

Appendix B: Levels of Service and Performance Measures

The proposed national future levels of service and performance measures was developed in two parts. Supporting information for both parts can be found in this appendix.

- **Part 1** – Three Waters Level of Service and Performance Framework
- **Part 2** – Levels of Service Tables

Part 1 - Three Waters Level of Service and Performance Framework

In 2022, the National Transition Team engagement Just Add Lime to develop the three waters levels of service and performance framework for adoption by the entities. This work included undertaking a literature review, developing a framework and proposing a suite of national measures including definitions for adoption by the entities.

The deliverables from Just Add Lime are provided here for context and information. The three documents include:

- Review of Levels of Service and Performance Best Practice
- 3 Waters Levels of Service and Performance Framework
- Levels of Service and Performance Definitions

Part 2 - Levels of Service Tables

These tables contain the proposed national levels of service and performance measures. The measures include the known and proposed measures (as at 1 June 2023) from Taumata Aroawai and a set of potential economic measures, noting that these will be replaced by the Economic Regular when they are stood up in 2027.

These measures were originally developed by Just add Lime and have been refined by Morrison Low to include:

- Potential economic regulator measures, based on advice from WICS.
- Tiered management approach to the measures, incorporating.

- **Tier 1 performance measures** are a smaller set of aggregated measures to summarise performance to the Board and senior management teams to ensure they are providing good services to customers and stakeholders and assurance to regulators and oversight by government agencies.
- **Tier 2 performance measures** are also summary metrics but aimed at the management level to track performance internally and identify performance trends.
- **Tier 3 performance measures** are generally used by the operational teams to track performance internally at a technical level.
- Informal review and feedback from Taumata Arowai and Commerce Commission.
- Engagement with mana whenua and councils to take place as part of the draft initial asset management plan review

- New Zealand Three Waters Reform



- **Review of Levels of Service
and Performance Best Practice**

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Te Tari Taiwhenua
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Prepared for The Department of Internal Affairs by Just Add Lime Limited

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Purpose

The purpose of this report is to describe the findings of a literary review of best practice approaches to infrastructure asset levels of service and performance within the water sector and comparable infrastructure intensive sectors.

The information presented is intended to be used to inform discussion on the design and implementation of a Level of Service and Performance framework for use by the four Water Service Entities being established as part of the New Zealand 3-waters reform

Background

In July 2020, the NZ Government initiated the Three Waters Reform Programme – a three-year programme to reform local government three waters service delivery arrangements. Currently 67 different councils own and operate the majority of the drinking water, wastewater and stormwater services across New Zealand. Local government is facing urgent challenges in the provision of these services including: funding infrastructure deficits, complying with safety standards and environmental expectations, building resilience to natural hazards and climate change into three waters networks, and supporting growth.

Rather than piecemeal solutions, comprehensive, system-wide reform was signalled as needed to achieve lasting benefits for the local government sector, our communities, and the environment. The Government’s starting intention is to reform local government’s three waters services into a small number of multi-regional entities with a bottom line of public ownership.

Delivering 3-waters services to appropriate levels of service and measuring performance delivery is an essential element to achieving the outcomes sought by the 3-waters reforms.

By its very nature, provision of these services is monopolistic, meaning in almost all instances customers will have no choice in who provides their services. Therefore, there is no direct competition between suppliers driving efficiency and effectiveness in operation of 3-waters infrastructure. However, Water Services Entities can operate within a framework that allows for ‘competition by comparison’ aligned to a common set of service standards against which all are measured.

The remainder of this document provides an insight into best practice in the use of Levels of Service and Performance within New Zealand and Internationally in the water sector, and in comparable infrastructure intensive organisations.

Scope of review

Many of the Levels of Service and Performance frameworks assessed were integral to wider regulatory and compliance frameworks within which the organisations are required to operate. The wider frameworks included provision for any or all of the following:

- Financial performance and compliance
- Price/quality controls
- Quality standards
- Environmental Performance
- Asset performance
- Asset Management approach
- Network reliability and performance

The review concentrated on those aspects of the frameworks directly related to infrastructure asset levels of service and performance, aligned to the last three points above. Where asset performance was integral or strongly related to other aspects of regulatory compliance, such as quality-price controls these were included in the review.

At the time of writing some decisions related to regulatory oversight of Water Services Entities were yet to be made, particularly in terms of who will be responsible for economic regulation and consumer protection. Taumata Arowai is already established as the water quality and environmental regulator of Water Services Entities. It has not yet been determined if infrastructure asset Levels of Service and Performance will be included in an overall regulatory framework, or who will have regulatory oversight of asset performance. Consideration of this is outside the scope of this review.

Frameworks reviewed

The review assessed a number of frameworks used within the water industry in New Zealand and internationally as well as frameworks in use by other infrastructure intensive sectors within New Zealand, specifically land transport and electricity distribution.

The frameworks reviewed were:

Water Sector

- New Zealand Public Water Sector - Water New Zealand, The Department of Internal Affairs (DIA)
- Essential Services Commission – Water in Victoria, Australia
- Water Industry Commission for Scotland (WICS)
- OfWat (The Water Services Regulation Authority) England and Wales

Comparative infrastructure intensive sectors within New Zealand

- Commerce Commission NZ - Electricity Distribution in New Zealand
- Waka Kotahi NZ Transport Agency - Land Transport in New Zealand

The following is a synopsis of each framework reviewed.

Water Sector

New Zealand Public Water Sector - Water New Zealand, Department of Internal Affairs

Key Facts

Jurisdiction: New Zealand

Industry: Water

Regulators: Regional Councils, Taumata Arowai

Water service providers: City and District Councils and Unitary Authorities with some services provided by Council Controlled Organisations. To be re-structured into 4 Water Services Entities through the 3-waters reform.

Performance framework administration: Water New Zealand

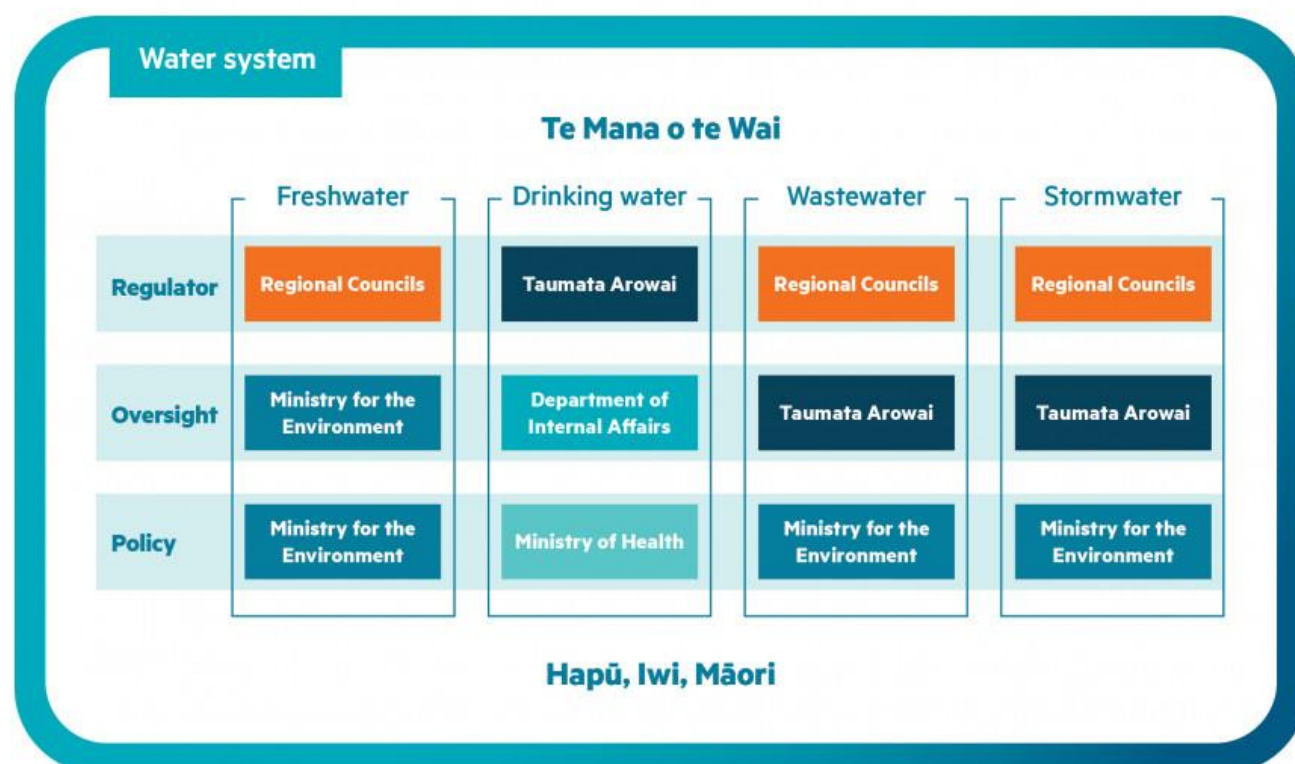
Reporting obligation: Voluntary for Water New Zealand National Performance Review, mandatory for DIA local government performance measures.

Overview of framework

Water in New Zealand is regulated at a regional level by regional councils, and Taumata Arowai has been established to undertake the role of drinking water quality regulator as part of the 3-waters reform. **Figure 1** shows an overview of the regulatory responsibilities in New Zealand since the establishment of Taumata Arowai.

Figure 1: Overview of water system regulatory responsibilities in New Zealand

A water system that meets the needs of Aotearoa



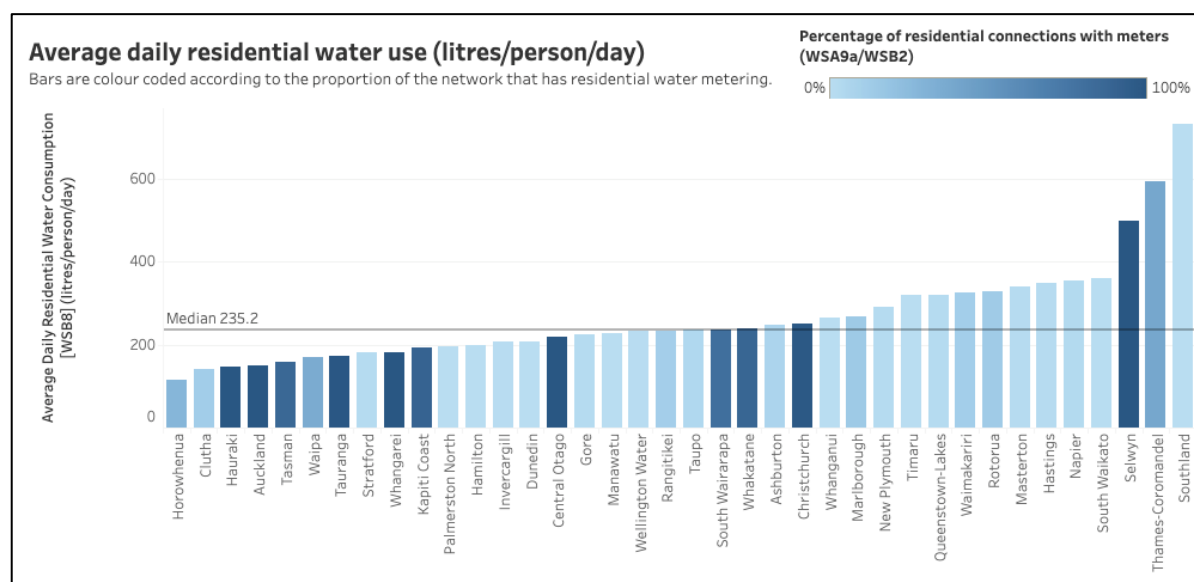
Source: Taumata Arowai (<https://www.taumataarowai.govt.nz/about/who-we-are/>)

Water New Zealand is an industry body dedicated to best practice 3-waters management through technical advice and training, and knowledge sharing. The organisation runs on a membership model and welcomes corporate and individual members, with currently around 2300 members from across the water sector.

Water New Zealand undertakes a National Performance Review annually that provides comparative analysis of the performance of city and district councils across a range of performance measures. The information gathered is presented in summarised form in an annual performance report, and an online participant data portal that provides for comparative analysis of councils is provided.

Participation in the review is voluntary, with 42 councils of 64 and water service providers participating in the most recent review in 2020.

Figure 2: Example comparative analysis chart from online participant data portal



The framework is organised around a set of service delivery elements being:

- Our People
- Public Health and Environmental Protection
- Economic Sustainability
- Resource Efficiency
- Assets Under Management
- Customer Focus
- Reliability
- Resilience

DIA also currently mandates a set of performance measures that councils must use when reporting to their communities. These measures are required to be included in council Long Term Plans and reported against in annual reports.

Essential Services Commission – Water in Victoria, Australia

Key Facts

Jurisdiction: State of Victoria, Australia

Industry: Water

Regulator: State of Victoria government through Essential Services Commission

Water service providers: 16 Water Corporations wholly owned by the State of Victoria

Performance framework administration: Essential Services Commission

Reporting obligation: Mandatory

Overview of framework

Water services in Australia are regulated at the State level. In the state of Victoria, this regulation is undertaken by the Essential Services Commission. The water industry is structured around 16 discrete water services entities, each required to provide performance reporting back to the commission on an annual basis. Some distinction is made between urban and rural water entities that has an impact on levels of services and water pricing.

Water in Victoria is similar to that being proposed for New Zealand in that it is comprised of a number of water services entities that are publicly owned by the State of Victoria who appoints the directors of each board. Also, water entities are provided with a Statement of Obligations from the Minister for Water that outlines the expectations of the State Government on how the water services should operate, similar to a Government Policy Statement.

As all 16 water services entities are owned by the State Government performance is done on a competition by comparison basis. Performance reporting primarily consists of two reports that are produced annually from performance information reported by the entities. The first of these is a Water Performance report what outlines the outcomes achieved by the entities, and reports on water use and pricing, levels of customer service, and network reliability. The second is an Outcomes report that reports on the customer service commitments set by each individual entity and is a self-assessment against set targets of performance. This report also reports on the effective delivery of major projects.

Performance reporting is organised around a set of service delivery elements being:

- Baseline Explanatory Data
- Water Network Reliability and Efficiency
- Usage, Price Trends and Payment Management
- Drinking Water Quality
- Customer Responsiveness and Service
- Sewerage Network Reliability and Efficiency
- Water Conservation, Reuse, Recycling
- Trade Waste

Water Industry Commission for Scotland (WICS)

Key Facts

Jurisdiction: Scotland

Industry: Water

Regulator: Water Industry Commission for Scotland

Water service providers: Scottish Water, with a non-household retail market

Performance framework administration: Water Industry Commission for Scotland

Reporting obligation: Mandatory

Overview of framework

WICS is the water regulator for the water industry within Scotland. Their primary role is to regulate the economic, environmental and customer service performance of Scottish Water. WICS also oversee the non-household retail market in Scotland that allows third party retailers to on-sell water and wastewater services similar to New Zealand's retail electricity market.

WICS is the organisation that undertook the New Zealand Threes Waters Review being a respected water services regulator and having extensive experience in a regulated water environment. As such it is likely the general structure of the water sector in New Zealand will include much of that used in Scotland.

While Scotland has a one regulator/one water entity model, there are a range of similarities between the two countries, such as the public ownership model, that make WICS a suitable framework for review. WICS performance in improving Scotland's water industry since regulation was introduced in 1999 makes them a best practice practitioner.

Scottish Water are required to submit a comprehensive annual return detailing their performance against a set of expectations that are determined for a 6-year regulatory control period. Scottish water also provide annually a Delivery Plan that has a two year view of how Scottish Water plans to meet its objectives.

As Scotland operates a regulated water industry, participation in the performance reporting framework is compulsory. As Scottish Water is the sole water services network operator, there is no comparative analysis undertaken.

The reporting framework is organised around a set of information reporting elements, being:

- | | |
|-----------------------------------|-------------------------|
| • Base Information | • Asset Information |
| • Operating Costs and Efficiency | • Investment Monitoring |
| • Asset Inventory | • Regulatory Accounts |
| • Transfer Pricing (subsidiaries) | |

OfWat (The Water Services Regulation Authority) England and Wales

Key Facts

Jurisdiction: England and Wales

Industry: Water

Regulators: OfWat – The Water Services Regulation Authority

Water service providers: 32 privatised water companies, with a non-household retail market in England and large users in Wales

Performance framework administration: OfWat – The Water Services Regulation Authority

Reporting obligation: Mandatory

Overview of framework

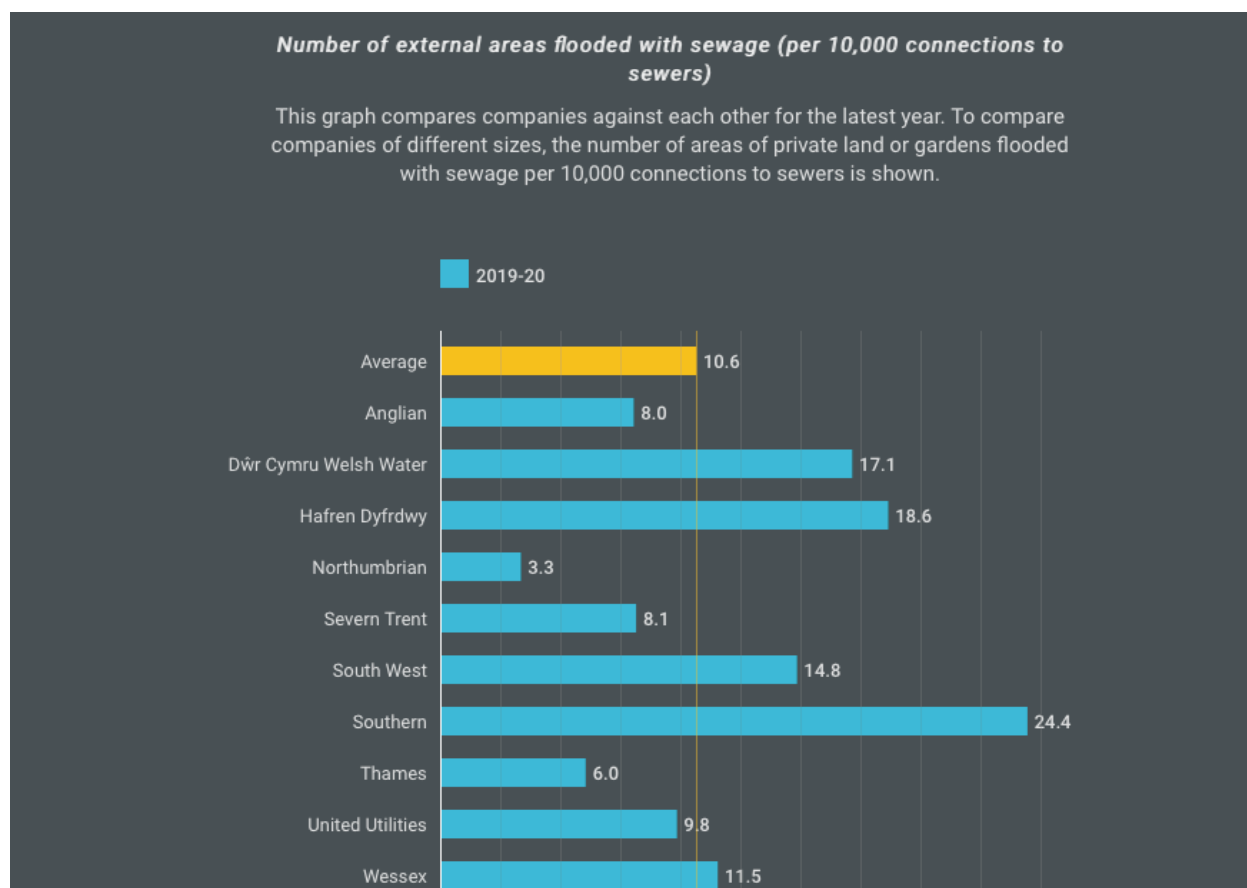
OfWat or The Water Services Regulation Authority is the economic regulator of the privatised water/wastewater industry in England and Wales. It is a non-ministerial government department. OfWat's duties also include protecting consumers interests and ensuring supply resilience.

Ofwat oversees the services provided by 32 water services providers comprised on 17 large companies and several smaller providers. The water industry for England and Wales is similar to that being proposed for New Zealand in that it is comprised of a number of water services entities that are overseen on a competition by comparison basis, although differs in that ownership of the entities is private.

OfWat requires water service providers furnish a comprehensive annual performance report of their operating results. This information is then collated, and a service delivery report of this information is published showing the comparisons of the water services entities. Water service companies are also subject to an outcome delivery incentive programme which penalises or rewards companies based on their performance.

Summarised information and comparative performance charts are also made available online through a portal.

Figure 3: Example comparative analysis chart from discoverwater.co.uk



In addition to financial performance, the reporting framework is organised around a set of service delivery outcomes, being:

- Customer Satisfaction
- Leakage
- Supply Interruptions
- Mains Repairs
- Sewer Flooding
- Sewer Collapses
- Priority Services
- Household Water use
- Water Quality
- Unplanned Outage
- Pollution Incidents
- Treatment Works Compliance

Comparative infrastructure intensive sectors within New Zealand

Commerce Commission NZ - Electricity Distribution in New Zealand

Key Facts

Jurisdiction: New Zealand

Industry: Electricity Distribution

Regulator: Commerce Commission NZ

Service providers: 29 Lines companies with a mix of private (17) or customer ownership (12)

Performance framework administration: Commerce Commission NZ

Reporting obligation: Mandatory

Overview of framework

Electricity distribution in New Zealand operates under a regulated model overseen by the Commerce Commission with services being provided by 29 lines companies that operate within discrete franchise areas. In this regard the electricity distribution industry in New Zealand is similar to the 4-entity model being proposed for 3-waters. Under government legislation lines companies are prohibited from also being an electricity retailer, so regulation only covers the operation of electricity distribution networks and the lines charges levied on customers for these services.

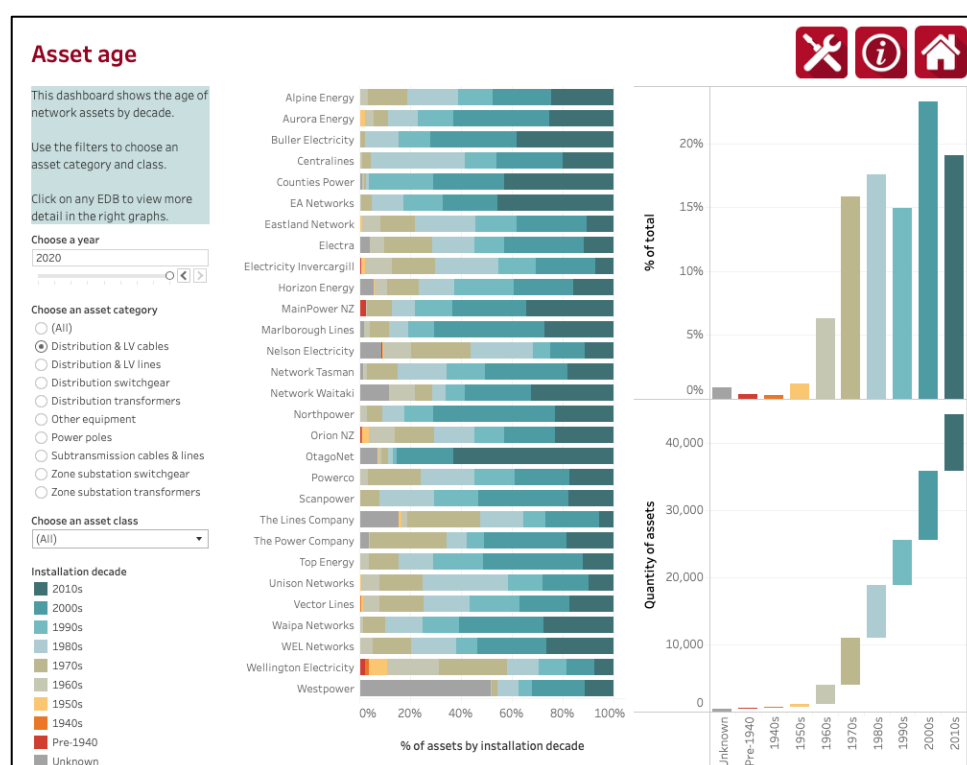
Lines companies are required to furnish a report on their performance annually to the Commerce Commission. The Commission then collates the information provided and publishes the results in both summarised form and as a comparative analysis.

