auckland Regional Public Health Service, other wastewater utility operators, and Auckland Council's Healthy Waters department.
31. Public engagement was completed on the 20 December 2022, which included five drop-in events across Tāmaki Makaurau (North, South, East, West, Central), six library stands in high worked areas and nine high interest community groups. The results of the survey's and feedback summary is currently under development and will be made available to Local Boards and to the public by the 31 March 2023.
32. You can find more information about the strategy here: <https://www.watercare.co.nz/Water-and-wastewater/Wastewater-network-strategy-2023>.
33. Please see below for a timeline summary of the plan for public and local board engagement on the strategy.



34. We are holding the workshop with Ōtara-Papatoetoe Local Board in February 2023. This memorandum is intended as a re-introduction to the strategy and as context for the local board in preparation for the workshop. We are seeking your feedback on the strategy, to identify challenges and opportunities on the plan to improve the wastewater network in your area and to understand what is the most important to you on the sequence of proposed works.