Price-quality regulation forms part of the regulatory framework, however customer-owned lines companies that meet certain criteria are exempt from price-quality regulation.

Information disclosure requirements also require lines companies to disclose their Asset Management Plans.

The Commerce commission provides a publicly accessible online information and reporting tool.

Figure 4: Example comparative analysis chart from Commerce Commission's online portal



The regulatory performance reporting framework is organised around a set of key performance areas being:

- Regulatory Profit
- Regulatory Asset Base
- Renewal and Growth Expenditure
- Reliability by Equipment
- Lines and Cables
- Asset Condition
- Return on Investment
- Capital Expenditure
- Operating Expenditure
- Reliability by Cause
- Demand Density
- Asset Age

Waka Kotahi NZ Transport Agency - Land Transport in New Zealand

Key Facts

Jurisdiction: New Zealand

Industry: Land Transport

Regulators: Waka Kotahi NZ Transport Agency

Land Transport service providers: Waka Kotahi, City and District Councils and Unitary Authorities with some services provided by Council Controlled Organisations.

Performance framework administration: Waka Kotahi, Road Efficiency Group

Reporting obligation: Voluntary for Road Efficiency Group performance reporting although some information required to be provided in support of funding applications, mandatory for DIA local government performance measures.

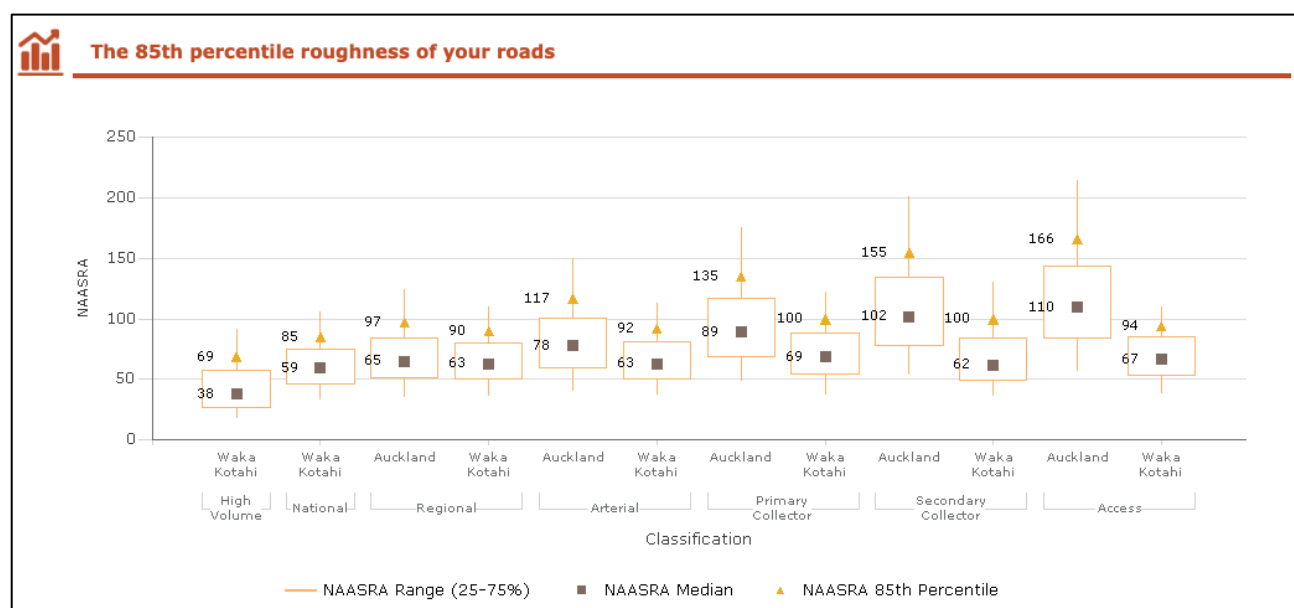
Overview of framework

Waka Kotahi NZ Transport Agency is the Land Transport regulator for New Zealand and oversees the economic and asset performance of Road Controlling Authorities. Waka Kotahi have a role in ensuring infrastructure investment is applied appropriately and that Levels of Service and performance are maintained at acceptable levels. The model for land transport is like that envisaged in the draft legislation for 3-waters in that the Government provides the overall strategic direction for the sector through publishing a Government Policy Statement, to which service delivery and performance is linked.

Funding of Land Transport Infrastructure investment in New Zealand is a combination of The National Land Transport Fund derived from road user charges, tax on fuel, vehicle and driver licensing, and road tolls, and direct investment by city and district councils derived from rates and fees. To receive funding from the National Land Transport Fund, councils are required to provide information to Waka Kotahi in support of their funding claim. This information is encapsulated in a Long Term Plan the Council is required to produce on a 3-year cycle. Councils have some freedom to set the activities and related levels of service and performance measures they plan to use, however DIA does mandate a small number of non-financial performance measures be reported. Councils report to Waka Kotahi annually on their performance against targets set in Long Term Plans.

A unique feature of the New Zealand land transport sector is that almost all Councils and Waka Kotahi store their asset information in a common information system, RAMM. This means that the asset information required for sector wide performance reporting and comparative analysis reside in a single database. The Road Efficiency Group, a collaborative partnership between Waka Kotahi and Local Government New Zealand has built a number of online reporting tools that connect to the data in RAMM.

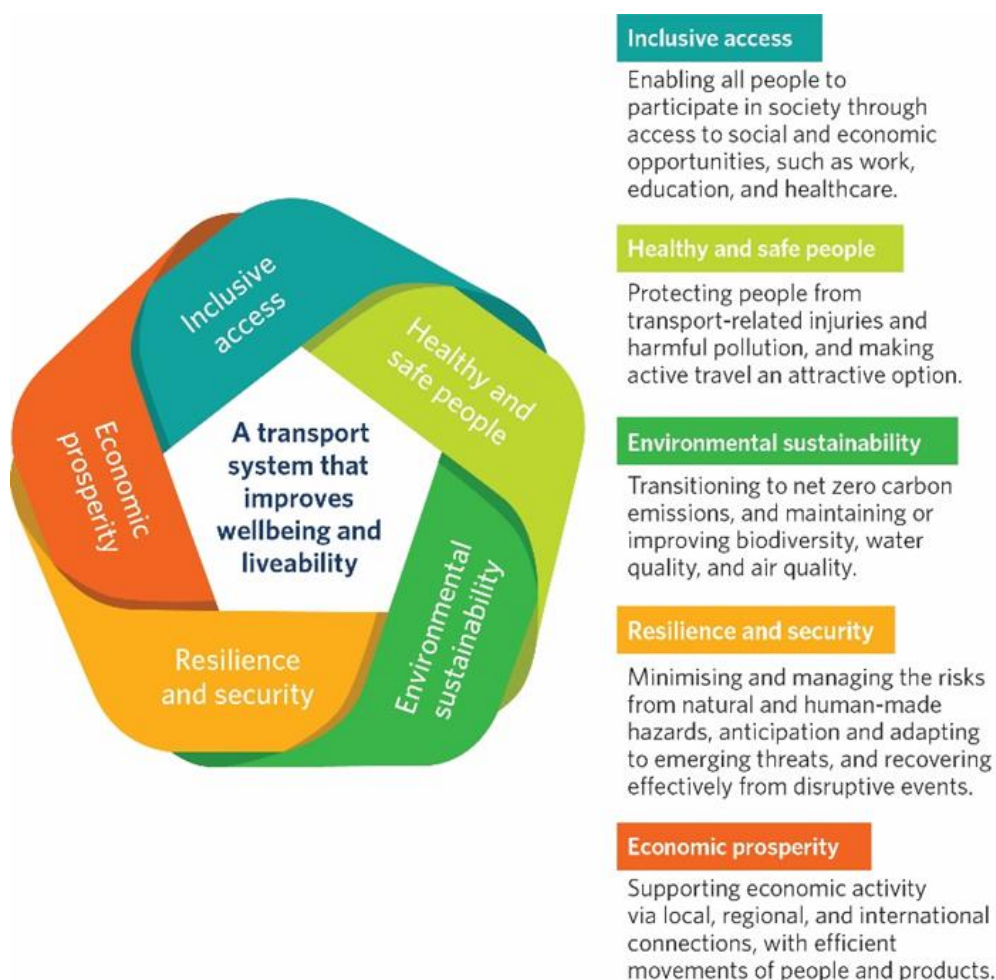
Figure 5: Example comparative analysis chart from Road Efficiency Group online portal



Recently, Waka Kotahi and the Road Efficiency Group have introduced a new road classification framework, the One Network Framework (ONF), to which infrastructure asset levels of service and performance are linked. This included a complete review of the service outcomes and performance monitoring framework used in managing the road network and is closely linked to the funding structure for land transport. The framework allows for the setting of levels of service based on the classification of roads.

The Transport Outcomes Framework (see **Figure 6**) was established to identify how the transport system supports and can improve intergenerational wellbeing and liveability outcomes in alignment with the Treasury's Living Standards Framework.

Figure 6: Transport Outcomes Framework



All five Transport Outcomes are inter-related and need to be met as a whole to improve intergenerational well-being and the quality of life in New Zealand's cities, towns, and provinces. The ONF Service Outcomes have been designed to align to and contribute to the Transport Outcomes.

Government may prioritise some outcomes over others, depending on social / economic / environmental / resilience circumstances and the Government of the day. The Service Outcomes help to ensure that Agencies get the best results over time and across a range of outcomes.

Performance reporting is organised around these five land transport service outcomes.

Review findings

The various approaches to the monitoring and reporting of levels of service and performance provide a number of insights into methodologies that could be adopted for the future New Zealand 3-waters sector.

Ability to capture data

Most of the frameworks reviewed required the annual return of a large amount of data to the regulator. A significant factor of the reforms is that they will see the transition from a number of quite small water service providers in rural areas, to four significantly sized entities. This means each of the entities will have the size and sophistication to be able to record a comprehensive set of performance measures, something that would have been a significant burden for smaller rural councils.

Availability of information

Much of the information contained within the annual reporting for the jurisdictions examined required information that would be in addition to that which would normally be collected as part of normal operations. For example, the number of customers served is easily retrieved from the customer service or rating system, whereas the details about the frequency and duration of service interruptions is something that needs to be captured at the time of the interruption, into a database structured correctly to allow for the reporting of customer interruptions. The availability of information and ability to record it without undue burden should be a consideration when designing a performance measurement framework. Many of the measures contained in the frameworks reviewed were simply combinations of simple metrics that were already known, for example, consumption per person per day is simple derivative of bulk water supplied to residential customers divided by the known population.

Level of detail

Some of the frameworks reviewed went into a significant level of detail on some metrics. Often this involved a lengthy breakdown by sub category, or even multiple levels breakdown. Linked to ability to capture, and availability of information, consideration needs to be given to what the appropriate level of detail should be within the framework for 3-waters in New Zealand. A well selected measure monitors a performance area that is important to the operation, provides insight, and should be something within the organisation's ability to influence so that low levels of performance are able to be addressed.

Best Practice

The following highlights the best practices discovered from the literature review.

Openness of information

A recurring feature of the frameworks reviewed is the openness with which the data is made available to anyone. This is a key feature of competition by comparison, allowing the organisations furnishing reports to the regulator to benchmark themselves against their peers. Almost all the framework administrators published the results of the annual performance returns using an online dashboard/report facility that was freely available to the public that allowed for comparison of service providers. All made public their annual report on sector performance.

Alignment to strategy

The land transport framework is the best example of those reviewed of directly linking performance to corporate or governmental strategy and policy. The performance framework is organised around delivery of the five strategic outcomes the Ministry of Transport have set for Waka Kotahi and the land transport sector.

The Essential Services commission in Victoria Australia publish annually a report on water outcomes that is a self-assessment of each water corporation's performance against its stated customer outcomes. These outcomes are set by and are specific to each water corporation, and may not always align directly to corporate strategic priorities.

Alignment of levels of service and performance to corporate and governmental strategic outcomes is important as it ensures organisations are monitoring and reporting on those things that are deemed important to the success of the organisation, and is a fundamental driver in investment decision making.

Inclusion of Mana Whenua

Both the Electricity Distribution and Land Transport frameworks include measures that indicate the impact of the respective networks on Mana Whenua, if at a relatively high level. For electricity distribution, locations where power distribution lines traverse land sensitive to iwi is recorded. For land transport, there is an available measure for assessing the level of access the land transport network provides to locations of significance to mana whenua.

The role mana whenua will have in the governance and operation of 3-waters in future, and with Cultural Wellbeing forming one of the four wellbeings, development of appropriate service and performance measures that consider the needs of mana whenua will be required in the design of the framework for 3-waters.

Network Reliability

It is important that network reliability and the reporting of service interruptions is expressed as the impact on customers, not just as a count per route length of network. This allows for a better understanding of how the performance or failure of the network, including planned interruptions affects the customer. It also allows for targeted maintenance to those areas where the level of impact on customers is greatest. An example where incorrect capture and analysis of information can lead to misleading result is where each interruption is only counted as one, irrespective of the scale of the disruption. Using this approach, the disruption to an entire pressure zone would have the same importance as the loss of service to a cul-de-sac. The total count of interruptions would still be a by-product of capturing more detailed information about the number of customer affected by a service interruption.

The best example of network reliability monitoring and reporting is that from Electricity Distribution in NZ, where the overall customer experience in terms of service interruption frequency and duration is expressed in the SAIFI and SAIDI indices.

Resilience

A key approach to ensuring network reliability is to ensure 3 waters networks have resilience built in to ensure levels of service can be maintained or disruption minimised when unplanned events affect service provision. This can take many forms, from ensuring networks are designed to allow for the isolation of small service areas, to having backup electricity supply provisions for critical plant. Regular hydrant testing to ensure appropriate firefighting supply, to ensuring water storage in reservoirs is sufficient are other examples. The reporting of asset ages and asset condition for assets under management were also common measures used as an indicator of resilience.

Environmental Sustainability

A strong approach to environmental sustainability was evident in all water services frameworks reviewed. This included performance measurement related to the following aspects of environmental performance and compliance:

- The reuse or responsible disposal of resources and by products of water and waste treatment.
- Tracking of the efficient use of water by consumers and of water lost due to network leakage.
- The measurement of organisations investment in green assets and other practices which contribute to environmental protection.
- Measures that track the impact of climate change and the associated response to those affects.
- Performance against environmental obligations in resource consents.

Investment in infrastructure

While economic performance was out of scope for this review, investment in networks and plant to ensure minimum levels of service are maintained is a key driver for the three waters reforms. A number of measures were utilised to indicate the level of investment in networks, stated as level of investment in capital programmes or as the amount of assets created or renewed. This can then either be stated as a percentage of network length renewed, or as the change in asset base for the previous year.

Table 1 shows the level to which each of the frameworks reviewed aligns with the best practice principles described above.

Table 1: Comparison of best practice

Principle	Water NZ	Victoria	Scotland	England and Wales	NZ Electricity Distribution	NZ Land Transport
Openness of information	●	●	●	●	●	●
Alignment to strategy/policy	●	●	●	●	●	●
Inclusion of Mana Whenua (or indigenous outcomes)	●	●	N/A	N/A	●	●
Network Reliability (impact on customers)	●	●	●	●	●	N/A
Resilience	●	●	●	●	●	●
Environmental Sustainability	●	●	●	●	●	●
Investment in Infrastructure	●	●	●	●	●	●

Appendix A: Levels of Service and Performance measures

This appendix describes the specific metrics and measures used in each of the frameworks described earlier. This section limits analysis to those Levels of Service and Performance measures directly related to infrastructure assets, and excludes performance measures that would come under the purview of an economic regulator.

New Zealand Public Water Sector

DIA Mandatory Performance Measures

Activity	Performance Measure	Metric
Water Supply		
Network Maintenance	The percentage of real water loss from the local authority's networked reticulation system	Percentage
Fault Response Times	(a) attendance for urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site, and	Median Response time in minutes
	(b) resolution of urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption.	Median resolution time in minutes
	(c) attendance for non-urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site, and	Median Response time in minutes
	(d) resolution of non-urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption.	Median resolution time in minutes
Customer Satisfaction	The total number of complaints received by the local authority about any of the following: (a) drinking water clarity; (b) drinking water taste; (c) drinking water odour; (d) drinking water pressure or flow; (e) continuity of supply; and (f) the local authority's response to any of these issues, expressed per 1000 connections to the local authority's networked reticulation system.	Number of complaints per 1000 connections
Demand Management	The average consumption of drinking water per day per resident within the territorial authority district.	Litres/person/day

Activity	Performance Measure	Metric
Wastewater		
System and adequacy	The number of dry weather sewerage overflows from the territorial authority's sewerage system.	Number per 1000 connections
Management of environmental impacts	Compliance with the territorial authority's resource consents for discharge from its sewerage system measured by the number of: (a) abatement notices; (b) infringement notices; (c) enforcement orders; and (d) convictions, received by the territorial authority in relation those resource consents.	Total count
Response to sewerage system faults	Where the territorial authority attends to sewerage overflows resulting from a blockage or other fault in the territorial authority's sewerage system, the following median response times measured: (a) attendance time: from the time that the territorial authority receives notification to the time that service personnel reach the site; and (b) resolution time: from the time that the territorial authority receives notification to the time that service personnel confirm resolution of the blockage or other fault.	Median Response time in minutes Median resolution time in minutes
Customer Satisfaction	The total number of complaints received by the territorial authority about any of the following: (a) sewage odour; (b) sewerage system faults; (c) sewerage system blockages; and (d) the territorial authority's response to issues with its sewerage system.	Number of complaints per 1000 connections
Stormwater		
System and adequacy	(a) The number of flooding events that occur in a territorial authority district. (b) For each flooding event, the number of habitable floors affected.	Number per 1000 connections
Management of environmental impacts	Compliance with the territorial authority's resource consents for discharge from its stormwater system measured by the number of: (a) abatement notices; (b) infringement notices; (c) enforcement orders; and convictions, received by the territorial authority in relation those resource consents.	Total count
Response to stormwater system issues	The median response time to attend a flooding event, measured from the time that the territorial authority receives notification to the time that service personnel reach the site.	Median Response time in minutes
Customer Satisfaction	The number of complaints received by a territorial authority about the performance of its stormwater system	Number of complaints per 1000 properties
Flood Protection		
Maintenance of works	The major flood protection and control works that are maintained, repaired and renewed to the key standards defined in the local authority's relevant planning documents (such as its activity management plan, asset management plan, annual works program or long-term plan)	Reported against target measures set in AMP with commentary.

WaterNZ - National Performance Review

Activity	Performance Measure	Metric
Assets Under Management		
Asset Overview	Length of Network <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Kilometres
	Average age of Network <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Years
	Number of Pump Stations <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Count
	Number of Treatment Plants <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Count
	Treatment Plant Value	Dollars
	Other Network Value	Dollars
Network Connections	Serviced Population <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Count
	Residential Properties Serviced <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	
	Non-residential properties serviced <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	
Pipe Condition	Pipeline condition assessment approach <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Description
	Percentage of pipeline at each condition grade (1 to 5 and ungraded)	Percentage
Asset Inspection	Condition assessment approach <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Description
	Percentage above ground assets assessed within 3 years	Percentage
	Regular condition assessment programme for above ground water supply assets <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Yes/No
SCADA	Proportion of the SCADA/telemetry system utilising analogue communications	Percentage
	Proportion of the SCADA/telemetry system utilising digital communications	Percentage

Activity	Performance Measure	Metric
	Proportion of assets (pump stations, treatment plants, bores, intakes, reservoirs etc) that have elements which can be controlled using SCADA/telemetry	Percentage
	Proportion of assets (pump stations, treatment plants, bores, intakes, reservoirs etc) that have monitoring points connected to the SCADA/telemetry system.	Percentage
Public Health and Environmental Protection		
Wastewater Overflows	Dry weather overflows by cause <ul style="list-style-type: none"> - Blockages - Plant failure 	Count
	Wet weather overflows from <ul style="list-style-type: none"> - Wastewater network - Combined stormwater and wastewater network 	Count
	Overflow recording <ul style="list-style-type: none"> - Verbal Reports - SCADA Monitoring - Overflows calculated through hydraulic models - Overflows calculated through calibrated hydraulic models 	Count
Wastewater Compliance	Wastewater resource consent breaches: <ul style="list-style-type: none"> - abatement notices; - infringement notices; - enforcement orders; and - successful prosecutions - letters of direction - consent formal warnings - treatment plant non-conformance 	Count
Stormwater Quality Management	Stormwater quality is regularly monitored	Yes/No
	The organisation has a plan (or similar document) to manage stormwater quality	Yes/No
Stormwater Compliance	Stormwater discharge consent breaches: <ul style="list-style-type: none"> - abatement notices; - infringement notices; - enforcement orders; and - successful prosecutions - letters of direction - consent formal warnings 	Count

Activity	Performance Measure	Metric
Customer Focus		
Customer Complaints	Complaints by Type: <ul style="list-style-type: none"> Water <ul style="list-style-type: none"> - Water clarity - Taste - Odour - Pressure or flow - Continuity of supply - Response to issues Wastewater <ul style="list-style-type: none"> - Odour - Blockages - Faults - Response to issues Stormwater <ul style="list-style-type: none"> - Blockages - Faults 	Count
Fault Response Times	Water <ul style="list-style-type: none"> - Attendance time for urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site, and - Resolution of urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption. - Attendance for non-urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site, and - Resolution of non-urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption. 	Hours
	Wastewater <ul style="list-style-type: none"> - Median time taken for the local authority to attend call-outs in response to sewerage overflows resulting from a blockage or other fault in the local authority's sewerage system - Attendance time : From the time that the local authority receives notification of a fault in the sewerage system to the time that service personnel reach the site. - Resolution Time: From the time that the local authority receives notification of a fault in the sewerage system to the time that service personnel confirm permanent resolution of the fault. 	Hours
	Stormwater <ul style="list-style-type: none"> - Median time taken for the local authority to attend call-outs in response to a flooding event 	Hours
Reliability		
System Interruptions	Unplanned Interruptions <ul style="list-style-type: none"> - Water - Wastewater Planned Interruptions <ul style="list-style-type: none"> - Water - Wastewater Third party incidents <ul style="list-style-type: none"> - Water - Wastewater 	Count

Activity	Performance Measure	Metric
	Unplanned Interruption frequency <ul style="list-style-type: none"> - Water Supply - Wastewater 	Count per 1000 serviced properties
Pipeline Age	Average age of pipelines (weighted average) <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Years
Inflow and Infiltration	Peak wet to average dry weather flow ratio	Ratio
Water Loss	Percentage Estimated Total Network Water Loss	Percentage
	Infrastructure leakage index (ILI) $\frac{\text{Current Annual Real Losses (CARL)}}{\text{Unavoidable Annual Real Losses (UARL)}}$	Calculated score
	Average System Pressure	Metres (Head)
Resource Efficiency		
Demand	Water Supplied	Cubic metres/year
	Water Restriction Days - The total number of days water restrictions were in place, multiplied by the number of affected properties	Restriction days
	Water Metering - Properties with water meters	Count
	Water Restrictors – Properties with Water Restrictors	Count
Water efficiency	Average daily residential water consumption	Litres/person/day
	Non-residential water consumption	m ³ /year
Sludge production	Amount of water treatment sludge produced	Tonne/year
	Amount of wastewater treatment sludge produced	Tonne/year
	Sludge disposal route	Description
Energy Use and Generation	Energy Consumption <ul style="list-style-type: none"> - Water - Wastewater - Stormwater 	Gigajoules/year
	Energy Generation <ul style="list-style-type: none"> - Water - Wastewater 	Gigajoules/year
	Greenhouse gas emissions from wastewater treatment plants	Tonnes of carbon dioxide equivalent greenhouse gas
Resilience		
Back-up Power Supplies	Number of facilities with back-up generators <ul style="list-style-type: none"> - Water treatment plants - Wastewater treatment plants - Water pump stations - Wastewater pump stations 	Count
Firefighting water supplies	Percentage of fire hydrants inspected in the previous five years	Percentage
Water Storage	Number of water supply reservoirs	Count
	Water Stored in reservoirs - Annual arithmetic mean of the 24 hour average volume of water stored in reservoirs	m ³

Activity	Performance Measure	Metric
Flooding	Flooding Events <ul style="list-style-type: none"> - Resulting from storms exceeding stormwater capacity - Resulting from other causes 	Count
	Number of habitable floors affected by storms exceeding stormwater capacity	Count
Stormwater Network Capacity	Annual exceedance probability (AEP) value - the chance or probability of a flooding event occurring annually	Percentage

A number of additional measures and metrics are derived from the combination of two or more of the base performance measures collected.

The WaterNZ online participant data portal allows for individual council reporting as well as comparative analysis.

Victoria, Australia

Levels of Service and Performance measures

Activity	Performance Measure	Metric
Baseline Data		
Customers	Number of water customers	Count
	Number of wastewater customers	
	Number of waterways and drainage charge customers	
	Number of trade waste customers	
	Permanent population served	
Assets	Length of water mains	Kilometres
	Length of wastewater mains	
Water supply	Volume of water sourced	Megalitres
	- Surface water	
	- Groundwater	
	- Desalination	
	- Bulk supplier (potable and non-potable)	
Water supply	- Bulk supplier (recycled)	
	Volume of water received	
	Volume of water delivered	
	- Residential	
	- Non-residential	
	- Recycled (residential and non-residential)	
	Volume of bulk water (potable and non-potable) exports	
	Volume of bulk recycled water exports	
	Number of water treatment plants	Count
Wastewater	Volume of wastewater collected	Megalitres
	Number of wastewater treatment plants	Count
	Volume of influent wastewater treated	Megalitres
	- Primary	
Wastewater	- Secondary	
	- Tertiary	
	Volume of trade waste collected	
Water Network Reliability and Efficiency		
Bursts and Leaks	Number of bursts and leaks	Count
	Total minutes to respond to bursts and leaks	Minutes
	Total minutes to rectify bursts and leaks	
Supply Interruption	Number of water supply interruptions	Count
	Number of water supply interruptions restored within 5h	
	Number of water supply customer interruptions	
	Total customer minutes to restore water supply	Minutes
	Number of customers receiving 1, 2, 3, 4, 5, and 6+ unplanned water supply interruption/s in the year	Count
	Number of residential water customer interruptions exceeding 5 hours	
Supply Interruption	Number of planned residential water customer interruptions during peak hours (5am-9am and 5pm-11pm)	

Activity	Performance Measure	Metric
Water Loss	Non-revenue water	Megalitres
	Leakage - Infrastructure leakage index (ILI)	Score
	Real Water Losses per connection per day	Kilolitres/ connection/day
	Real water losses per kilometre of water main per day	Kilolitres/ kilometre/day
Sewer Network Reliability and Efficiency		
Blockages	Number of sewer blockages	Count
	Total minutes to respond to reported sewer blockage/ spill	Minutes
	Total time taken to repair sewer blockage/ spill	
	Number of customers receiving 3 or more sewer blockages in the year	Count
Spills	Number of sewage spills from reticulation and branch Sewers	Count
	Number of sewage spills from reticulation and branch sewers fully contained within 5 hours	
	Number of sewage spills to customer properties	
	Number of residential sewer supply customer interruptions restored within X hours	
	Number of sewer spills within a house	
Customer Responsiveness and Service		
Customer requests	Number of calls <ul style="list-style-type: none"> - Accounts - Faults 	Count
	Average call connect time to operator <ul style="list-style-type: none"> - Accounts - Faults 	Seconds
	Number of calls connected to operator within 30 seconds <ul style="list-style-type: none"> - Accounts - Faults 	Count
	Number of complaints <ul style="list-style-type: none"> - Water quality - Water supply reliability - sewerage service quality and reliability - Payment issues - Flow rate - Sewerage odour - Other 	Count
Water Conservation, Reuse, Recycling		
Effluent reuse	Treatment plant effluent reuse <ul style="list-style-type: none"> - Volume supplied to retailers - Urban and industrial - Agricultural uses - Beneficial allocations - Within process - Environmental discharge - Potable water substitution 	Megalitres

Activity	Performance Measure	Metric
Spills	Number of sewage spills from emergency relief structures (ERS) and pumping stations <ul style="list-style-type: none"> - Blockage - Hydraulic - Extreme wet weather - System failure 	Count
	Volume of sewage spilt from ERS and pumping stations	Megalitres
Greenhouse gas emissions	CO2 equivalent emissions <ul style="list-style-type: none"> - Water treatment and supply - Sewerage treatment and management - Transport - Other - CO₂ offsets 	Equivalent tonnes of CO2
Biosolids	Treatment plant biosolid reuse <ul style="list-style-type: none"> - Mass produced - Mass reused - Mass stored 	Tonnes
Trade waste	Trade waste volume received	Megalitres
Drinking Water Quality		
Standards for drinking water quality	Percentage of connections receiving water meeting standards for: <ul style="list-style-type: none"> - E. coli - Turbidity 	Percentage
Non-compliance incidents	Number of non-compliance incidents (water sampling and audit)	Count
Trade Waste		
Customers	Number of trade waste customers with agreements containing customer-specific acceptance criteria	Count

The metrics above are the raw amounts reported. In some instances this information is then combined with other metrics to create a measure such as interruptions per km of network, or processed to produce meaningful measures such as averages.

Melbourne Water

Stormwater in Victoria is managed by Melbourne Water for the greater Melbourne region and otherwise by local councils, and overseen by The Department of Environment, Land, Water and Planning. Although Melbourne Water undertakes water and wastewater treatment and is the water and wastewater wholesaler for Melbourne, their performance is not reported by the Essential Services Commission in their annual performance report. For completeness, following describes the stormwater specific performance measures Melbourne Water publishes through their annual report.

Activity	Performance Measure	Metric
Stormwater		
Waterways — Drainage and Flood protection	% reduction in flood effects achieved by projects in delivery by Melbourne Water	Percentage
Waterways condition	Waterways that have undergone active management will be maintained or improved against an established baseline	Percentage
Underground Drains	Total length of Melbourne Water assets	Kilometres
	Total length of Melbourne Water assets excluding drainage scheme areas	Kilometres
	Length of network with ARI mapped	Kilometre / percentage of network
	<ul style="list-style-type: none"> - 100yr ARI - 20yr ARI - 10yr ARI - 5yr ARI 	
Natural Waterways	Total length of Melbourne Water assets	Kilometres
	Total length of Melbourne Water assets excluding drainage scheme areas	Kilometres
	Length of network with ARI mapped	Kilometres / percentage of network
	<ul style="list-style-type: none"> - 100yr ARI - 20yr ARI - 10yr ARI - 5yr ARI 	
Channels	Total length of Melbourne Water channels	Kilometres
	Length of network with 100yr ARI mapped <ul style="list-style-type: none"> - Underground drains - Waterways 	Kilometres

Scotland

Scottish Water are required to provide a return to WICS that covers hundreds of specific data points. The following is an abridged version.

Levels of Service and Performance measures

Activity	Performance Measure	Metric
Base Information		
Connected and billed properties	Billed Properties – Water <ul style="list-style-type: none"> - Unmeasured household billed properties - potable water (including exempt) - Measured household billed properties - potable water - Unmeasured non-household occupied billed properties - potable water (including exempt) - Unmeasured non-household vacant billed properties - potable water (including exempt) - Measured non-household occupied billed properties - potable water - Measured non-household vacant billed properties - potable water 	Count
	Connected Properties – Water <ul style="list-style-type: none"> - Unmeasured household connected properties - Measured household connected properties - Unmeasured non-household connected properties - Measured non-household connected properties 	Count
	Billed Properties - Foul Sewerage <ul style="list-style-type: none"> - Unmeasured household billed properties (including exempt) - Measured household billed properties - Unmeasured non-household occupied billed properties (including exempt) - Unmeasured non-household vacant billed properties (including exempt) - Measured non-household occupied billed properties - Measured non-household vacant billed properties 	Count
	Connected Properties - Foul Sewerage <ul style="list-style-type: none"> - Unmeasured household connected properties - Measured household connected properties - Unmeasured non-household connected properties - Measured non-household connected properties 	Count
	Billed Properties - Surface Drainage <ul style="list-style-type: none"> - Unmeasured household billed properties (including exempt) not billed for surface drainage - Measured household billed properties not billed for surface drainage - Unmeasured non-household billed properties not billed for surface drainage - Measured non-household billed properties not billed for surface drainage - Household properties billed for surface drainage only - Non-household occupied properties billed for surface drainage only - Non-household vacant properties billed for surface drainage only 	Count
	Connected Properties - Surface Drainage <ul style="list-style-type: none"> - Unmeasured household connected properties - Measured household connected properties - Unmeasured non-household connected properties - Measured non-household connected properties 	Count

Activity	Performance Measure	Metric
	Trade Effluent <ul style="list-style-type: none"> - Billed Properties - Connected Properties 	Count
Trade Effluent	Trade effluent load receiving secondary treatment (BOD/yr) Trade effluent load receiving secondary treatment (COD/yr)	Tonnes
Vacant Charging and Disconnections	Disconnections for: <ul style="list-style-type: none"> - Non-household permanent disconnections - Non-household water properties de-registered from the market - Non-household wastewater properties de-registered from the market - Non-household drainage only properties de-registered from the market - Non-household water properties under successful temporary transfer to Scottish Water - Non-household wastewater properties under successful temporary transfer to Scottish Water - Non-household drainage only properties under successful temporary transfer to Scottish Water - Non-household water properties pending temporary transfer to Scottish Water - Non-household wastewater properties pending temporary transfer to Scottish Water - Non-household drainage only properties pending temporary transfer to Scottish Water - Discontinuation of Trade Effluent services 	Count
Population, volumes and loads (Water)	Summary – Population <ul style="list-style-type: none"> - Winter - Summer 	Count
	Household - Population – Water <ul style="list-style-type: none"> - Population of unmeasured household properties - Population of measured household properties - Household population connected to the water service 	Count
	Water Balance <ul style="list-style-type: none"> - Net Distribution input treated water (water put into supply) - Unmeasured household volume of water delivered (including losses) - Measured household volume of water delivered (including losses) - Unmeasured non-household volume of water delivered (including losses) - Measured non-household volume of water delivered (including losses) - Water taken unbilled - legally - Water taken unbilled - illegally - Water taken unbilled - Distribution System Operational Use (DSOU) - Net Consumption (including supply pipe losses) - Distribution losses (including trunk mains and reservoirs) - Customer supply pipe losses 	Megalitres/day
	Leakage <ul style="list-style-type: none"> - Total Leakage (pre-MLE Adjustment) - MLE Adjustment - Total Leakage (post-MLE Adjustment) 	Megalitres/day
	Water delivered - non-potable	Megalitres/day
	Water delivered – components <ul style="list-style-type: none"> - Per Household consumption (unmeasured) - Per Household consumption (measured) 	Litres/household/day

Activity	Performance Measure	Metric
	Meter under-registration (measured households) (included in water delivered) Meter under-registration (measured non-households) (included in water delivered)	Megalitres/day
Population, volumes and loads (Waste water)	Summary – Population - Winter - Summer - Household Population connected to the wastewater service	Count
	Sewage – Volumes - Unmeasured household volume (including exempt) - Measured household volume - Unmeasured non-household foul volume (including exempt) - Measured non-household foul volume - Trade effluent volume - Total volume - Volume septic tank waste	Megalitres/day
	Sewage - Load (BOD/yr) - Unmeasured household load (including exempt) - Measured household load - Unmeasured non-household foul load (including exempt) - Measured non-household foul load - Trade effluent load - Total load discharged from primary services - Private septic tank load - Public septic tank load - Other tanker load - Total load entering sewerage system (BOD/yr)	Tonnes
	- Average COD concentration - Average suspended solids concentration	Megalitres/day
	- Equivalent population served (resident) - Equivalent population served (resident)(numerical consents)	Count
	- Total load receiving treatment through PPP treatment works	Tonnes
	Sewage Sludge Treatment and Disposal - Total sewage sludge disposal - Total sewage sludge disposal by PPP treatment works	Tonnes
	- Percentage unsatisfactory sludge disposal	Percentage

Activity	Performance Measure	Metric
Asset Information		
Water Service	<ul style="list-style-type: none"> - Total length of mains (Opening balance) - Mains renewed - Mains relined - Mains cleaned (total) - Distribution mains cleaned for quality - New mains - Mains abandoned - Other changes - Total length of mains (closing balance) 	Kilometres
	<ul style="list-style-type: none"> - Lead communication pipes replaced - quality - Lead communication pipes replaced - maintenance or other - Communication pipes replaced - other 	Count
Wastewater Service	Critical/Non-Critical Sewers <ul style="list-style-type: none"> - Total length of sewers - opening balance - New sewers added during the year - Sewers inspected by CCTV or man entry during the year - Sewers - renovated - Sewers - replaced - Abandoned sewers - Other changes to sewers - Total length of sewer - closing balance 	kilometres
Asset Inventory		
The data required to be provided by Scottish Water for Asset Inventory is at the level that would enable comprehensive asset valuation down to component level.		

England and Wales

Water Companies are required to provide a return to OfWat that covers hundreds of specific data points. The following is an abridged version.

Levels of Service and Performance measures

Activity	Performance Measure	Metric
Outcome Performance		
Water common performance commitments	<ul style="list-style-type: none"> - Water quality compliance (CRI) - Water supply interruptions - Leakage - Per capita consumption - Mains repairs - Unplanned outages 	
Wastewater common performance commitments	Number of internal sewer flooding incidents per 10,000 sewer connections	Count/10,000 connections
	Pollution incidents per 10,000 km of sewer length	Count/10,000km
	Number of sewer collapses per 1,000 km of all sewers	Count/1000km
	Treatment works compliance	Percentage
Customer measure of experience (C-MeX)	<ul style="list-style-type: none"> - Annual customer satisfaction score for the customer service survey - Annual customer satisfaction score for the customer experience survey - Annual C-MeX score - Annual net promoter score 	Score
	<ul style="list-style-type: none"> - Total household complaints - Total connected household properties - Total household complaints per 10,000 connections 	Count
Non-financial performance commitments	<ul style="list-style-type: none"> - Risk of severe restrictions in a drought - Priority services for customers in vulnerable circumstances - PSR reach - Priority services for customers in vulnerable circumstances - Attempted contacts - Priority services for customers in vulnerable circumstances - Actual contacts - Risk of sewer flooding in a storm 	
Water		
Water bulk supply	Bulk supply exports	Megalitres
	Bulk supply imports	Megalitres
Water Resources	Water from impounding reservoirs	ML/d
	Water from pumped storage reservoirs	ML/d
	Water from river abstractions	ML/d
	Water from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes	ML/d
	Water from artificial recharge (AR) water supply schemes	ML/d
	Water from aquifer storage and recovery (ASR) water supply schemes	ML/d
	Water from saline abstractions	ML/d
	Water from water reuse schemes	ML/d
	Number of impounding reservoirs	Count
	Number of pumped storage reservoirs	Count
	Number of river abstractions	Count

Activity	Performance Measure	Metric
	Number of groundwater works excluding managed aquifer recharge (MAR) water supply schemes	Count
	Number of artificial recharge (AR) water supply schemes	Count
	Number of aquifer storage and recovery (ASR) water supply schemes	Count
	Number of saline abstraction schemes	Count
	Number of reuse schemes	Count
	Total number of sources	Count
	Total number of water reservoirs	Count
	Total volumetric capacity of water reservoirs	ML
	Total number of intake and source pumping stations	Count
	Total installed power capacity of intake and source pumping stations	kW
	Total length of raw water abstraction mains and other conveyors	km
	Average pumping head – raw water abstraction	m.hd
	Energy consumption - raw water abstraction	MWh
	Total number of raw water abstraction imports	Count
	Water imported from 3rd parties to raw water abstraction systems	ML/d
	Total number of raw water abstraction exports	Count
	Water exported to 3rd parties from raw water abstraction systems	ML/d
	Water resources capacity (measured using water resources yield)	ML/d
Treated water distribution	Total installed power capacity of potable water pumping stations	kW
	Total volumetric capacity of service reservoirs	ML
	Total volumetric capacity of water towers	ML
	Distribution input	ML/d
	Water delivered (non-potable)	ML/d
	Water delivered (potable)	ML/d
	Water delivered (billed measured residential)	ML/d
	Water delivered (billed measured business)	ML/d
	Total annual leakage	ML/d
	Distribution losses	ML/d
	Water taken unbilled	ML/d
	Proportion of distribution input derived from impounding reservoirs	Proportion 0 to 1
	Proportion of distribution input derived from pumped storage reservoirs	Proportion 0 to 1
	Proportion of distribution input derived from river abstractions	Proportion 0 to 1
	Proportion of distribution input derived from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes	Proportion 0 to 1
	Proportion of distribution input derived from artificial recharge (AR) water supply schemes	Proportion 0 to 1
	Proportion of distribution input derived from aquifer storage and recovery (ASR) water supply schemes	Proportion 0 to 1
	Proportion of distribution input derived from saline abstractions	Proportion 0 to 1

Activity	Performance Measure	Metric
	Proportion of distribution input derived from water reuse schemes	Proportion 0 to 1
	Total number of potable water pumping stations that pump into and within the treated water distribution system	Count
	Number of potable water pumping stations delivering treated groundwater into the treated water distribution system	Count
	Number of potable water pumping stations delivering surface water into the treated water distribution system	Count
	Number of potable water pumping stations that re-pump water already within the treated water distribution system	Count
	Number of potable water pumping stations that pump water imported from a 3rd party supply into the treated water distribution system	Count
	Total number of service reservoirs	Count
	Number of water towers	Count
	Energy consumption ~ treated water distribution	MWh
	Average pumping head – treated water distribution	m.hd
	Total number of treated water distribution imports	Count
	Water imported from 3rd parties to treated water distribution systems	ML/d
	Total number of treated water distribution exports	Count
	Water exported to 3rd parties from treated water distribution systems	ML/d
Water network	Mains analysis <ul style="list-style-type: none"> - Total length of potable mains relined - Total length of potable mains renewed - Total length of new potable mains - Total length of potable water mains (≤320mm) - Total length of potable water mains >320mm and ≤ 450mm - Total length of potable water mains >450mm and ≤610mm - Total length of potable water mains > 610mm 	Kilometres
	Main Age Profile - Total length of potable mains laid or structurally refurbished <ul style="list-style-type: none"> - pre-1880 - between 1881 and 1900 - between 1901 and 1920 - between 1921 and 1940 - between 1941 and 1960 - between 1961 and 1980 - between 1981 and 2000 - post 2001 	Kilometres
Wastewater		
Wastewater Network	Connectable properties served by s101A schemes completed in the report year	Count
	Number of s101A schemes completed in the report year	Count
	Total pumping station capacity	kW
	Number of network pumping stations	Count
	Total number of sewer blockages	Count
	Total number of gravity sewer collapses	Count
	Total number of sewer rising main bursts	Count
	Number of combined sewer overflows	Count

Activity	Performance Measure	Metric
	Number of emergency overflows	Count
	Number of settled storm overflows	Count
	Sewer age profile (constructed post 2001)	km
	Volume of trade effluent	ML/yr
	Volume of wastewater receiving treatment at sewage treatment works	ML/yr
	Length of gravity sewers rehabilitated	km
	Length of rising mains replaced or structurally refurbished	km
	Length of foul (only) public sewers	km
	Length of surface water (only) public sewers	km
	Length of combined public sewers	km
	Length of rising mains	km
	Length of other wastewater network pipework	km
	Total length of "legacy" public sewers as at 31 March	km
	Length of formerly private sewers and lateral drains (s105A sewers)	km
Sludge	Total sewage sludge produced	ttlds/ year
	<ul style="list-style-type: none"> - treated by incumbents - treated by 3rd party sludge service provider - from non-appointed liquid waste treatment 	
	Percentage of sludge produced and treated at a site of STW and STC co-location	Percentage
	Total sewage sludge disposed	ttlds/ year
	<ul style="list-style-type: none"> - by incumbents - by 3rd party sludge service provider 	
	Total measure of intersiting 'work' done	ttlds*km/year
	<ul style="list-style-type: none"> - by pipeline - by tanker - truck 	
	Total measure of intersiting 'work' done by tanker (by volume transported)	m3*km/yr
	Total measure of 'work' done in sludge disposal operations	ttlds*km/year
	<ul style="list-style-type: none"> - by pipeline - by tanker - truck 	
	Total measure of 'work' done by tanker in sludge disposal operations (by volume transported)	m3*km/yr
	Chemical P sludge as % of sludge produced at STWs	Percentage
	Sludge Treatment	Percentage
	<ul style="list-style-type: none"> - untreated - raw sludge liming - conventional AD - advanced AD - incineration of raw sludge - other 	

Electricity Distribution in New Zealand

Lines companies are required to provide a return to the Commerce Commission that describes in detail the asset base they manage. The following is an simplified version.

Levels of Service and Performance measures

Activity	Performance Measure	Metric
Asset Base		
Asset Register	Overhead Line Structures <ul style="list-style-type: none"> - Concrete poles / steel structure - Wood poles - Other pole types 	Count
	Lines and Cables <ul style="list-style-type: none"> - Overhead <ul style="list-style-type: none"> - Subtransmission <ul style="list-style-type: none"> - OH up to 66kV conductor - OH 110kV+ conductor - Distribution Line <ul style="list-style-type: none"> - Open Wire Conductor - Aerial Cable Conductor - SWER conductor - Low Voltage - Underground <ul style="list-style-type: none"> - Subtransmission <ul style="list-style-type: none"> - up to 66kV (XLPE) - up to 66kV (Oil pressurised) - up to 66kV (Gas pressurised) - up to 66kV (PILC) - 110kV+ (XLPE) - 110kV+ (Oil pressurised) - 110kV+ (Gas Pressurised) - 110kV+ (PILC) - submarine cable - Distribution Cable <ul style="list-style-type: none"> - XLPE or PVC - PILC - Submarine Cable - Low Voltage - LV Street lighting 	Kilometres
	Distribution Transformers <ul style="list-style-type: none"> - Pole Mounted Transformer - Ground Mounted Transformer - Voltage regulators 	Count
	Distribution Substations <ul style="list-style-type: none"> - Ground Mounted Substation Housing 	Count
	Distribution switchgear <ul style="list-style-type: none"> - 3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers - 3.3/6.6/11/22kV CB (Indoor) - 3.3/6.6/11/22kV Switches and fuses (pole mounted) - 3.3/6.6/11/22kV Switch (ground mounted) - except RMU - 3.3/6.6/11/22kV RMU 	Count

Activity	Performance Measure	Metric
	Zone Substations <ul style="list-style-type: none"> - Zone substations up to 66kV - Zone substations 110kV+ - 50/66/110kV CB (Indoor) - 50/66/110kV CB (Outdoor) - 33kV Switch (Ground Mounted) - 33kV Switch (Pole Mounted) - 33kV RMU - 22/33kV CB (Indoor) - 22/33kV CB (Outdoor) - 3.3/6.6/11/22kV CB (ground mounted) - 3.3/6.6/11/22kV CB (pole mounted) - Zone Substation Transformers 	Count
	Zone substation Buildings <ul style="list-style-type: none"> - Zone substations up to 66kV - Zone substations 110kV+ 	Count
	SCADA and communications <ul style="list-style-type: none"> - SCADA and communications equipment operating as a single system 	Count
	Connections <ul style="list-style-type: none"> - OH/UG consumer service connections 	Count
Asset Age Profile	Asset (Asset breakdown as per asset register above) <ul style="list-style-type: none"> - pre-1940 - 1940–1949 - 1950–1959 - 1960–1969 - 1970–1979 - 1980–1989 - 1990–1999 - Annually from 2000 - No. with age unknown 	Metrics as per asset register above
Asset Operating Environment		
Terrain	Overhead circuit length by terrain <ul style="list-style-type: none"> - Urban - Rural - Remote only - Rugged only - Remote and rugged - Unallocated overhead lines 	Kilometres
Sensitive areas	Circuit in sensitive areas (conservation areas, iwi territory etc)	Kilometres
Hazardous areas	Length of circuit within 10km of coastline or geothermal areas (where known)	Kilometres
Vegetation	Overhead circuit requiring vegetation management	Kilometres
Demand		
System Demand	Maximum coincident system demand <ul style="list-style-type: none"> - GXP demand - Distributed generation output at HV and above - Net transfers to (from) other EDBs at HV and above 	Megawatts
Electricity volumes carried	Volumes <ul style="list-style-type: none"> - Electricity supplied from GXPs - Electricity exports to GXPs - Electricity supplied from distributed generation - Net electricity supplied to (from) other EDBs - Total energy delivered to ICPs 	Gigawatt-hours

Activity	Performance Measure	Metric
Transformer Capacity	Distribution transformer capacity <ul style="list-style-type: none"> - EDB owned - Non-EDB owned, estimated 	Megavolt-amperes
Reliability		
Interruptions	Interruptions by class <ul style="list-style-type: none"> - Class A (planned interruptions by Transpower) - Class B (planned interruptions on the network) - Class C (unplanned interruptions on the network) - Class D (unplanned interruptions by Transpower) - Class E (unplanned interruptions of EDB owned generation) - Class F (unplanned interruptions of generation owned by others) - Class G (unplanned interruptions caused by another disclosing entity) - Class H (planned interruptions caused by another disclosing entity) - Class I (interruptions caused by parties not included above) Class C interruptions restored within <ul style="list-style-type: none"> - ≤ 3 hours - > 3 hours 	Count, SAIFI, SAIDI (See explanation below)
	Interruptions by cause <ul style="list-style-type: none"> - Lightning - Vegetation - Adverse weather - Adverse environment - Third party interference - Wildlife - Human error - Defective equipment - Cause unknown 	SAIFI and SAIDI (See explanation below)
	Main Equipment Involved <ul style="list-style-type: none"> - Class B <ul style="list-style-type: none"> - Subtransmission lines - Subtransmission cables - Subtransmission other - Distribution lines (excluding LV) - Distribution cables (excluding LV) - Distribution other (excluding LV) - Class C <ul style="list-style-type: none"> - Subtransmission lines - Subtransmission cables - Subtransmission other - Distribution lines (excluding LV) - Distribution cables (excluding LV) - Distribution other (excluding LV) 	SAIFI and SAIDI (See explanation below)
Fault Rate	Main Equipment Involved <ul style="list-style-type: none"> - Subtransmission lines - Subtransmission cables - Subtransmission other - Distribution lines (excluding LV) - Distribution cables (excluding LV) - Distribution other (excluding LV) 	Count
	Fault Rate <ul style="list-style-type: none"> - Subtransmission lines - Subtransmission cables - Distribution lines (excluding LV) - Distribution cables (excluding LV) 	Faults per 100k

SAIFI/SAIDI

SAIFI and SAIDI are measures of network reliability and calculate the reliability of the network from an individual customer perspective.

SAIFI is the System Average Interruption Frequency Index and indicates how often on average a customer experienced an interruption for the year.

SAIDI is the System Average Interruption Duration Index and indicates the average interruption duration a customer experienced for the year in minutes.

SAFI and SAIDI are usually calculated for each interruption and then summated for reporting purposes.

Land Transport in New Zealand

Levels of Service and Performance measures

DIA Mandatory Performance Measures

Activity	Performance Measure	Metric
Road Safety	The change from the previous financial year in the number of fatalities and serious injury crashes on the local road network	Count
Road Condition	The average quality of ride on a sealed local road network, measured by smooth travel exposure.	Percentage of road length
Road Maintenance	The percentage of the sealed local road network that is resurfaced	Percentage
Footpaths	The percentage of footpaths within a territorial authority district that fall within the level of service or service standard for the condition of footpaths that is set out in the territorial authority's relevant document (such as its annual plan, activity management plan, asset management plan, annual works program or long term plan).	Percentage
Response to service requests	The percentage of customer service requests relating to roads and footpaths to which the territorial authority responds within the time frame specified in the long term plan.	Percentage

Waka Kotahi/Road Efficiency Group – One Network Framework

Waka Kotahi and The Road Efficiency Group have introduced a new Road Classification system and associated service outcomes and performance framework that will be used in future to enable competition by comparison among Road Controlling Authorities. While still being implemented, the framework is reviewed here as a best practice approach to levels of service and performance.

The framework is organised around lengths of street or road classified to one of twelve road classes that relate to the level of movement the road is intended to support, as well as the nature of the place the road or street traverses.

The performance measures themselves are organised around a set of transport and service outcomes that link the performance back to the strategic intentions of the Ministry of Transport and Waka Kotahi.

Framework Structure	
Road Classification	<p>Urban</p> <ul style="list-style-type: none"> - Local streets - Urban connectors - Activity streets - Civic spaces - Main streets - City hubs - Transit corridors <p>Rural</p> <ul style="list-style-type: none"> - Rural roads - Rural connectors - Peri-urban roads - Stopping places - Interregional connectors

Framework Structure	
Transport Outcomes/ Service Outcomes	<p>Healthy and Safe people</p> <ul style="list-style-type: none"> - Safety - Health <p>Resilience and Security</p> <ul style="list-style-type: none"> - Resilience <p>Economic prosperity</p> <ul style="list-style-type: none"> - Reliability - Efficiency - Value for money <p>Environmental sustainability</p> <ul style="list-style-type: none"> - Environmental sustainability <p>Inclusive access</p> <ul style="list-style-type: none"> - Accessibility - Liveability - Te Ao Māori values
Value Outcomes	<p>Service sustainability</p> <p>Risk</p> <p>Service Delivery</p>

The performance framework includes over 100 discrete measures, however a subset of 33 are identified as core. The following is drawn from that subset.

Activity	Performance Measure	Metric
Healthy and Safe people		
Safety	Number of deaths and serious injuries	Count
	Average annual fatal and serious injury crashes per kilometre of road section	Index
	Average annual fatal and serious injury crashes per 100 million vehicle-kilometres	Index
	Infrastructure risk rating (IRR)	Calculated rating
	KiwiRoad Assessment Programme (KiwiRAP) star rating (for state highways)	Assessed rating
	Perceived personal safety while using the transport system based on survey feedback (unsafe/safe based on 0-10 scale with 6+ being safe) - all modes	Customer feedback rating
Health	Number of hours spent walking and cycling per person, per year based on trip legs made during survey period.	Hours
	Number of people exposed to elevated concentrations of land transport-related air pollution	Count, percentage of population
	Number of people exposed to elevated levels of land transport noise	Count, percentage of population
Resilience and Security		
Resilience and Security	Number of unplanned road closures	Count
	Number of journeys affected by closures annually	
	Percentage of high-risk, high-impact routes with a viable alternative route	Count
	Percentage of lifelines (state highways) network available during emergency event	Percentage
Economic prosperity		
Reliability	Travel time reliability - Coefficient of variation	Standard deviation of travel time / average minutes travel time
	Punctuality – public transport: Percentage of scheduled service trips between 59 seconds before and 4 minutes 59 seconds after the scheduled departure time of selected point	Percentage
	Travel time delay: Difference between average travel time A and average travel time B in minutes per kilometre (change over time)	Minutes per kilometre
	Pedestrian time lost due to intersection delay	Minutes
Efficiency	Percentage completion of the strategic high productivity motor vehicle freight network	Percentage
	Proportion of each road classification that is not accessible to Class 1 Heavy Vehicles and 50MAX vehicles	Percentage
	Access to key economic destinations (all modes): Proportion of population living within travel threshold (15 minutes, 30 minutes or 45 minutes) of key economic opportunities (including work) by different modes (walking, cycling, public transport, private motor vehicle) in the morning peak	Percentage
Environmental sustainability		
Environmental sustainability	Tonnes of CO ₂ equivalents emitted	Tonnes CO ₂ equivalents
	Total amount of waste diverted from landfill	Tonnes

Activity	Performance Measure	Metric
Inclusive Access		
Accessibility	Percentage of population who don't have access to transportation system (by mode)	Percentage
	Response to survey on user satisfaction regarding how the transport system meets their needs in terms of: <ul style="list-style-type: none"> - Affordability - ease of access - frequency - reliability - other 	Customer rating
	Mode share: Number of pedestrians, cyclists, public transport boardings, and motor vehicles (excl. public transport) Multiplied by Number of people per vehicle	Percentage
	Access to key social destinations (all modes): Proportion of population living within travel threshold (15 minutes, 30 minutes or 45 minutes) of key social opportunities (including education, health care, supermarkets) by different modes (walking, cycling, public transport, private motor vehicle) in the morning peak	Percentage
Liveability	Percentage of adults who say they can easily get to places of heritage and cultural significance	Percentage
	Percentage of people who said it was very easy to get to their places for leisure and recreational activities, including green spaces	Percentage
Value		
Service Sustainability	Overall cost per km and vkt (Vehicle Kilometres Travelled) of routine maintenance activities, and cost by work category on each road network for the financial year	\$/kilometre, \$/million kilometres travelled
	Percentage of footpaths that fall within the level of service for the condition of footpaths	Percentage
	Percentage travel on cycle network classified as complying with defined level of service (facility type)	Percentage
	Network condition: Percentage travel on road network classified as smooth	Percentage
	Network condition – Roads peak roughness: 85th and 95th percentile roughness of roads	Percentage
Service Delivery	Responsiveness – service requests: Percentage of customer service requests relating to roads and footpaths to which the territorial authority responds within the time frame specified in the long term plan.	Percentage

A feature of the land transport framework is that it includes the service outcome Te Ao Māori values within the Inclusive Access strategic transport outcome. While not a core measure, it is included here as an example to consider in the design of the 3-waters LOS and Performance framework.

Activity	Performance Measure	Metric
Healthy and Safe people		
Te Ao Māori values	Percentage of whanau that have access/opportunity to visit sites of significance.	Count



New Zealand Three Waters Reform

Three Waters - Levels of Service and Performance Framework

Detailed Design

1 November 2022



Revision History

Version	Prepared by	Date
Final - Issued	Brent Egerton – Principal Infrastructure Advisory, Just Add Lime Sara Dennis – Principal Infrastructure Advisory, Just Add Lime	1 November 2022



Prepared for The Department of Internal Affairs by Just Add Lime Limited

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Introduction



Introduction

Purpose

This detailed design document describes the framework for measuring levels of service and performance associated with the delivery of three waters services by the four Water Service Entities being established as part of the New Zealand 3-waters reform. This document should be read in conjunction with the literature review report, and the measure definitions guideline document.

Background

In July 2020, the Government initiated the Three Waters Reform Programme – a three-year programme to reform local government three waters service delivery arrangements. Local government is facing urgent challenges in the provision of these services including, funding infrastructure deficits, complying with safety standards and environmental expectations, building resilience to natural hazards and climate change into three waters networks, and supporting growth.

Comprehensive, system-wide reform was signalled as needed to deliver three-waters services to appropriate levels of service and measuring performance delivery is an essential element to achieving the outcomes sought by the three-waters reforms.

The new system for three waters service delivery

The Government has proposed creating four new Water Service Entities (WSEs). The scale of these entities provides the ability to borrow to fund the significant investment needed to benefit all New Zealanders, from our smallest communities to our largest cities.

The scale is also important to build and develop capability and capacity in the water services industry, as well as creating operating efficiencies and for effective quality and economic regulation.

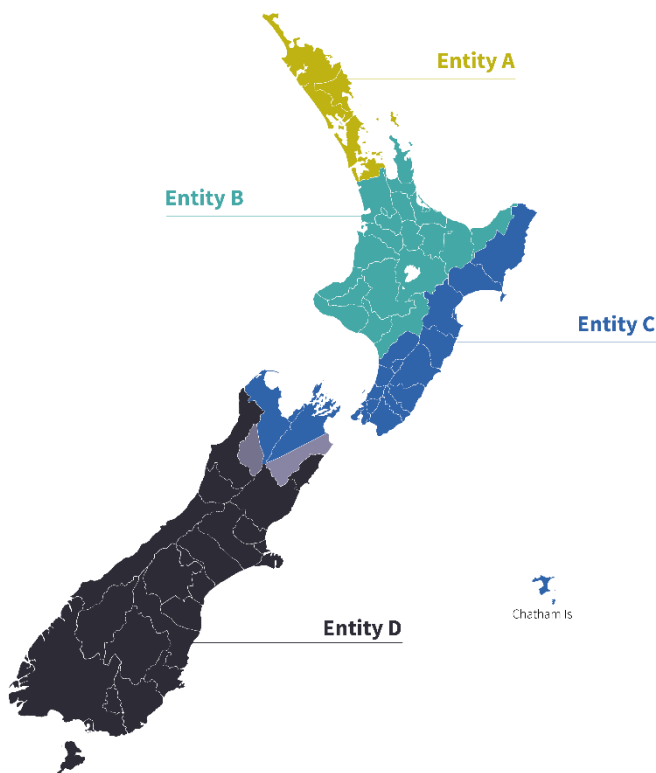


Figure 7 - Proposed regions for four Water Service Entities

National Transition Unit

The National Transition Unit (NTU) has been established to execute Three Waters reform through a consistent and coordinated nationwide approach to transition.

The NTU will deliver a nationwide approach to the transition from the 67 councils who are currently responsible for water services to the new WSE. The NTU will work alongside councils, iwi/Māori, industry and the wider water sector to make the transition successful.

Local Establishment Entities

In 2022, the NTU will set up four local establishment entities (LEEs), which will support the local transition in their area. Each LEE will have a Board consisting of three to six members and Chief Executive, appointed by the Minister of Local Government through a process led by the NTU working with councils and iwi/Māori. On 1 July 2024, these four LEEs will become the four WSE's.

The Treaty partnership with iwi/Māori

The Three Waters reforms will enable iwi/Māori to have greater strategic influence to exercise rangatiratanga over water services delivery, including through enhanced capacity and capability. To achieve this, the NTU and LEEs will need to:

- Ensure iwi/Māori are well supported to contribute to the new roles created through the reform process, including joint oversight of the water services entities, and exercising kaitiakitanga under the Te Mana o te Wai mechanisms
- Ensure the WSE's are able to discharge the Crown's Treaty obligations, and that they are well-informed and influenced by iwi/Māori – insofar as the entities and their boards will be required to give effect to Te Mana o te Wai, and understand, support and enable matauranga Māori and tikanga Māori and kaitiakitanga to be exercised throughout their organisations, and when engaging with iwi/Māori.

The new system will allow the Crown to better recognise the holistic manner (environmental, cultural, spiritual, economic) in which water is viewed using Te Ao Māori perspectives and Te Mana o te Wai including ki uta ki tai or a catchment-based approach, consistent with rohe/ takiwā or whakapapa links.

Governance of three waters

Through the three waters reform a new governance structure is being put in place that provides for the following outcomes:

- Maintaining local authority ownership of water services entities
- Providing the necessary balance sheet separations from local authorities
- Protecting against privatisation
- An integrated regulatory system and
- Enabling Mana Whenua to have greater strategic influence to exercise rangatiratanga over water services delivery, through:
 - Integration of iwi/Māori rights and interests within a wider system
 - Reflection of a holistic Te Ao Māori perspective
 - Supporting clear account and ensure roles, responsibilities, and accountability for the relationship with the Treaty partner
 - Improving outcomes at a local level to enable a step change improvement in delivery of water services for iwi/Māori.

Figure 8 shows the proposed governance structure for three waters following reform.

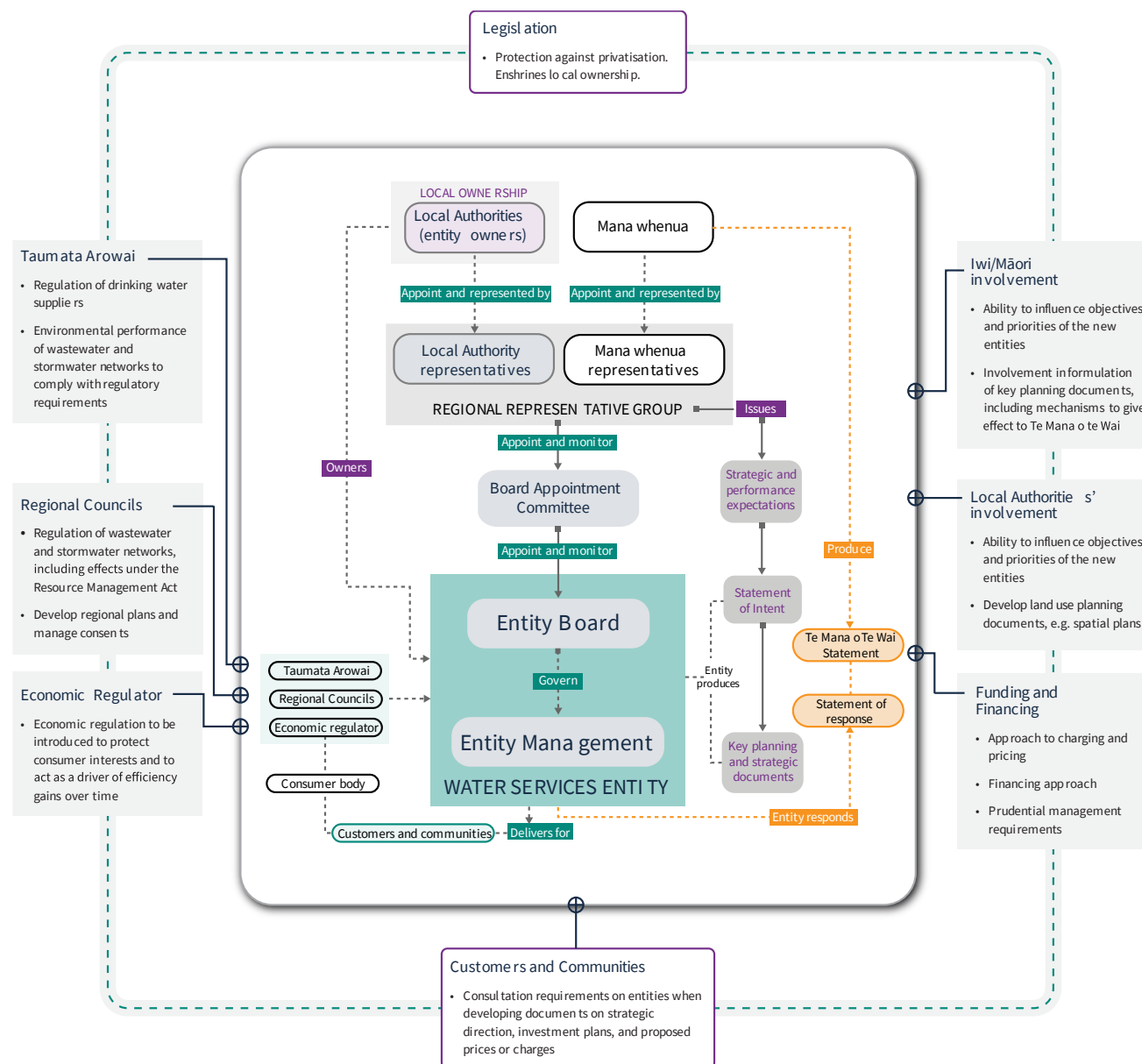


Figure 8 - Proposed Three Waters governance structure

Source: DIA - [Three Waters Reform Programme Overview – A3 - 30 June 2021](#)

Drivers of Performance Improvement in Three Waters

Three waters reform for New Zealand has resulted from the need to improve how water is managed and to ensure investment in infrastructure is at a level that delivers the necessary levels of service, water quality and environmental outcomes communities expect. WSE will experience key drivers and pressures influencing how they operate the water system and provide services. The following is based upon documentation published in the DIA case for change and reasons for undertaking the three waters reforms.

Key Drivers

The key drivers for improvement in the three waters services sector include:

- Improve the safety, quality, and environmental performance of water services
- Ensure all New Zealanders have access to affordable three waters services
- Move the supply of three waters services to a more financially sustainable footing, and address the affordability and capability challenges that currently exist in the sector
- Improve transparency about, and accountability for, the delivery and costs of three waters services
- Improve the coordination of resources and unlock opportunities to consider New Zealand's water infrastructure needs at a larger scale and alongside wider infrastructure and development needs
- Increase the resilience of three waters service provision to both short and long-term risks and events, particularly climate change and natural hazards
- Provide mechanisms for enabling iwi/Māori rights and interests.

Pressures

The case for change¹ identifies a number of factors that have influenced the decision to undertake the three-waters reform programme.

Public health and wellbeing

Poor compliance with drinking water standards. Poor health outcomes associated with drinking water.

Environmental outcomes

Discharges from wastewater treatment plants are harming the environment in many parts of New Zealand. In urban areas, stormwater overflows are the main contributor to poor water quality.

Economic growth and employment

Delivering economic benefits to all corners of the economy. Fair and equitable pricing of water services. Significant increases in the water sector workforce.

Housing and urban development

The impact urban growth and housing intensification are having on the water supply system. The requirement for 3-waters to support and enable well planned urban growth.

Adapting to the impacts of climate change

Lack of resilience of water supplies. Greater variation and extremes in our climate, causing increased flooding or more severe droughts.

Mitigating the effects of natural hazards

A lack of consistent information about the condition of stormwater infrastructure, and also about the impact of climate change and other natural hazards, to which stormwater systems are particularly susceptible.

Improving outcomes for iwi/Māori in relation to three waters service delivery

A clear concern from iwi/Māori is that the system for delivering three waters needs to uphold, align and integrate with Te Tiriti and Te Mana o te Wai. Protecting and promoting iwi/Māori rights and interests in the new three waters service delivery model.

Effective infrastructure delivery

Historical under investment in 3-waters infrastructure resulting in a large accumulated infrastructure deficit. Misaligned incentives for critical water infrastructure decisions. Increasing amount of water lost through networks, leading to greater than needed water takes.

Efficient, high-performing, financially-sustainable, and transparent three waters system

Enabling efficiencies and lower operating costs. Delivering cost savings from households and communities. Increased financial capacity and capability, with stronger, more flexible and resilient balance sheets, greater access to capital, and a more reliable investment pipeline.

¹ [Transforming the system for delivering three waters services - The case for change and summary of proposals, June 21, DIA.](#)

Regulation of Three Waters



Regulation of three waters

The regulatory environment for three waters will be overseen by a number of agencies, each with their specific interest in aspects of three waters service delivery and performance. This can be broken down into the following significant components, each with their specific Levels of Service and Performance measurement requirements:

- Drinking Water Quality Regulation
- Economic Regulation
- Environmental Compliance Regulation

These are described in more detail below.

Drinking Water Quality Regulation

Taumata Arowai has commenced its role as the drinking water quality regulator. As such Taumata Arowai set the drinking waters standards, the water quality monitoring and reporting requirements, and oversee the measurement and performance reporting process aligned to water quality. Drinking water quality assurance involves a number of factors that differentiate it from other three-waters performance measurement and reporting, including:

- The need for urgent and immediate action to be taken in response to life threatening contamination of water supplies
- The need for constant monitoring and reporting of water quality tests
- The requirement for specialist testing facilities.

As such this Levels of Service and Performance Framework does not include measurement and reporting of drinking water quality results, other than at a high level, i.e. reporting at a macro level on the total number of non-compliant results, and of water quality grading of water supply networks.

Figure 9 shows an overview of the regulatory responsibilities for each of the three waters and freshwater ecosystems, and indicates for each; the regulator, the organisation providing oversight, and the government ministry responsible for setting policy.

It should be noted Figure 3 excludes the role of an economic and consumer protection regulator, the details which are still to be determined.

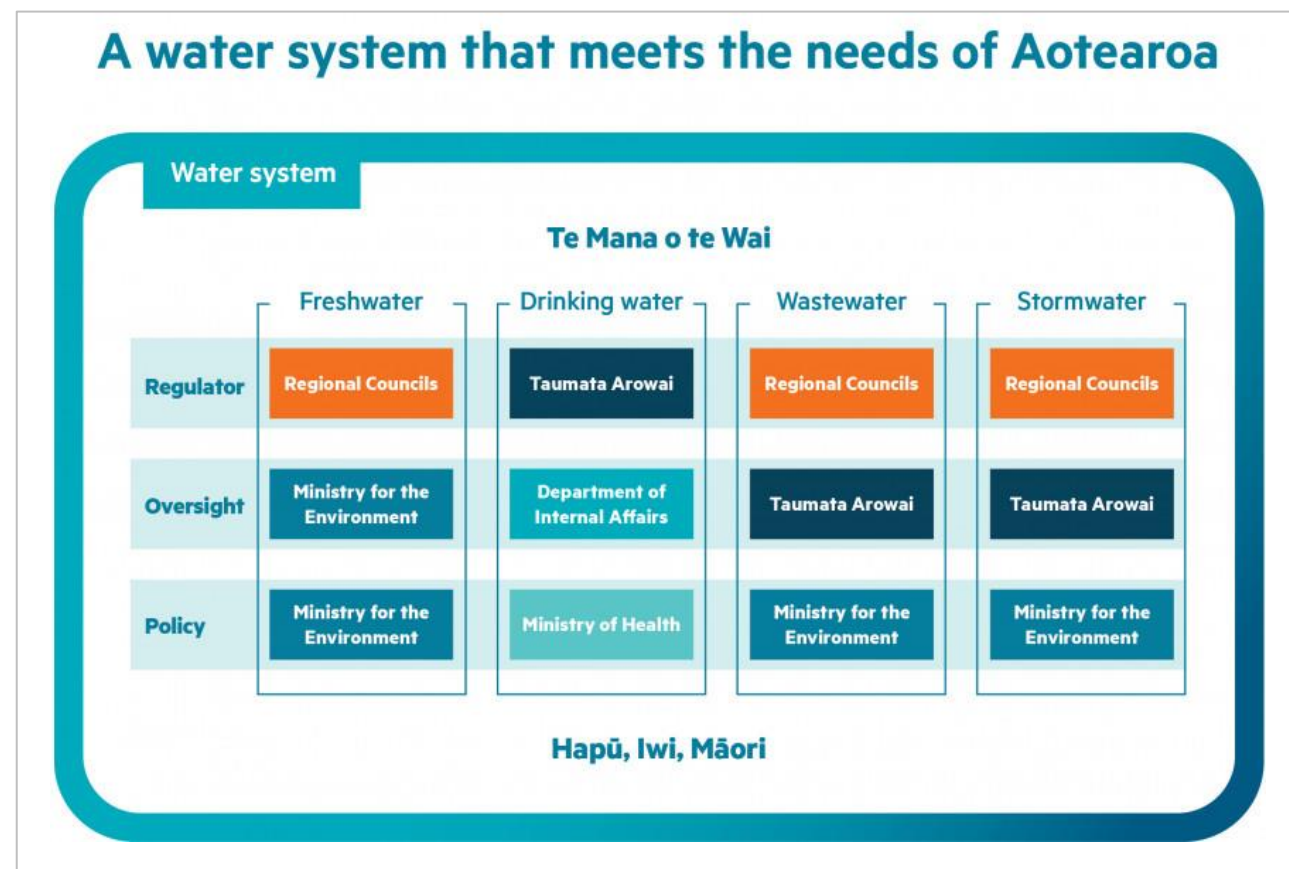


Figure 9 - Overview of water system regulatory responsibilities

Source: Taumata Arowai (<https://www.taumataarowai.govt.nz/about/who-we-are/>)

Economic and Consumer Protection Regulation

Economic Regulation

Economic regulation uses the powers delegated to the regulator to protect consumers from problems that can occur in sectors operating within a natural monopoly, i.e. where high fixed costs act as a barrier to entry. In the case where there is not enough competition to achieve the desired outcomes, economic regulation is usually required.

Performance reporting under economic regulation primarily involves disclosure of financial performance information, and typically concentrates on indicators such as return on capital, cost to serve, and profitability.

The Ministry of Business, Innovation & Employment (MBIE) has undertaken consultation (Dec 2021) with the water sector and interested stakeholders on potential approaches to Economic Regulation & Consumer Protection.

While final decisions are yet to be taken on economic regulation, the regime is likely to involve:

- Individualised price quality paths – plus information disclosure requirements for the proposed new WSE's
- Minimum service quality standards (in addition to the standards set by Taumata Arowai); and
- The appointment of an independent and credible economic regulator (e.g. such as the Commerce Commission) to administer the regime.

Information disclosure

Mandatory disclosure of information relevant to the economic and service performance of an entity creates the environment required for competition by comparison. So while the four entities will not be in direct competition with each other, the industry should find its natural level through no entity wishing to be an outlier, either high or low, in terms of economic performance and provision of levels of service. However, this does not preclude an Entity from choosing to differentiate themselves given the business imperatives it is operating within.

Price-quality regulation

Price-quality regulation uses regulatory tools that seek to cap the maximum acceptable revenue of a supplier in a monopolistic position, subject to the supplier also meeting a set of minimum quality standards (e.g. the frequency and duration of interruptions, water leakage, customer service expectations etc.). Capping maximum acceptable revenue is often achieved by summing the operational costs, return on capital and asset depreciation together to give a regulated maximum acceptable revenue for a given reporting year.

Price-quality regulation is usually employed in regulatory cycles spanning four to six years. For each year of the regulatory cycle, the economic regulator sets the maximum acceptable revenue and minimum service quality levels to form what is known as the 'price-quality path'. Through this mechanism undesirable consequences of monopolies, such as gold plating of assets, or sacrifice of levels of service to save cost, are sought to be avoided.

Environmental Compliance Regulation

At present, regional councils, and in some jurisdictions unitary authorities fulfil the role of environmental regulator for the water sector. Moving forward, this role will continue in ensuring environmental compliance within their regions with Taumata Arowai providing an overview role and consolidating environmental performance monitoring at a national level for WSEs. Taumata Arowai defines Environmental performance as:

Environmental performance relates to the effects of networks – including the operation of infrastructure and processes – on the environment.

In this context, environment has the meaning given to it by the Resource Management Act 1991. This means environmental performance considers:

- *The impact of a network on any natural receiving environment (for example, the emissions profile of a drinking water treatment plant)*
- *The impact of a network on the social and cultural wellbeing of people and communities (for example, the*

resilience of water sources and volume of on-demand treated drinking water)

- *The performance of the network infrastructure in so far as it relates to its impact on ecosystems, people, and communities (for example, the quality of the pipes in our drinking water network)*
- *Any social, economic, or cultural factors that may impact on environmental performance, including the financial position of network operators and progress against any required maintenance or upgrades (for example, asset condition and value).*

Source: Discussion document: Drinking Water Network Environmental Performance Measures – Taumata Arowai

Currently, regional councils and unitary authorities undertake the role of providing land drainage and flood protection services, particularly in the rural context. As part of planning for the transition of three-waters responsibilities to WSEs, work is currently underway to determine what stormwater functions will be the responsibility of WSEs and what functions will be retained by regional councils. The result of this work will determine the scope of environmental performance monitoring for the WSEs.

To give effect to Te Mana o te Wai, co-governance with Iwi/Māori requires environmental performance measurement and reporting that incorporate Te Ao Māori.

Consolidated regulatory performance reporting

Each of the agencies that have a role within the regulatory environment will require their own particular set of performance reporting information from the Entities, that will vary in frequency, level of detail and breadth of information depending on their regulatory role. In the interests of making the collection, collation and provision of performance information as efficient as possible it is recommended that a single annual performance measurement (or more frequent if considered appropriate) return is furnished by each of the four WSEs that covers the reporting requirements of all regulatory and oversight agencies. Each agency would then be provided with the

information specific to their role, while retaining the ability to access the entire information set.

Developing and Reporting the Levels of Service and Performance Framework



Developing the Levels of service and performance framework

Why we need a Level of Service and Performance Framework

In a reformed three-waters services environment, the setting of appropriate levels of service and effective performance monitoring will be key to delivering the outcomes anticipated from the reforms.

As highlighted earlier, by its very nature, provision of three-waters services is monopolistic, meaning in almost all instances customers will have no choice in who provides their services. Therefore, there is no direct competition between suppliers driving efficiency and effectiveness in operation of three-waters infrastructure.

Monitoring and reporting of performance is important to the effective operation of the public water services sector in NZ. The information collated can be used to:

- Enable a ‘competition by comparison’ approach, that creates a level of competitive tension among the four WSEs that individually will operate as monopolies aligned to a common set of service standards against which all are measured.
- Ensure a higher level of transparency of the performance of WSE to their customers and the communities they serve
- Set in place both the minimum and optimum levels of performance, identifying the specific performance areas an Entity needs to concentrate on
- Inform the decision making processes, providing the evidence base for investment decision making
- Provide assurance to regulators that Entities are performing to expectation, or signalling to regulators when some intervention may be required.

How will the Levels of Service and Performance framework be used

This Levels of Service and Performance framework will have application in a number of areas within the Three Waters Services sector, at both a strategic and operational level. It is envisaged that at a minimum, the framework will be utilised in the following areas:

Regulation of Water Services Entities


The framework can form the basis for all regulatory reporting (as it becomes available) on performance to the various agencies that undertake a role of regulator within the Three Waters Services sector, including:

- Economic Regulation and Consumer Protection, by an authority yet to be determined
- Drinking water quality regulation; by Taumata Arowai, DIA, and the Ministry of Health
- Environmental Compliance regulation; by Regional and Unitary Councils, Taumata Arowai and the Ministry for the Environment

Water Services Entities may be required to meet any minimum standards set by each of the regulatory agencies based on the measurement of their performance against expected levels of service.

Competition by Comparison

The framework can create an environment of competition by comparison between the four Water Services Entities that would moderate the natural monopolies the WSEs will operate within. This approach would seek to ensure minimum levels of service and operational efficiency, and promote best practice asset management by WSEs.



“If you cannot
measure it, you
cannot improve it”
- Lord Kelvin

Strategic Planning

Provide inputs into the strategic planning process by provision of historical performance information and the setting of future targets. This information may be in the form of:

- **Economic Performance** – the cost to maintain, operate and upgrade the built and natural assets of the Entity, sources of funding and how they have been applied, and the overall financial sustainability of the WSE operation
- **Assets Under Management** – a breakdown of the portfolio of assets under management of the Entity, their age, condition, resilience, reliability, and environmental performance
- **Customer Service levels** – The levels of service being delivered to water services consumers and whether those service levels fall within the targets set in the performance expectations.

Critically this information can also be used as an input into strategic planning documents including: Statements of Strategic and Performance Expectations, Statements of Intent, Infrastructure Strategies, Asset Management Plans, and Funding and Pricing Plans.

Annual Reporting

The information collected and reported through the framework can comprise a core component of the annual reporting required under legislation, including:

- Regulatory reporting to the various regulatory agencies
- Annual Reports published by Entity Boards
- Annual National Performance Review benchmarking of WSEs for comparative purposes
- Information disclosure to communities.

Operations

A key driver for implementing a Levels of Service and Performance framework is to ensure the day to day operation of the WSE meet the standards expected. A well designed framework will set performance measures to be achieved that drive the organisation to deliver the outcomes set within the strategic direction and within asset management plans. This is not about just achieving a favourable result, but ensuring that appropriate levels of service and asset performance are delivered consistently as part of the operation of the Water Services Entity. Performance measures associated with operations need to be designed so that they can be monitored and reported at the time the service is being delivered, e.g. a call centre's response to answering a customer enquiry, or the maintenance contractors response to the network interruption being experienced by the community.

Investment Decision Making

The information collected through the framework can be an essential element in the determination of investment in infrastructure and services. Utilisation of past performance results provides the evidence base for informed decision making, in medium to long term planning, and budget setting in Asset Management Plans and infrastructure Strategies, as well as the justification of project expenditure.

Information Transparency and Community Engagement

A key feature of the Levels of Service and Performance frameworks in use in NZ and internationally is the openness with which the data is made available to anyone. Almost all the frameworks publish the results of the annual performance reports using an online dashboard/report facility that is freely available to the public and allows for comparison of service providers.

Being transparent and providing unrestricted access to information about levels of service delivery and operational performance will promote enhanced community engagement with the customers and communities the Entity serves.

Real-time Monitoring

A small subset of the performance measures within the framework are for information sourced from real-time monitoring sites, or from operational information systems that have a real-time operational purpose, such as service request/work order systems. While a significant portion of this information may not be required to be acted upon in real-time, the portion that does should allow for comparing the level of service or performance being delivered to expected levels in near-real-time. This then allows for the Entity to make operational decisions in real-time about the application of resources to address performance degradation as appropriate.

Modelling

Information from the framework can provide a base for predictive modelling of system, network, service or asset performance. This includes modelling of:

- Asset condition decay
- Hydraulic modelling of network capacity
- Predictive flood modelling

Within each of these areas, the scope of the levels of service targets and performance measures will vary, depending on applicability.

Key themes in the development of the framework

A number of key governmental publications have been used to derive the key themes of strategic direction for three waters, including:

- Department of Internal Affairs - Transforming the system for delivering three waters services - The case for change and summary of proposals, June 21.
- NZ Government – Exposure Draft – Water Services Entities Bill v14.0, December 2021
- Ministry for the Environment – National Policy Statement on Freshwater Management, August 2020
- Taumata Arowai – Our regulatory Approach [www.taumataarowai.govt.nz/about/what-we-do/]
- Climate Change Commission – Statement of Intent

Figure 10 shows the key themes highlighted in each of the publications have been grouped (see colour coding) and how they inform the strategic focus areas for three waters that we have used in development of the framework. This will be explored further in the following sections.

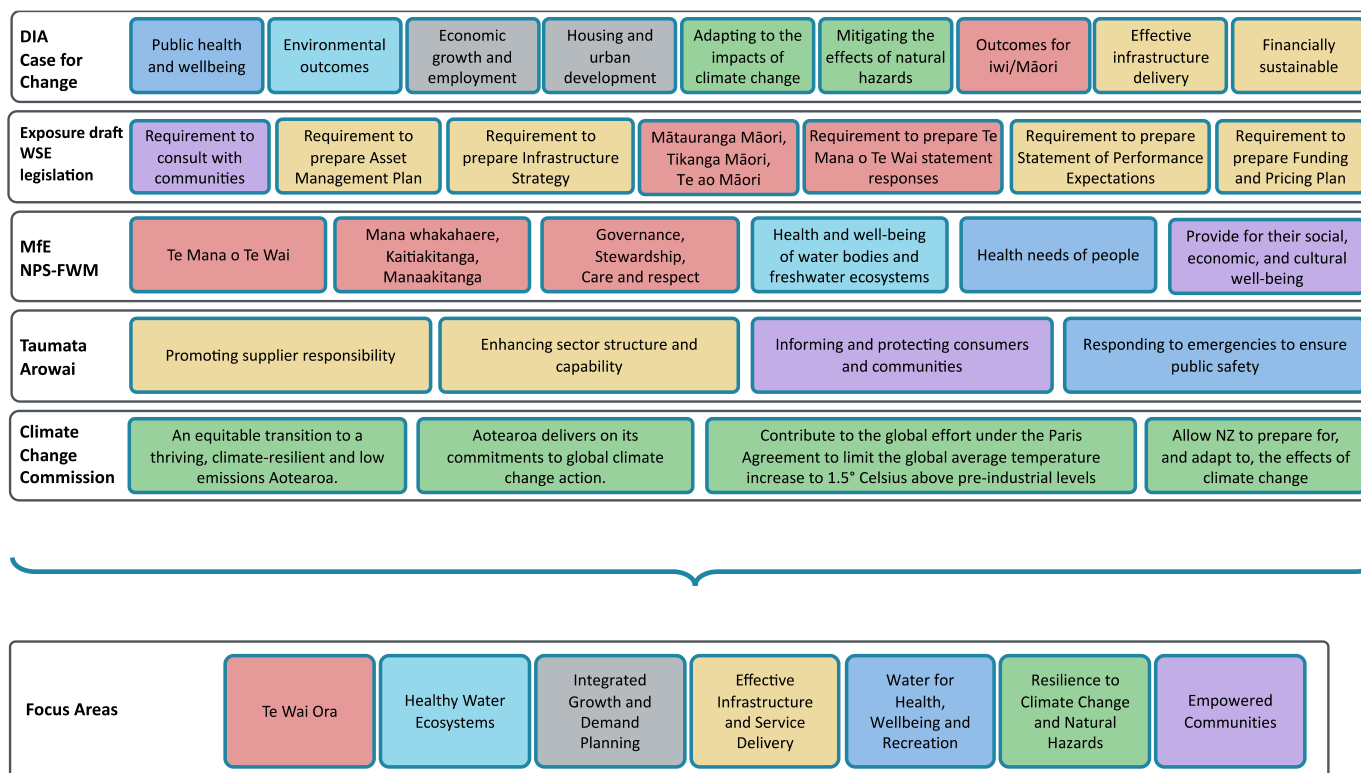


Figure 10: Key themes linked to strategic focus areas

Developing the base levels of Service Framework

Intervention Logic

In developing the Levels of Service and Performance framework we have used an intervention logic mapping approach. Intervention logic mapping provides a mechanism for

- Linking strategy to delivery through understanding the strategic drivers of an activity
- The actions required to be taken
- The outcomes being sought, and
- The outputs that will result which should be measurable.

Using this approach ensures that what gets measured relates to things that are important to the effective delivery of services by the Entity. In order to develop the intervention logic, a sound understanding of the projected regulatory and operating environment, the key drivers for performance improvement, and the pressures being experienced by the sector needed to be formed.

Measures

The measures being recommended were derived from a number of sources following a literature review of a number of frameworks used within the water industry in New Zealand and internationally as well as frameworks in use by other infrastructure intensive sectors within New Zealand, specifically land transport and electricity distribution.

The frameworks reviewed were:

Water Sector

- New Zealand Public Water Sector - Water New Zealand, The Department of Internal Affairs
- Essential Services Commission – Water in Victoria, Australia
- Water Industry Commission for Scotland (WICS)
- OfWat (The Water Services Regulation Authority) England and Wales

Comparative infrastructure intensive sectors within New Zealand

- Commerce Commission NZ - Electricity Distribution in New Zealand
- Waka Kotahi NZ Transport Agency - Land Transport in New Zealand

Over 48% of the performance measures are new and so were not represented in any of the frameworks reviewed. Many break ground in emerging areas such as giving effect to the principles and objectives of Te Mana o te Wai, or in the area of Māori outcomes under the Te Wai Ora focus area.

For completeness and to avoid duplication, all performance measures that have to date been gazetted by Taumata Arowai have been included in the list of measures. The measures with Taumata Arowai as the source are highlighted in the measures tables.

In addition, measures have also been sourced from the Australian Bureau of Meteorology's National Performance Reporting Framework.

Workshops

Once an initial set of measures was collated from the literature review they were reviewed with subject matter experts with experience in the particular focus area, and augmented with new measures recommended by the SMEs.

These sessions were used to;

- Test that the focus areas represented the key strategic themes facing the water sector and had a good connection back to the business imperatives
- Strike the right balance across Te Mana o te Wai delivering on the obligation hierarchies while considering that WSE maturity overtime
- Develop a strawman set of outcomes and pull together a range of draft measures, some NPR, some new, some international.

A series of workshops was conducted with a representative group of subject matter experts from within the water sector, with a wide range of experience from strategy to asset management, operations to customer service. Due to constraints in resource availability in an uncertain political environment the base group was sourced mainly from councils within the Entity A region, with some representation and involvement from Christchurch and Wellington (in part) involved, as well as representation from Water NZ, and the National Transition Unit. Taumata Arowai was invited to participate but due to unavailability were unable to take an active role, but were kept apprised of progress and provided with all the information shared with the working group.

The working group comprised the following representatives:

Participant	Expertise	Organisation
Shelley Wharton	Infrastructure Programmes	Whangarei District Council
Sarah Irwin	Infrastructure Planning	Whangarei District Council
Andy Finch	Infrastructure Asset management	Far North District Council (Part)
Terry Smith	Māori Outcomes Lead	Auckland Council
Craig Mcilroy	Three Waters	Auckland Council Healthy Waters
Nina Sardareva	Asset Management	Auckland Council Healthy Waters
Nick Brown	Regional Planning Manager	Auckland Council Healthy Waters
Evan James	Customer Care	Watercare
Anin Nama	Operational Management	Kaipara District Council and Watercare
Emily Afoa	Environmental	Tektus Consultants
Mark Johnson	Three waters operations and Asset Management	Christchurch City Council Representative
Emily Greenberg	Standards	Wellington Water (Part)
Uki Dele	Stormwater and Climate Resilience	Wellington Water (Part)
Isobel Oldfield	Lead Policy Advisor	Taumata Arowai (Kept appraised)
Emily Botje	Asset Management Lead	DIA NTU (Project Sponsor)
Noel Roberts	Water Technical Advisor	DIA NTU and WaterNZ
Lesley Smith	Industry Water Performance Measurement Expertise	WaterNZ
Sara Dennis	Strategic Business Advisory and Asset Management	Just Add Lime
Brent Egerton	Asset Management and Performance Frameworks	Just Add Lime

The base measurement set

It is intended that the measures with the framework form the base set of measures the Entity can utilise for recording the levels of service and performance of Entities across the range of services and activities they will undertake.

Entities will be able to use additional measures that respond to local needs or that align with the Entity's own strategic objectives.

In developing the measures some assumptions were needed to be made around what the Entities will have responsibility for, particularly for Stormwater services.

Depending on decisions about the distribution of responsibility for stormwater certain measures may need to be removed from the framework. This may mean the Entities ability to deliver on Te Mana o te Wai could be compromised, so it is expected that partnerships with local government through Service Level Agreements will be essential.

Standardisation of performance measurement across entities

The implementation of the Levels of Service and Performance framework seeks to standardise the measurement of performance across the four Entities, enabling effective competition by comparison and benchmarking across the entities. While the Water New Zealand National Performance Review of local body water services achieved this aim, participation was optional for councils, and not 100% subscribed.

Standardisation of measurement means specifying the universal approach to be used for data collection, calculation and reporting of performance measures. This includes specification of: baseline data elements such a number of network connections and length of network mains, the formulae used to derive measures, the units of measure to be used, any specific inclusions or exclusions, and how the data is presented.

Standardisation of measurement is important for a number of reasons, including:

- Ensuring the data reported from each Entities is comparable to that from other entities to enable effective water sector benchmarking and competition by comparison
- Specification of only those performance measures which are considered important to the operation of the entity or for effective regulatory oversight of the sector. This means rationalising the performance measurement system to remove those performance measures that either; do not add significant value through driving performance improvement, cannot practically be achieved through responsible investment, or cause unintended negative consequences through their application
- Provide for the adjustment of the set of performance measures being reported, to allow for alignment to

changing strategic priorities, such as that published in the Government Policy Statement, and other relevant National Policy Statements that impact on the delivery of three waters services

- Minimise the possibility of manipulation of the performance reporting framework through mandating the approach to be used to derive performance measures
- Provide for the setting of performance targets at a national level as the Entities and Levels of Service and performance matures.

Localised variation of targets and service priorities

While the framework seeks to standardise the measurement and reporting of Levels of Service and performance across all Water Services Entities, and specify the base set of potential performance measures, it is recognised that in certain circumstances individual entities may need to diverge from the base set of measures and targets. This divergence may be in response to:

- An entity being at a lower level of capability to effectively measure and report a specific metric, in which case an exemption may be sought to allow the entity a reasonable opportunity to develop the capability required
- An entity having lower level of operational maturity or capability to be able to reasonably meet a particular performance target, in which case a revised performance target pathway to acceptable performance should be negotiated with the relevant regulator that allows the entity a reasonable opportunity to develop the maturity or capability required
- An entity setting reasonably achievable performance targets for themselves which exceed the minimum standard but allows the entity to put focus onto

particular measures that they consider are strategically important to their region.

Nothing in this framework prohibits WSEs from developing and using any other performance measures they wish to outside of the base set of measures for their own strategic and operational needs. This allows WSEs to implement a localised performance measurement and reporting regime that concentrates on outcomes that are important in the local context of the particular entity. This is likely to be particularly relevant for the localised performance measurement associated with the delivery of outcomes to satisfy the terms of Te Mana o Te Wai Statements of Response to Mana Whenua.

Data Granularity

The amalgamation of the three-waters services of 67 city and district councils into 4 Water Services Entities highlights an issue of data granularity, that being the level of detail data should be captured and reported in. Currently, many of the city or district councils are centred around a single urban area, and therefore National Performance Report returns primarily relate to a single contiguous network for each of the councils. In future all four entities will be responsible for a disparate range of networks, that will vary in size and complexity, and all will be responsible for at least two large urban networks. Reporting the performance of WSEs rolled up to an Entity level creates the risk that poor performance on a particular network gets overlooked when data is consolidated with other well performing networks.

Conversely, at what level should smaller schemes and networks be excluded from individual network performance reporting and be consolidated.

The framework therefore recommends for each measure the scale at which data should be captured and the measure reported.

Moving forward

Moving forward, it is expected that the framework detailed in this document and its companion documents will be taken out for further consultation and feedback to the wider water sector across the NZ.

There are a number of riders that may influence the final base set of measures, including:

The scope of stormwater services to be undertaken by the WSEs

No final decision has been made as to the scope of the stormwater services to be undertaken by the WSEs. Once this has been finalised a review of Stormwater related performance measures will need to be undertaken to determine if some are no longer remain relevant to WSEs

Additional methodologies are required for some measures

Some of the more qualitative measures require additional work to be completed before the measures can be implemented. For example, new methodologies need to be created that provide a framework for the determination of indices that are the result of multi-criteria analysis.

The measures were developed with a long term view of their implementation by WSEs. Most will be measurable now as they comprise measures that have been in common use by the sector for many years. Others will need to be staged over time, as the WSEs are able to make the changes to processes, practices and systems that would allow for their measurement.

Asset Management Maturity

It is important that Entities demonstrate a high level of Asset Management Maturity, meaning the asset management practices utilised by the Entity in managing their infrastructure portfolio are best practice.

Asset management maturity differs from Levels of Service performance reporting in that it assesses the management and operational approaches the Entity uses to deliver its services, rather than the actual levels of service delivered. While many of the Levels of Service and Performance measures proposed within the framework provide some indication that the Entity is managing its assets effectively, it is recommended that the asset management maturity of Entities is regularly assessed by an independent assessor and against a reputable maturity assessment framework.

Undertaking a regular asset management maturity assessment of Entities will:

- Provide the means to benchmark the asset management practices of Entities against each other, and potentially their peers internationally
- Highlight those areas where Entities need to improve, and provide for the development of a pathway to improvement
- Highlight best practice approaches and technological advances in asset management
- Provide an opportunity for Entities to learn from other organisations

Undertaking a comprehensive asset management maturity review is a large undertaking, and so it is recommended that this would only be conducted every three or four years, potentially aligned with a quiet period within the Entity's 3 year planning cycle. It is envisaged that the high level results of the review would be published with the annual performance reporting to the economic regulator. In intervening years, a high level self-assessment of key asset management maturity areas could be undertaken and reported by the entity, along with the significant initiatives the Entity has to address any shortcomings.



Te Mana o Te Wai

Te Mana o te Wai

Te Mana o te Wai is a fundamental concept of freshwater management and giving effect to its principles will be a strategic obligation of the WSE.

Te Mana o Te Wai is defined as follows:

Te Mana o te Wai refers to the vital importance of water. When managing freshwater, it ensures the health and well-being of the water is protected and human health needs are provided for before enabling other uses of water. It expresses the special connection all New Zealanders have with freshwater. By protecting the health and well-being of our freshwater we protect the health and well-being of our people and environments. Through engagement and discussion, regional councils, communities and tangata whenua will determine how Te Mana o te Wai is applied locally in freshwater management.²

There is a hierarchy of obligations in Te Mana o te Wai that prioritises:

- **First**, the health and well-being of water bodies and freshwater ecosystems
- **Second**, the health needs of people (such as drinking water)
- **Third**, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

Each level acts as a gate, meaning the health of freshwater ecosystems should be addressed followed by the health needs of people.

Water Services Entities will give effect to Te Mana o te Wai through their strategic and operational planning, and in particular their documented response to Mana Whenua Te Mana o te Wai Statements and the resulting actions taken to deliver on those commitments.

Giving effect to Te Mana o te Wai will require Entities to partner with mana whenua, to the extent they wish to be involved in freshwater management to identify matters that are important to them. This will include identifying both how Te Mana o te Wai will be applied locally and the outcomes that mana whenua want for waterbodies now and in the future.

Figure 11 shows how the hierarchy of Te Mana o te Wai obligations links to the Strategic Focus Areas

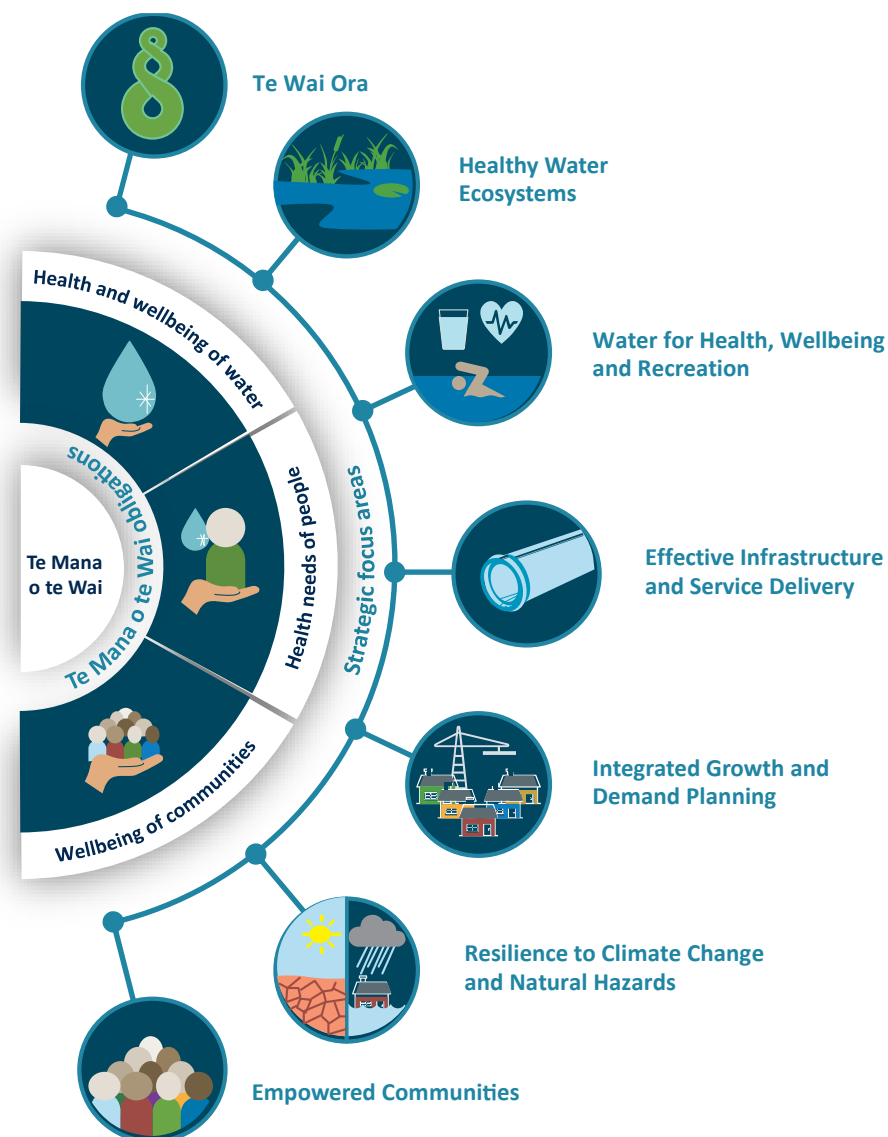


Figure 11: Te Mana o te Wai link to Strategic Focus Areas

² Essential Freshwater Te Mana o te Wai factsheet, Ministry for the Environment, September 2020

Linking Levels of Service and Performance to Strategic Focus Areas

Alignment of levels of service and performance to corporate and governmental strategic direction is important as it ensures organisations are monitoring and reporting on those things that are deemed important to the success of the organisation, and is a fundamental driver in investment decision making. Figure 12 below shows the seven strategic focus areas and the main outcomes areas linked to each within the framework.



Figure 12: Linking levels of service and performance to Strategic Focus Areas

Cascading framework and indicative timelines for implementation

Te Mana o te Wai is at the heart of the framework. The strategic focus areas, their constituent outcome areas, and the related outcomes statements all cascade out from Te Mana of te Wai.

Te Mana o te Wai obligations

Focus Areas

Outcome Areas

Outcome Statements

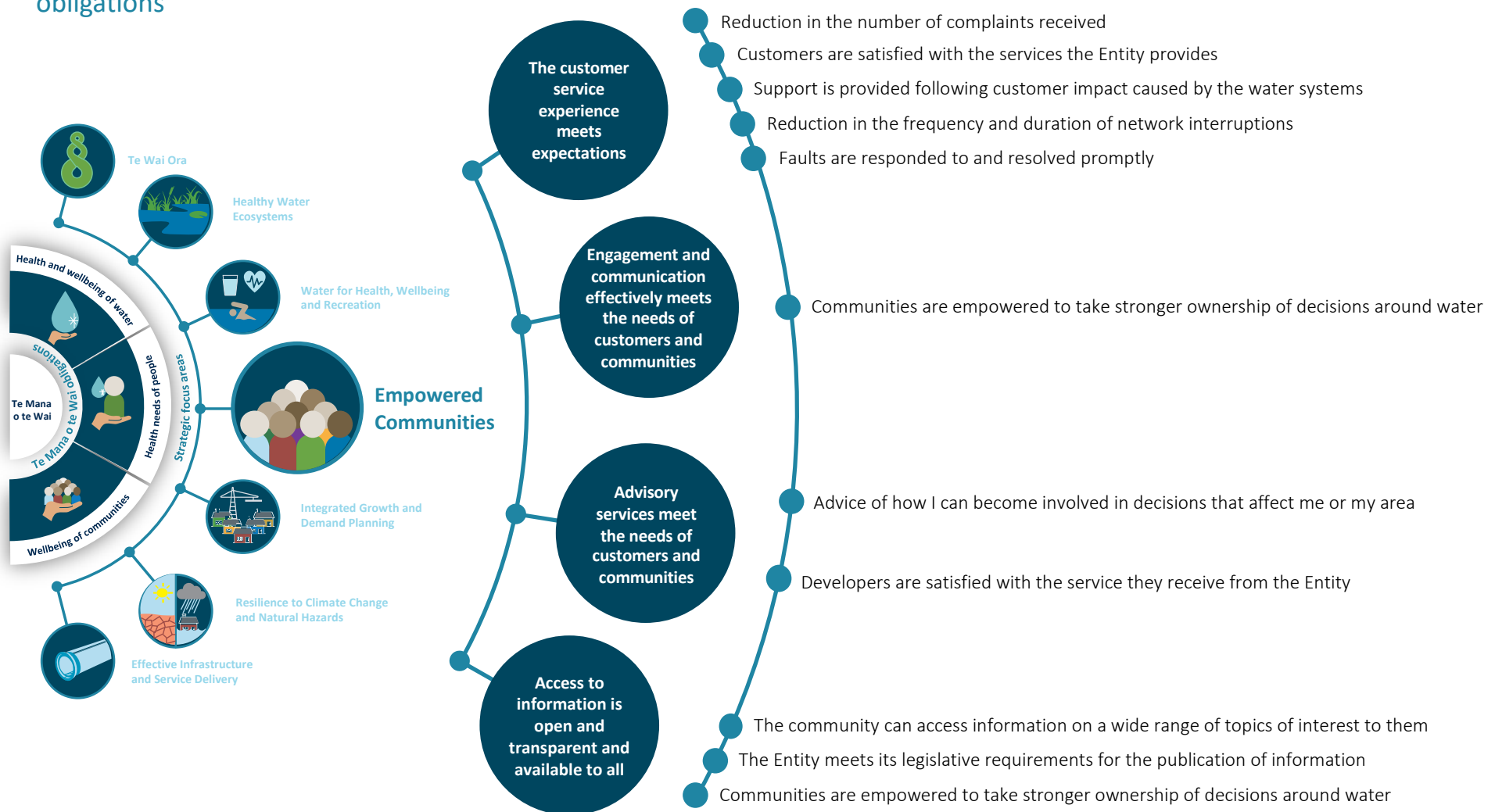


Figure 13 shows an example of a focus area outcome timeline diagram. This diagram shows the indicative timeline for delivery of the outcome for each of the outcome statements associated with an outcome area for a Focus Area.



Figure 13: Example of outcome timeline diagram

Summary breakdown of performance measures

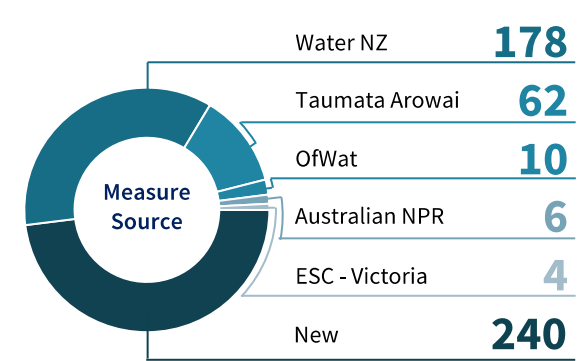


Figure 14: Breakdown of measures by source

Figure 14 shows the breakdown of performance measures by source. 48% of all measures are new and were not sourced from any of the frameworks assessed in the literature review.

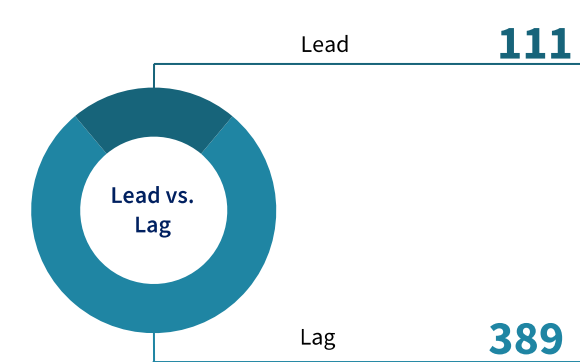


Figure 15: Breakdown of measures by lead vs. lag

Figure 15 shows the split of lead vs. lag measures. 22% of all measures are lead indicators, with 48% of all new measures being lead indicators.



Figure 16: Breakdown of measures by Focus Area

Figure 16 shows the breakdown of measures by Focus Area. As would be expected, the Effective Infrastructure and Service Delivery Focus Area has the highest number of measures as it most closely aligns with the asset management function. Te Wai Ora currently has the least number of measures, an indication of the emerging nature of this focus area.



Focus Areas, outcomes and performance measures

Te Wai Ora

Te Wai Ora is a holistic term that refers to the cyclical and essential nature of water as a *living taonga*, the lifeblood of Papatūānuku that sustains the wellbeing of all life.

The term acknowledges the physical and spiritual dimensions of water and signals a fundamental shift in Three Waters Infrastructure philosophy and practice.

Why this is important?

Water has mauri – a vitality or essence that supports life. The actions we each take can enhance mauri or they can diminish mauri. We will need to learn what influences mauri in each catchment from the traditional wisdom, Mana whenua kaitiaki and in accordance with tikanga, kawa, and mātauranga-a-iwi. Incorporating a Māori world view of water into how we think, and act will be beneficial to all, and ensure social and cultural considerations are treated equitably. If we can agree a common destination, it will become easier to discuss and agree the priorities and options to get there. It will help us to recognise the consequences of actions across the whole water cycle, and ensure we treat water as precious.

Giving effect to Te Mana o te Wai and upholding the principles of Te Tiriti o Waitangi.

Te Mana o te Wai is an express commitment to the restoration of the mauri of water and recognising it as a living taonga.

Te Tiriti o Waitangi through co governance co management arrangements brings indigenous values, knowledge, and practices into the heart of decision making and operational practice. As a treaty partner of mana whenua, we have a responsibility to ensure that their aspirations and objectives are included in planning decisions, setting best practice, and safeguarding our natural environment.

What are the pressures?

While there are examples where local councils have implemented regimes to foster greater cooperation with mana whenua in the planning process, the introduction of co-governance into the 3 waters introduces a new legislative requirement on the sector. This will require the establishment of entirely new processes and management systems, and creating the operational capacity and capability of both the Water Service Entity and iwi and hapū to effectively deliver Te Mana o te Wai.

Creating operational capacity and capability will need to include establishment of specialist roles within the entities workforce that have the specific skills and experience to partner with iwi/hapū on management of the water system, as well as ensuring all entity staff have a sound base understanding of the principles of Te Tiriti o Waitangi and Te Mana o te Wai.

Incorporating tikanga Māori and Te Ao Māori into planning and decision making will require the development of new methods for the monitoring, recording and reporting of te mauri o te wai, for those characteristics of the water system that are of importance to mana whenua.

What does it cover?

Recognition of water as a taonga: Upholding the principles of Te Tiriti o Waitangi in water governance, management and operational structures through co-governance, co-management, and co-design arrangements with mana whenua.

Relationship to place and people: Integrating a tribal pepehā catchment model into WSE planning practices. Recognising that mana whenua have a special relationship with and obligations to water. Investment in water related projects that deliver improved outcomes for Māori. Support for local Māori business, through inclusive procurement of goods and services.

Kaitiaki operational hubs: Establishment and ongoing operation of mana whenua led hubs for the joint practices of kaitiakitanga and stewardship that give effect to Te Mana o te Wai. Providing the environment to foster kaitiakitanga and the role of mana whenua in the operations, programmes, and management of water through investment in kaitiakitanga practice, capacity, and capability.

Knowledge Systems: Ensuring Mātauranga Māori and Te Ao Māori worldviews are valued and inform decision making. Establishing the framework and the ongoing management of knowledge systems for measuring and monitoring those aspects of the water system that are of particular importance to Māori.

Workforce capability and capacity: Water services entities have the internal capacity and capability to effectively embed Te Mana o te Wai, as it is applied in place, and to uphold their obligations under Te Tiriti o Waitangi across all its activities. Growing the internal capability and knowledge of staff in the delivery of Te Mana o te Wai and the principles of Te Tiriti o Waitangi.

How does it give effect to Te Mana o te Wai?

Te wai ora is fundamental to delivering on all three priorities of Te Mana o Te Wai, recognising the role of tangata whenua in the management of the water system at all levels. Te wai ora gives effect to Te Mana o te Wai through providing the environment for mana whakahaere, kaitiakitanga and manaakitanga by mana whenua.

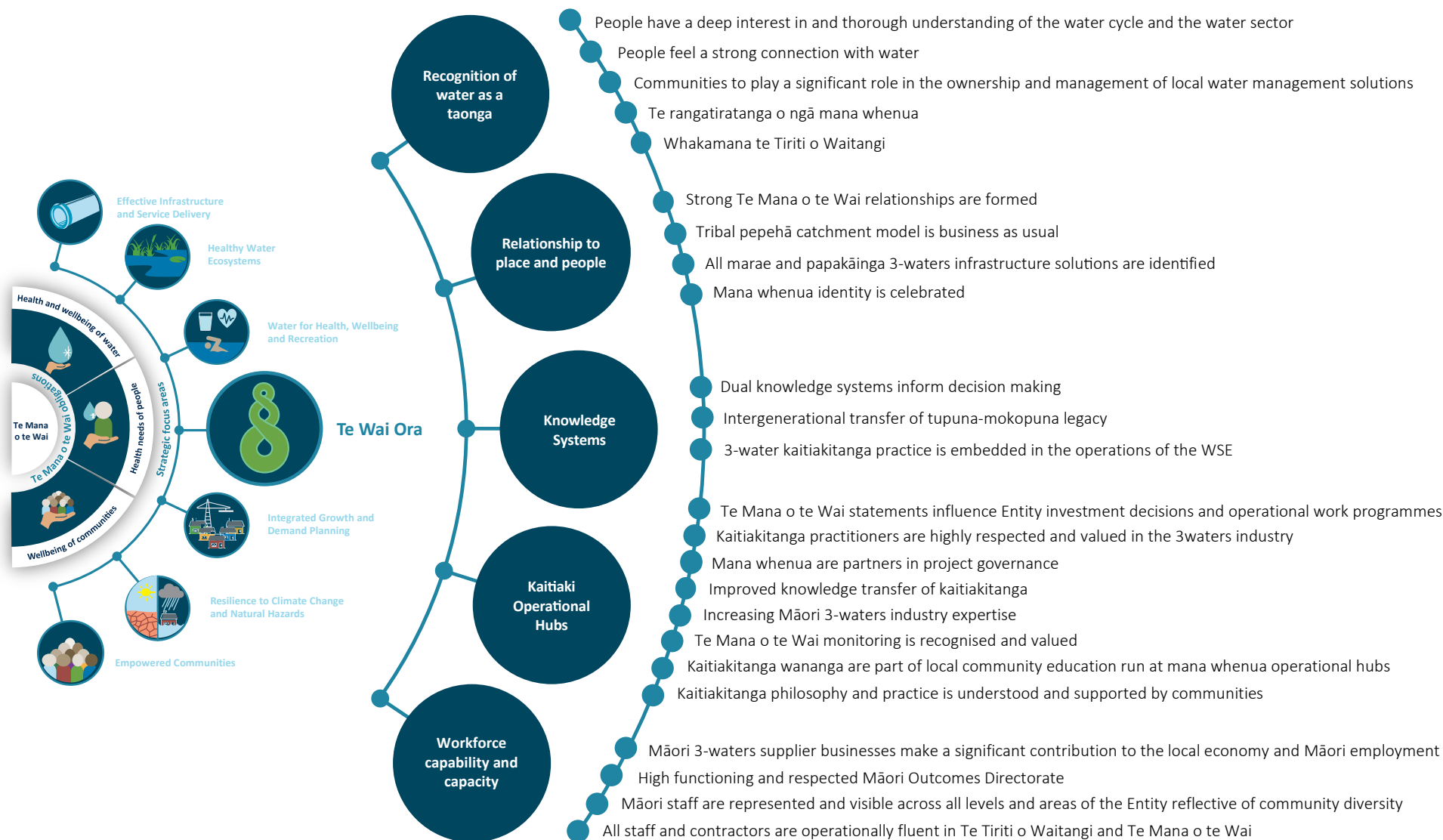


Figure 17: Te Wai Ora outcomes

Delivering outcomes over time

The following performance areas are being recommended for Entities to track progress in delivering the Te Wai Ora focus area overtime.

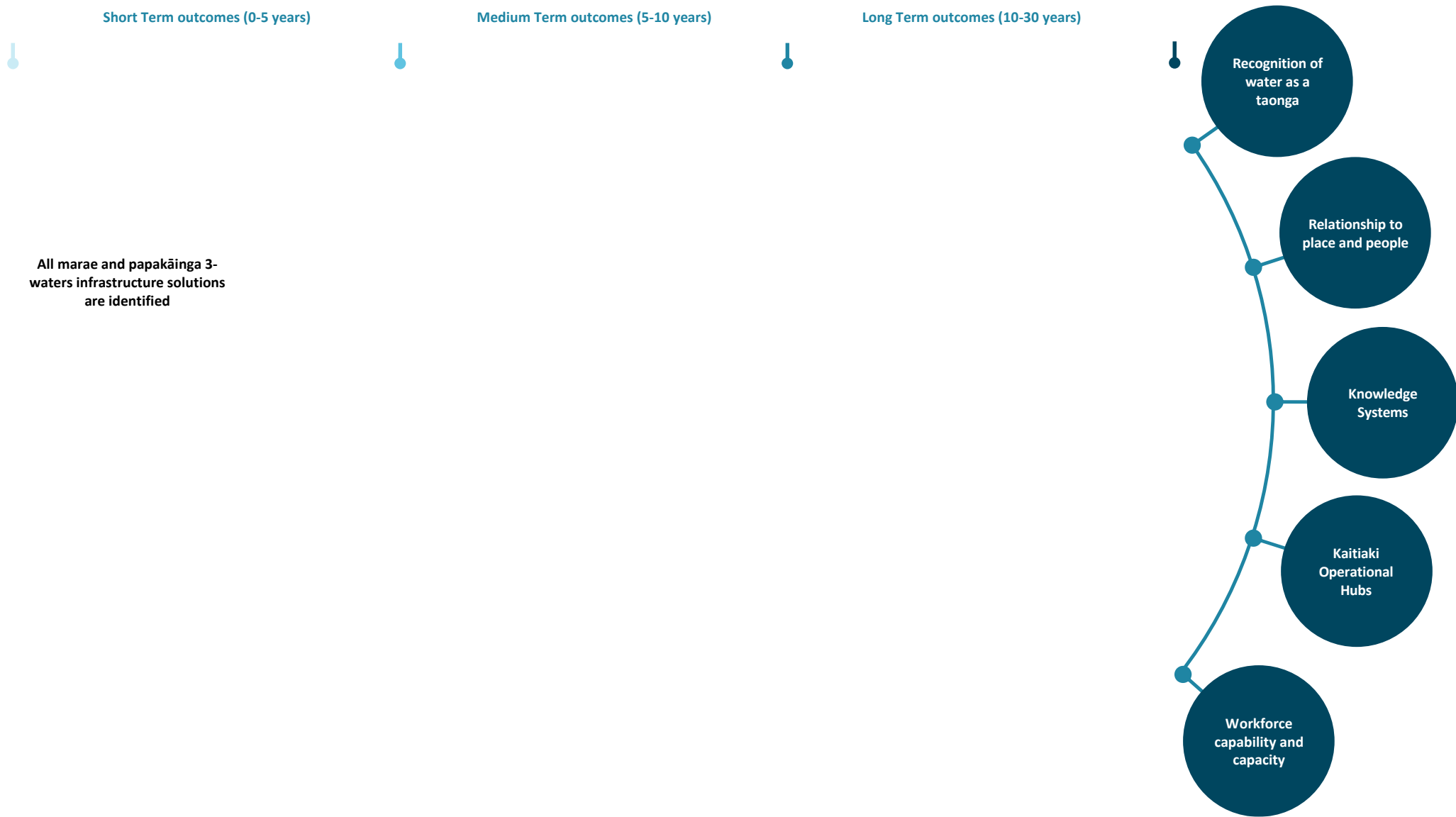







Figure 18: Te wai ora outcomes and summary measurement areas over time

Measures

Recognition of water as a taonga

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Connection to water	People have a deep interest in and thorough understanding of the water cycle and the water sector.	Water Literacy (Item 2.1 in CRC Water sensitive cities rating scale)	Rating scale		Catchment	TW001
	People feel a strong connection with water	Connection to Water (Item 2.2 in CRC Water sensitive cities rating scale)	Rating scale		Catchment	TW002
	Communities play a significant role in the ownership and management of local water management solutions	Shared ownership, management and responsibility of water assets (Item 2.3 in CRC Water sensitive cities rating scale)	Rating scale		Catchment	TW003
	Te rangatiratanga o ngā mana whenua	Sentiment - The mana and authority of mana whenua to make decisions that maintain, protect, and sustain Te Mana o te Wai, for the benefit of past, present, and future generations is recognised and provided for by the Water Services Entities	Rating scale		Catchment	TW004
	Whakamana te Tiriti o Waitangi	Sentiment - The mutual Te Tiriti o Waitangi obligations and responsibilities of mana whenua (Tino Rangatiratanga) and the Crown and Water Service Entities (Kāwanatanga) are given effect and provided for in-relation to Te Mana o Te Wai.	Rating scale		Catchment	TW005

Relationship to place and people

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Understanding Te Wai Ora	Strong Te Mana o te Wai relationships are formed	List of mana whenua groups with a Te Mana o te Wai relationship with the entity	List		Entity	TW006
	Tribal pepeha catchment model is business as usual	Tribal pepeha catchment planning model is fully integrated into Entity planning processes	Yes/No		Mana Whenua Group	TW007
		Sentiment - The regeneration of mana whenua whakapapa/ tātai relationships to place are actively supported and provided for by Water Services Entities in relation to Te Mana o te Wai	Rating scale		Mana Whenua Group	TW008
	All marae and papakāinga 3-waters infrastructure solutions are identified	Partnership relationships established with Marae to identify the 3-waters infrastructure solutions to meet their needs and align with their aspirations	List		Marae	TW009
		Marae where 3-waters infrastructure solutions to meet their needs have been identified	List		Marae	TW010
		The cost and funding required to implement Marae 3-waters infrastructure solutions including the ongoing operational costs is identified	\$		Marae	TW011
		Number of partnership relationships established with Papakāinga for the purpose of identifying the 3-waters infrastructure solutions to meet their needs	List		Papakāinga	TW012
		Papakāinga where 3-waters infrastructure solutions to meet their needs have been identified	List		Papakāinga	TW013
		The cost and funding required to implement Papakāinga 3-waters infrastructure solutions including the ongoing operational costs is identified	\$		Papakāinga	TW014
	Mana whenua identity is celebrated	Sentiment - Mana whenua identity, sense of place, cultural landscapes and whakapapa/ tātai relationships to wai are highly visible, recognised, and celebrated in rural and urban design and development in-relation to Te Mana o Te Wai	Rating scale		Mana Whenua Group	TW015

Knowledge Systems

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Mātauranga Māori	Dual knowledge systems inform decision making	Sentiment - Mātauranga Māori and Te Ao Māori worldviews are valued and recognised and inform decision making for all water systems, providing an exemplar of world best practice of indigenous thinking and practice	Rating scale		Mana Whenua Group	TW016
	Intergenerational transfer of tupuna-mokopuna legacy	Sentiment - Mana whenua pathways for intergenerational transfer of knowledge and practice are developed and supported in-relation to Te Mana o Te Wai	Rating scale		Mana Whenua Group	TW017
	3-water kaitiakitanga practice is embedded in the operations of the Entity	3-waters kaitiakitanga practice is recognised and valued nationally	Rating scale		Entity	TW018

Kaitiaki Operational Hubs

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Enabling Kaitiakitanga Practice	Te Mana o te Wai statements influence WSE investment decisions and operational work programmes	Sentiment – Mana whenua are satisfied with the influence Te Mana o te Wai statements have on investment decisions and operational work programmes	Rating scale		Catchment	TW019
	Kaitiaki practitioners are highly respected and valued in the 3-waters industry	Number of instances kaitiaki practitioners influenced decision making	Number		Entity	TW020
		Number of kaitiaki practitioners working within the Entity's region	List		Entity	TW021
	Mana whenua are partners in project governance	Number of project steering groups that included mana whenua representatives as co-sponsor	Number		Entity	TW022
	Improved knowledge transfer of kaitiakitanga	Number of scholarships or cadetships supported by the Entity to enable transfer of kaitiakitanga knowledge	Number		Entity	TW023
	Increasing Māori 3-waters industry expertise	Number of scholarships or cadetships provided by the entity to increase Māori representation in professional and technical 3-waters roles	Number		Entity	TW024
	Te Mana o te Wai monitoring is recognised and valued	Te Mana o te Wai monitoring and assessment is fully integrated into 3-waters monitoring	Yes/No		Entity	TW025
Community engagement with Kaitiakitanga	Kaitiakitanga wānanga are part of local community education run at mana whenua operational hubs	Number of Wānanga (knowledge centres)	List		Catchment	TW026
		Number of participants of training in Kaitiakitanga and stewardship at wānanga	Number		Catchment	TW027
		Positive community survey for kaitiakitanga initiatives	Rating		Catchment	TW028
	Kaitiakitanga philosophy and practice is understood and supported by communities	Positive participant survey for Wānanga and kaitiakitanga initiatives	Rating		Catchment	TW029
		Number of mana whenua led community stewardship and kaitiakitanga initiatives	Number		Catchment	TW030

Workforce capability and capacity

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Resilient Local Māori Economy	Māori 3-waters supplier businesses make a significant contribution to the local economy and Māori employment	Achievement of the 5% government procurement target for allocation of contracts to Māori business	%		Catchment	TW031
		Percentage of total budget spent with local Māori businesses	%		Catchment	TW032
		Number of local Māori businesses undertaking Entity activities	Number		Catchment	TW033
Empowered Organisation	High functioning and respected Māori Outcomes Directorate	Sentiment - The Entity has a high functioning and respected Māori Outcomes Directorate	Rating		Entity	TW034

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
	Māori staff are represented and visible across all levels and areas of the Entity reflective of community diversity	Number of Māori occupying senior roles	Number	● ● ●	Entity	TW035
		Percentage of Māori occupying senior roles	%	● ● ●	Entity	TW036
		Number of Māori staff	Number	● ● ●	Entity	TW037
		Percentage of Māori staff	%	● ● ●	Entity	TW038
		Number of Māori specialist staff	Number	● ● ●	Entity	TW039
		Percentage of Māori specialist staff	%	● ● ●	Entity	TW040
		Number of Māori occupying professional or technical roles	Number	● ● ●	Entity	TW041
		Percentage of Māori occupying professional or technical roles	%	● ● ●	Entity	TW042
	All staff and contractors are operationally fluent in Te Tiriti o Waitangi and Te Mana o te Wai	Percentage of all staff and contractors with base competency in Te Tiriti o Waitangi and Te Mana o te Wai	%	● ● ●	Entity	TW043
		The Entity provides place-based competency training in how to embed Te mana o te Wai including regular refresher courses	Yes/No	● ● ●	Entity	TW044

Water Service: ● Water ● Wastewater ● Stormwater

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Bolded text: Measures currently being reported by Councils through the NPR or DIA process

Standard text: Measures that are new or reported by larger water companies in NZ or Internationally

Healthy Water Ecosystems

Why this is important?

Water bodies and freshwater ecosystems form a blue and green network that encompass the concept of ki uta ki tai ('from the mountains to the sea'), connects the land to water, and defines the unique landscape. They provide invaluable hydrological and ecological functions and a source of drinking and irrigation water for communities and primary industries.

Streams and riparian margins, floodplains and overland flow paths, and ponds, lakes and wetlands play important roles in conveying, slowing down and storing runoff, filtering contaminants and providing essential habitats. Estuaries and their surrounding lands are places of transition from land to sea. They are an essential part of maintaining the health and resources of marine environments, retaining sediments and nutrients while filtering out contaminants. Estuaries are among the most biologically productive environments on Earth, their sheltered waters providing critical nursery and feeding areas for fish, birds, and other marine wildlife. These natural structures have a higher resilience to the effects of climate change than that of built environments.

What are the pressures?

There is a legacy of past development decisions that have deforested land, created large areas of hard surfaces, replaced natural streams with pipes or concrete channels, and degraded aquatic and coastal environments.

Past development approaches have caused changes in natural flow regimes resulting in erosion and sedimentation, contamination of streams, waterbodies and sensitive coastal environments at levels that adversely affect aquatic life, and loss of aquatic habitat and biodiversity. They have also disconnected people from waterways and the important community values and identity that they provide.

What does it cover?

The Healthy Water Ecosystems focus area covers the following:

Freshwater and marine ecosystems are restored to health:

Through ensuring there is no further degradation of water ecosystems and restoring those areas that are below an acceptable standard Mimicking natural systems and processes in water management, and the restoration of natural systems.

Freshwater resources are managed sustainably: To ensure freshwater ecosystems remain healthy, the management of the raw water take from these environments to levels that do not have a detrimental effect is essential.

Water is managed in an integrated way – ki uta ki tai:

Considering 3 waters as a circular interconnected ecosystem, whereby changes in one influence the others. Applying an integrated approach to the management of 3 waters.

Local authorities must take an integrated management approach to freshwater management in accordance with the principle of ki uta ki tai ('from the mountains to the sea'). This principle recognises the interconnectedness of the environment, the interactions between its parts, and requires integration between freshwater management and land use to avoid adverse effects (including cumulative effects) on the health and well-being of freshwater environments.³

Discharges from networks do not further degrade water ecosystems: The consented discharges from treatment plants and networks do not further degrade water ecosystems. Working towards a reduction in discharge to water and transitioning to discharge to land.

Treatment by-products are utilised productively:

Environmental sustainability of the operation of Water Services Entities including productive use of the by-products of water and wastewater treatment, or their responsible disposal.

³ MfE - Essential Freshwater: Te Mana o te Wai Factsheet, 2020

How does it give effect to Te Mana o te Wai?

Protecting the health and well-being of water bodies and freshwater ecosystems, and therefore delivering on the first priority of Te Mana o Te Wai: the health and well-being of water bodies and freshwater ecosystems. In particular this focus area relates to giving effect to Te Mana o te Wai through ensuring the health of water bodies and freshwater ecosystems is not further degraded, and taking steps to improve the health of these where they have fallen below acceptable levels.

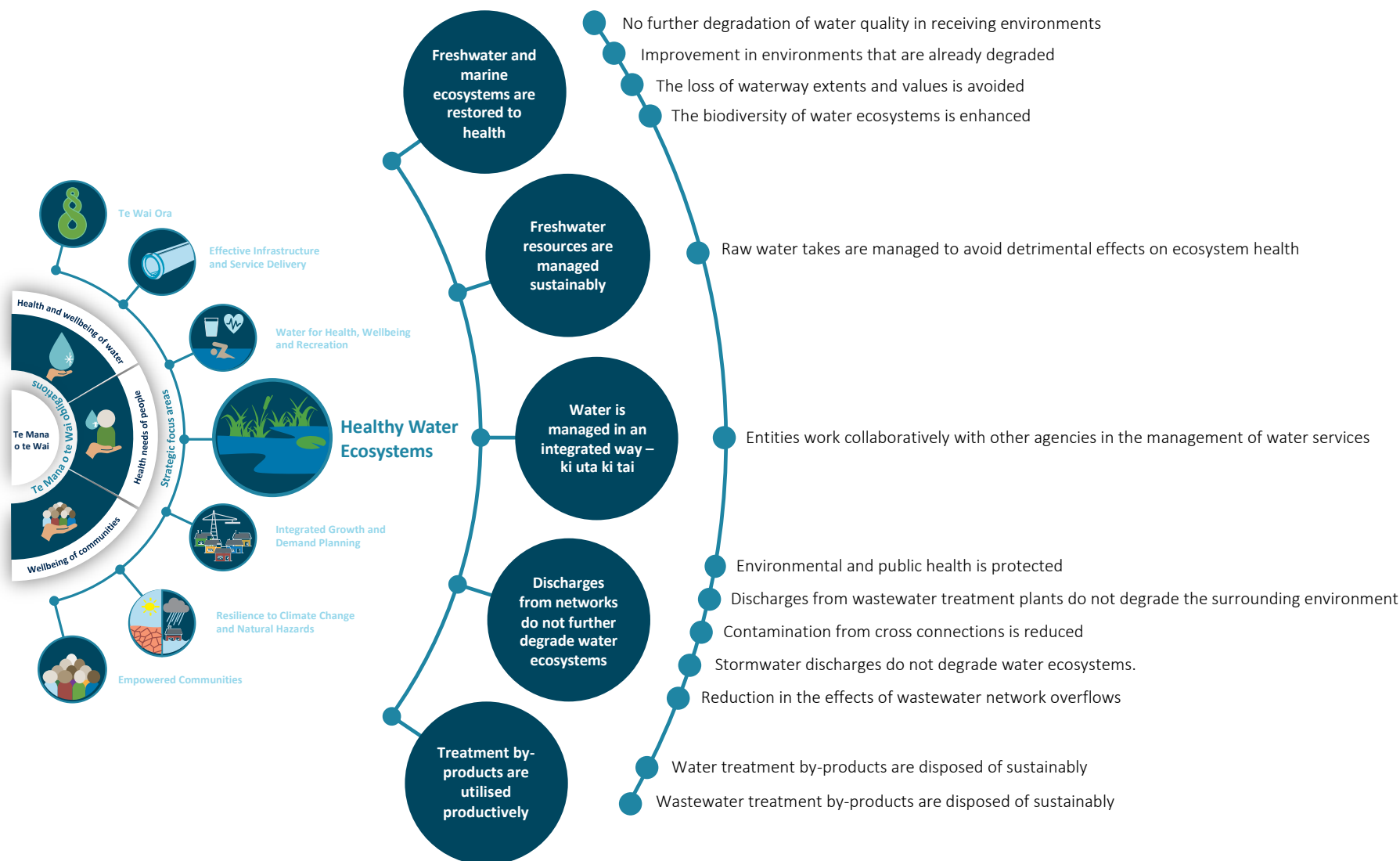


Figure 19: Healthy water ecosystems outcomes

Delivering outcomes over time

The following performance areas are being recommended for Entities to track progress in delivering healthy Water Ecosystems over time.

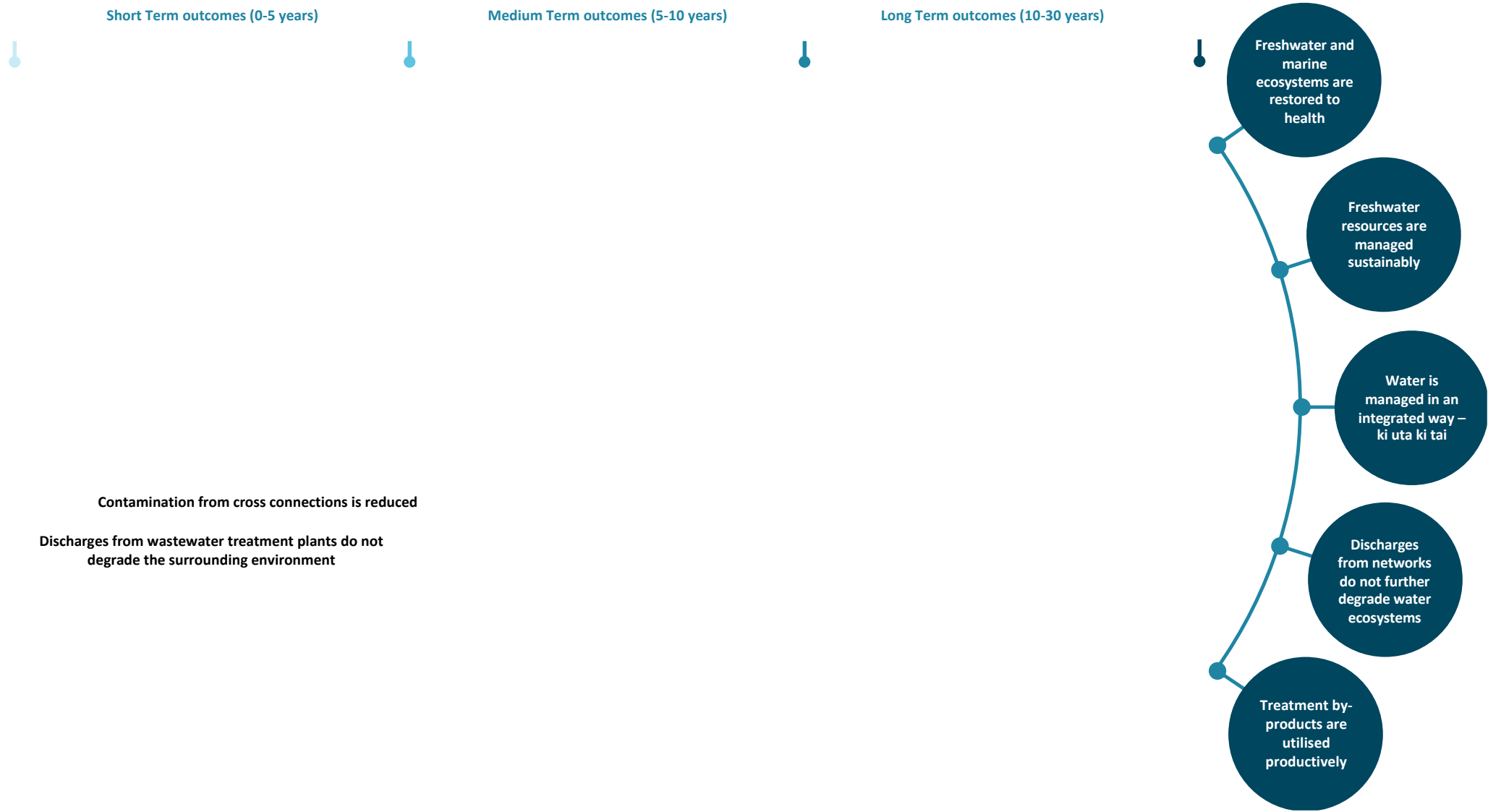


Figure 20: Healthy water ecosystems outcomes and summary measurement areas over time

Measures

Freshwater and marine ecosystems are restored to health

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Ecosystem Health	No further degradation of water quality in receiving environments	Assessment of the current health of waterways that are part of the system	% of waterways within the total catchment	●	Entity	HW001
		Contaminant load discharged to waterways (freshwater and coastal)(Modelling)	Tonne	● ●	Catchment	HW002
		Source of contaminants discharged to waterways (whole of catchment)	%	● ●	Catchment	HW003
	Improvement in environments that are already degraded	Assessment of hydraulic capacity, and stream bank stability of waterways	% of waterways within the total catchment	●	Entity	HW004
		Locations where stream flow regime cause poor ecosystem health outcomes	% of stream length	●	Entity	HW005
	The loss of waterway extents and values is avoided	Waterway erosion index does not exceed the target	Index	●	Waterway	HW006
		Physical habitat of river, wetland, lake and coastal receiving or take-affected waterways (throughout downstream lengths affected by discharge and/or take)	% (of length, area, number)	●	Catchment	HW007
		Proportion of stream length with riparian margin	%	●	Catchment	HW008
Environment (Fish Passage)	The biodiversity of water ecosystems is enhanced	Length stream with opportunities for habitat to be rehabilitated/enhanced	m	●	Entity	HW009
		Length stream rehabilitated/enhanced	m	●	Entity	HW010
		Number of wetland/pond areas that need rehabilitation	Number	●	Entity	HW011
		Number of wetland/pond areas rehabilitated	Number	●	Entity	HW012
		Number of unmitigated structures that are an impediment to fish passage	Number	●	Entity	HW013
		Number of unmitigated structures that are an impediment to fish passage assessed to allow for safe passage of fish	Number	●	Entity	HW014

Freshwater resources are managed sustainably

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Water Sources	Raw water takes are managed to avoid detrimental effects on ecosystem health	Number of Entity drinking water abstraction points	Number	●	Network	HW015
		Drinking water network source type	Selection	●	Network	HW016
		Water Supplied to the drinking water network	m3/year	●	Network	HW017
		Number of stream catchments assessed in terms of water takes	Number	●	Entity	HW018
		Sufficient environmental and cultural flows maintained at water sources to meet Te Mana o te Wai	Report	●	Network	HW019
		Volume of water returned to waterways as environmental flows. (Raw water input from other sources used to maintain ecosystem health of a waterway)	m3	●	Network	HW020

Water is managed in an integrated way – ki uta ki tai

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Integrated Water Management	Entities work collaboratively with other agencies in the management of water services	The Entity has service level agreements in place with associated councils/agencies where either party undertakes an asset management function on behalf of the other party	Yes/No	● ● ●	Entity	HW021
		Service level agreements are annually reviewed with the other party and assessed for relationship and agreement efficacy	Yes/No	● ● ●	Entity	HW022
		Sentiment - Cross-sector institutional arrangements and processes	Rating	● ● ●	Entity	HW023

Discharges from networks do not further degrade water ecosystems

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Consent Compliance	Environmental and public health is protected	Number of resource consents that are held	List	<div></div>	Entity	HW024
		Type of resources consent (e.g., water take consent, discharge consents, etc)	List	<div></div>	Network	HW025
		Resource consent reference numbers	List	<div></div>	Network	HW026
		Expiry dates for resource consents	Date	<div></div>	Network	HW027
		Proportion of audits that resulted in adverse construction impacts from works including reinstatement/realignment of assets	%	<div></div>	Entity	HW028
	Discharges from wastewater treatment plants do not degrade the surrounding environment	Treatment Plant effluent resource consent expiry date	Date	<div></div>	Consent	HW029
		Wastewater Treatment plant effluent consent status	List	<div></div>	Consent	HW030
		Wastewater treatment plant consent non-conformance	Number	<div></div>	Entity	HW031
		Non-compliance actions in response to trade waste breaches	Report	<div></div>	Entity	HW032
	Wastewater Discharges	Discharges from wastewater treatment plants do not degrade the surrounding environment	Volume of treated effluent outflow from wastewater treatment plants - Primary - Secondary - Tertiary	m3	<div></div>	Facility
Amount of wastewater effluent discharged to land - Primary - Secondary - Tertiary			m3	<div></div>	Facility	HW034
Volume of untreated wastewater discharged from treatment plant (due to bypass)			m3	<div></div>	Facility	HW035
Contamination from cross connections is reduced		Number of properties with wastewater to stormwater cross connection identified	Number	<div></div>	Entity	HW036
		Number of properties with wastewater to stormwater cross connections that have been rectified	Number	<div></div>	Entity	HW037
Stormwater Discharges		Stormwater discharges do not degrade water ecosystems.	Proportion of stormwater discharges with resource consents	%	<div></div>	Entity
Overflows	Reduction in the effects of wastewater network	Peak wet to average dry weather flows entering wastewater treatment plant	Ratio	<div></div>	Network	HW039
		Dry weather overflows caused by blockages	Number	<div></div>	Network	HW040
		Dry weather overflows caused by other causes	Number	<div></div>	Network	HW041

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
	overflows	Wet weather overflows from the wastewater network	Number	●	Network	HW042
		Wet weather overflows from combined stormwater and wastewater networks	Number	●	Network	HW043
		Wastewater overflows on private properties	Number	●	Network	HW044
		Sewage containment of the existing network	List	●	Network	HW045
		Overflows recorded through SCADA monitoring on constructed overflow locations	%	●	Entity	HW046
		Overflows predicted through calibrated hydraulic models	Yes/No	●	Entity	HW047
		Proportion of constructed overflow locations covered by resource consents	%	●	Network	HW048

Treatment by-products are utilised productively

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Treatment by-products	Water treatment by-products are disposed of sustainably	Water Treatment Sludge Production	tDS	●	Facility	HW049
		Disposal of Water Treatment sludge in year to on site stockpile	%	●	Facility	HW050
		Disposal of Water Treatment sludge in year to landfill	%	●	Facility	HW051
		Disposal of Water Treatment sludge in year to composting and reuse	%	●	Facility	HW052
		Disposal of Water Treatment sludge in year to other routes	%	●	Facility	HW053
	Wastewater treatment by-products are disposed of sustainably	Wastewater Treatment Plant sludge production of wet sludge/biosolids	tonne	●	Facility	HW054
		Percentage of dry solids in wastewater sludge/biosolids	%	●	Facility	HW055
		Disposal of wastewater sludge in year to on site stockpile	%	●	Facility	HW056
		Disposal of wastewater sludge in year to landfill	%	●	Facility	HW057
		Disposal of wastewater sludge in year to composting and reuse	%	●	Facility	HW058
		Disposal of wastewater sludge in year to other routes	%	●	Facility	HW059

Water Service: ● Water ● Wastewater ● Stormwater

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Water for Health, Wellbeing and Recreation

Why this is important?

New Zealand's outstanding natural environment affords unique lifestyle opportunities such as harvesting Mahinga Kai (food) from streams, rivers, lakes and coastal environments as well as enjoying recreational water-based activities including swimming and boating which are an integral part of living in New Zealand.

Access to clean drinking water is a basic human necessity for health. The delivery of fresh water for human consumption, to the specified drinking water quality standards, and ensuring everyone has access to affordable water services is a critical function of Water Service Entities.

To meet sustainability goals Entities will need to increase the value people place on water through raising awareness of the importance of water as a limited resource, recognising the importance of water bodies to the wellbeing of people, while ensuring the security of supply.

What are the pressures?

Every drinking water supplier has a duty of care to provide safe water - whether they serve a small community or a major city. Water suppliers need to understand the risks to their supply and what they need to do to make sure the water they supply is safe to drink. Currently 61% of water supplies monitored by Taumata Arowai do not meet water quality standards.⁴

There are rivers, aquifers, reservoirs, lakes, beaches, harbours and coastal environments that are significantly

affected by poor water quality.

Many waterways and beaches are unsafe for swimming after storm events, and some beaches are permanently closed to swimming. This is primarily due to faecal contamination (both human and non-human) from a number of sources.

Other sources of contamination with the potential to make people sick include algal blooms in freshwater and coastal environments.

Our communities have a clear expectation that they can safely interact with waterbodies, to swim or collect kai, without being concerned about any potential health risks.

What does it cover?

The Water for Health, Wellbeing and Recreation focus area covers the following:

- **Everyone has access to safe, affordable drinking water.** Providing access to clean drinking water, removing barriers to access including price, the provision of 3 waters services, and the tariff structures used for three waters services. This also includes access to affordable wastewater and stormwater services.
- **Beaches, lakes, and rivers are safe for recreational use.** Improvement in the health of water bodies to a level suitable for swimming. Also ensuring waterways support unobstructed fish passage to allow **waterways to support recreational fishing**.

⁴ Drinking Water Regulation Report 2021 – Taumata Arowai

- **Water bodies are safe for the collection of Mahinga Kai.** Working with Mana Whenua/Iwi through Te Mana o te Wai to ensure locations of Mahinga Kai are safe for the collection of food, through mana whenua led cultural monitoring and kaitiakitanga.
- **Ensuring waterborne contaminants do not enter drinking water supplies and maintaining acceptable levels of drinking water quality.** Taking positive action to ensure waterborne contaminants do not enter drinking water supplies and maintaining acceptable levels of drinking water quality.
- **Drinking water supplies are resilient, reliable, and efficient,** through managing demand, ensuring enough supply for firefighting, managing to an economic level of water leakage and loss, and ensuring water networks have enough systems capacity to manage through short durations of supply interruption.
- **Our communities are informed and educated about water related health, wellbeing, and recreational activities:** Tracking customer consumption of drinking water. Proactive processes to advise communities when water bodies are unsafe.

How does it give effect to Te Mana o te Wai?

Water for Health Wellbeing and Recreation is primarily related to the second priority of Te Mana o Te Wai: health needs of people (such as drinking water). In particular this focus area relates to giving effect to Te Mana o te Wai through ensuring the management of waterbodies reflect tangata whenua and communities' values, and the special connection people have with water, it's life giving properties, and the various ways it contributes to human wellbeing.

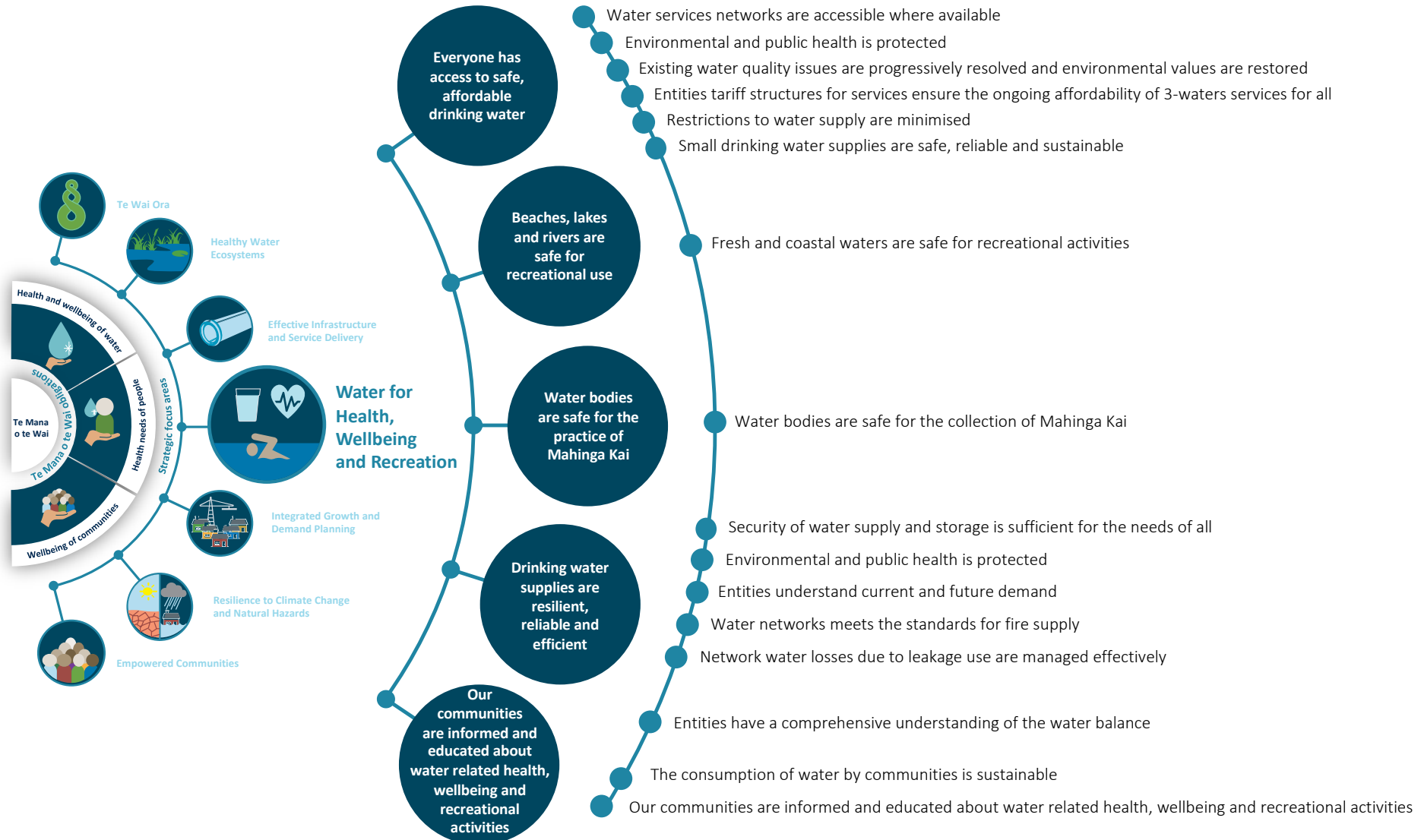


Figure 21: Water for Health, Wellbeing and Recreation outcomes

Delivering outcomes over time

The following performance areas are being recommended for Entities to track progress in delivering Water for Health, Wellbeing and Recreation:

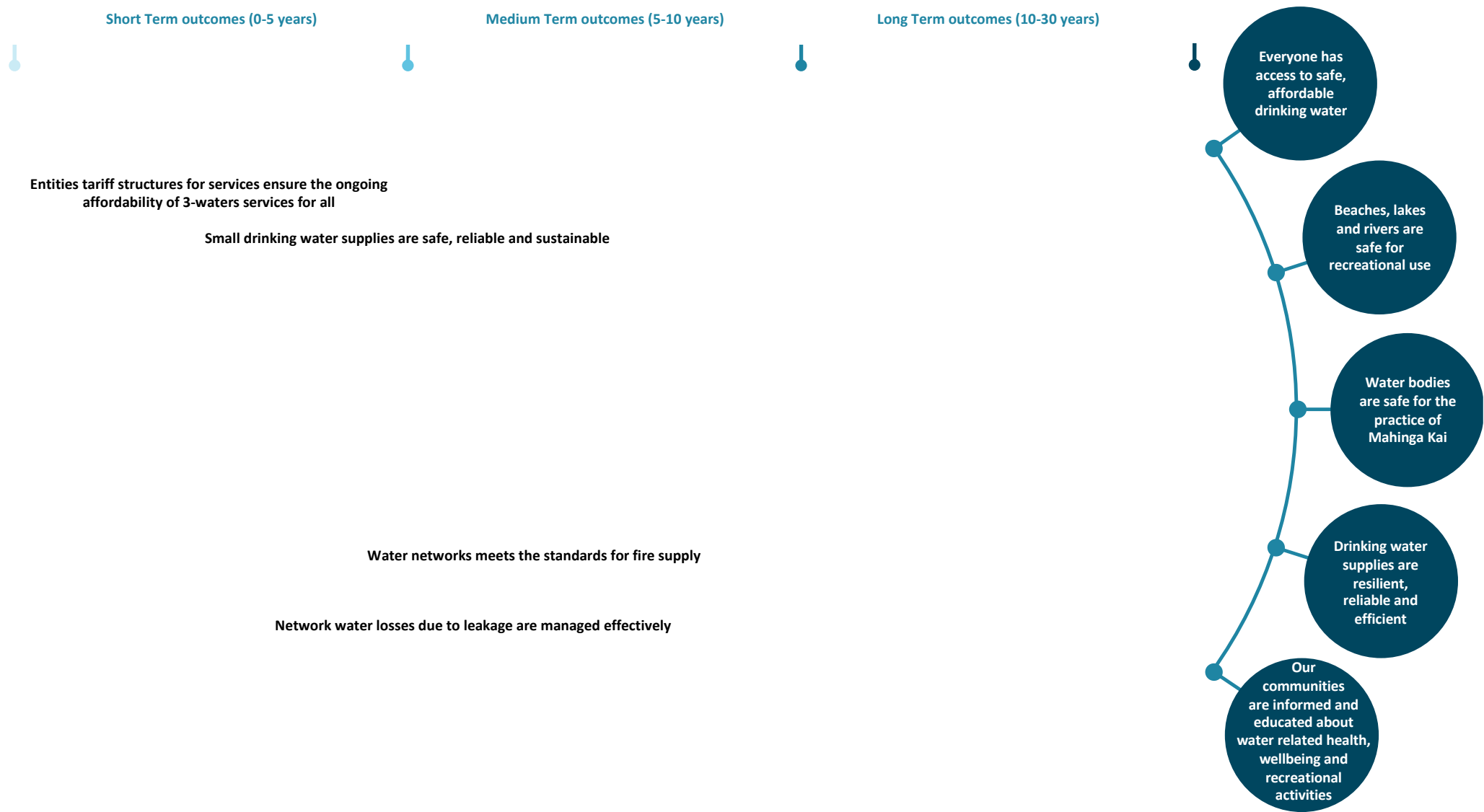











Figure 22: Water for health, wellbeing and recreation outcomes and summary measurement areas over time






Measures

Everyone has access to safe, affordable drinking water

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Access	Water services networks are accessible where available	Total Serviced Properties	Number		Network	WH001, 017, 023
		Number of drinking water networks	Number		Entity	WH002
		% of residential customers with water meters	%		Entity	WH007
		% of non-residential customers with water meters	%		Entity	WH008
		Number of residential connections with water meters	Number		Entity	WH009
		Number of non-residential connections with water meters	Number		Entity	WH010
		Number of non-payments of water bills	Number		Entity	WH011
		Proportion of Marae with registered supplies	%		Entity	WH012
		Serviced Population	Number		Network	WH013, 020
		Wastewater Service Coverage	%		Network	WH014
		Serviced Properties: Residential	Number		Network	WH015, 021
		Serviced Properties: Non-residential	Number		Network	WH016, 022
		Number of trade waste customers	Count		Network	WH019
	Environmental and public health is protected	Number of residential connections in the drinking water network	Number		Network	WH003
		Number of non-residential connections in the drinking water network	Number		Network	WH004
		Total population served by the drinking water network	Number		Network	WH005
		Water Supply Service Coverage	%		Entity	WH006
	Existing water quality issues are progressively resolved and environmental values are restored	Total number of septic systems that are failing within a WW reticulated area	Number		Entity	WH018
	Entities tariff structures for services ensure the ongoing	Average Residential Water Charge Based on 200 m3/yr	\$/200m3		Network	WH025
		Average hours on a minimum wage to pay water bill	Hours		Network	WH026

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
	affordability of 3-waters services for all.	Average Annual Residential Wastewater Charge Based on 200 m3/yr	\$/200m3		Network	WH027
		Average Annual Residential Stormwater Charge	\$/annum		Network	WH028
Restrictions	Restrictions to water supply are minimised	Properties with Water Restrictors for residential use	Number		Entity	WH029
		Water restriction days	Property-days		Network	WH030
		Number of days water restrictions applied	Days		Entity	WH031
		Number of affected connections (proportion of customers)	%		Entity	WH032
Water Quality	Environmental and public health is protected	Number do not drink notices for a period greater than x hours/days	Number		Entity	WH034
		Number of boil water alerts	Number		Entity	WH035
	Small drinking water supplies are safe, reliable and sustainable	Percentage of small potable water supply systems comply with Drinking Water Standards	%		Entity	WH036

Beaches, lakes and rivers are safe for recreational use

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Safe Recreational Use	Fresh and coastal waters are safe for recreational activities	The proportion of time beaches are suitable for contact recreation outside the summer swimming season	%		Entity	WH037
		Incidences of adverse outcomes from human contact with water bodies. Work with local Regional public health services and Health NZ to identify specific contamination sources resulting to human illness related to water recreational use. Longer term initiative.	List		Entity	WH038
		Number of inlet and outlet screens on recreational waterways assessed as unsafe	Number		Entity	WH039
		The proportion of time beaches are suitable for contact recreation during the summer swimming season (1 November to 30 April) - Locations need to be identified and then tracked in SafeSwim or LAWA	%		Entity	WH040
		The proportion of beaches and freshwater swimming locations where real-time and predicted water quality information is available to the public	%		Entity	WH041

Water bodies are safe for the practice of Mahinga Kai

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Mahinga Kai	Water bodies are safe for the collection of Mahinga Kai	Incidents of waterbody closure to collection of kai due to public health concern (for specific identified locations)	Days/ location	●	Location	WH042

Drinking water supplies are resilient, reliable and efficient

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Demand	Security of water supply and storage is sufficient for the needs of all	Volume of water received (System input)	ML	●	Network	WH043
		Water from river abstractions (Not exceeding consent for take)	ML	●	Network	WH044
		Water from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes	ML	●	Network	WH045
		Water from artificial recharge (AR) water supply schemes	ML	●	Network	WH046
		Water from water reuse schemes	ML	●	Network	WH047
	Environmental and public health is protected	Water imported from other suppliers	ML	●	Entity	WH048
		Water exported to other suppliers	ML	●	Entity	WH049
	Entities understand current and future demand	Volume of recycled water supplied to managed aquifer recharge	ML	●	Entity	WH050
		Volume of wastewater collected	ML	●	Network	WH051
		Volume of trade waste	ML	●	Network	WH052
		Volume of wastewater receiving treatment at sewage treatment works	ML	●	Network	WH053
Fire Supply	Water networks meets the standards for fire supply	Have you adopted the FENZ Code of Practice (SNZ PAS 4509:2008)?	Yes/No	●	Entity	WH054
		Fire hydrants tested in the previous five years	%	●	Entity	WH055
Water System Capacity	Security of water supply and storage is sufficient for the needs of all	Water Stored in Reservoirs (Average)(treated water available for use)	m3	●	Network	WH056
		Capacity of Water Storage Reservoirs	m3	●	Network	WH057
		Days of treated water stored in reservoirs on average	days	●	Network	WH058
		Reservoir average level	%	●	Network	WH059

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Water Leakage/ Loss		Network capacity	ML	●	Network	WH060
		Target headroom (minimum buffer between supply and demand)	ML	●	Network	WH061
	Network water losses due to leakage use are managed effectively	Estimated total network water loss (Water Losses in Water Balance)	m3	●	Network	WH062
		CARL (current annual real loss)	L/connection/day	●	Network	WH063
		CARL (current annual real loss)	m3/km mains/day	●	Network	WH064
		UARL (unavoidable annual real loss)	L/connection/day	●	Network	WH065
		Infrastructure Leakage Index (CARL/UARL)	Index	●	Network	WH066
		Number of water main breaks, bursts, and leaks per 100km of network per year	Number/100km	●	Network	WH067
		Leakage ratio day/night flows (link to leak management districts)	Ratio	●	Leak Management Zone	WH068
	Entities have a comprehensive understanding of the water balance	Billed Authorised Consumption	m3	●	Network	WH069
		Unbilled Authorised Consumption	m3	●	Network	WH070
		Apparent Losses	m3	●	Network	WH071
		Unbilled metered consumption	m3	●	Network	WH072
		Unbilled unmetered consumption	m3	●	Network	WH073
		Unauthorised consumption	m3	●	Network	WH074
		Customer metering under-registration	m3	●	Network	WH075
		Leakage on mains	m3	●	Network	WH076
		Revenue Water	m3	●	Network	WH077
		Non-revenue water	m3	●	Network	WH078

Our communities are informed and educated about water related health, wellbeing and recreational activities

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Consumption	The consumption of water by communities is sustainable	The average consumption of drinking water per day per resident	Litres/person/day	●	Network	WH079
	Entities have a comprehensive understanding of the water balance	Water Supplied to Own System (Water Balance)	m3	●	Network	WH080
		Authorised Consumption (Water Balance)	m3	●	Network	WH081
	The consumption of water by communities is sustainable	Non-residential Water Consumption	m3	●	Network	WH082
		Average residential water consumption	L/connection/day	●	Network	WH083
		Do you have a water conservation education programme in place?	Yes/No	●	Entity	WH084
		Volume of recycled water supplied to residential customers	m3	●	Network	WH085
		Volume of recycled water supplied to non-residential customers	m3	●	Network	WH086
		Volume of non-potable water supplied (SW harvesting)	m3	●	Network	WH087
		Number of customers augmenting their water supply with rainwater tanks	Number	●	Network	WH088
		Net reduction in average daily consumption by customers augmenting their water supply with rainwater tanks	Litres/person/day	●	Network	WH089
Informed Communities	Our communities are informed and educated about water related health, wellbeing and recreational activities	SafeSwim/LAWA usage	No of enquiries	●	Entity	WH090
		Customer satisfaction with SafeSwim/LAWA	Rating	●	Entity	WH091
		SafeSwim/LAWA uptime	%	●	Entity	WH092
		Swimming sites covered by SafeSwim/LAWA	List	●	Entity	WH093

Water Service: ● Water ● Wastewater ● Stormwater

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Effective Infrastructure and Service Delivery

Why this is important?

Addressing the large infrastructure deficit and delivering the programme of infrastructure investment required will require best practice asset management planning and service delivery to the management of three waters infrastructure assets. This will require ensuring the operation of the assets is delivering to the expected levels of customer service and performance expected within realistic and sustainable expenditure.

Entities will need to raise the reliability of three waters infrastructure assets through ensuring they are appropriately maintained, in an acceptable condition to deliver on the Te Mana o te Wai obligations and providing the expected customer levels of service. 3 waters networks also need to become more resilient, to respond to changes in demand, the effects of urban growth and intensification, and the anticipated impacts of climate change.

Effective infrastructure delivery also includes the application of sustainable operations and maintenance practices that protect and enhance the natural environment.

The application of best practice asset management, service delivery optimisation and operational efficiency should be enabled through innovative approaches and the use of the best available technology.

What are the pressures?

Fundamental to effective asset management planning is having a robust knowledge of the asset base under management. However, as the majority of 3 waters assets are buried underground, there can be significant gaps in the information about these assets, particularly their current condition.

Historically, there has been an underinvestment in 3 waters infrastructure that over time has meant the assets could be deteriorating to an extent that they are unable to meet the levels of service that their communities expect. The scale of required investment to address the backlog has been assessed and it is estimated that between \$120 billion to \$185 billions of investment will be needed over the next 30 years to address the infrastructure deficit, upgrade three waters assets to meet drinking water and environmental standards, and provide for future population growth. Planning and implementing that level of investment will require Entities have robust and industry best practice approaches to asset management planning and delivery.

A consequence of the infrastructure deficit is a reduction in the reliability of networks and their delivery of acceptable levels of customer service. Entities will need to have in place enhanced practices for measuring the impact of network interruptions on customers, down to the individual customer level, and using this information to direct investment in maintenance and renewals to reduce both the frequency and duration of network outages.

What does it cover?

Robust knowledge of water system assets (including Green and Natural assets): Ensuring Entities have comprehensive knowledge of the assets under management, their age and condition. This asset knowledge should extend to the natural and constructed green assets they have.

Sustainable and resilient network: Entities have documented the levels of service they intend to deliver, and which are sustainable. Networks are optimised so that they are easy to operate and provide a good level of resilience. The entity has well defined operating procedures and effective operational planning processes. Critical assets have been identified and these assets receive an elevated level of asset management attention.

Understand the current and future investment needs to deliver sustainable services:

The entity understands the broad range of investment drivers and levers available to determine the investment required to reduce the infrastructure deficit and improve customer levels of service. Sound, evidence based investment decision making is used to forecast budgets and justify expenditure.

Asset Management maturity is considered best practice internationally: The processes, practices and approach to asset management planning and delivery of Entities are considered best practice when compared to leading infrastructure organisations internationally. This is confirmed through participation in recognised Asset Management Maturity assessments and benchmarking.

How does it give effect to Te Mana o te Wai?

Effective Infrastructure and Service Delivery makes a contribution to all three Te Mana o te Wai priorities, however it most closely supports the second priority: health needs of people (such as drinking water),

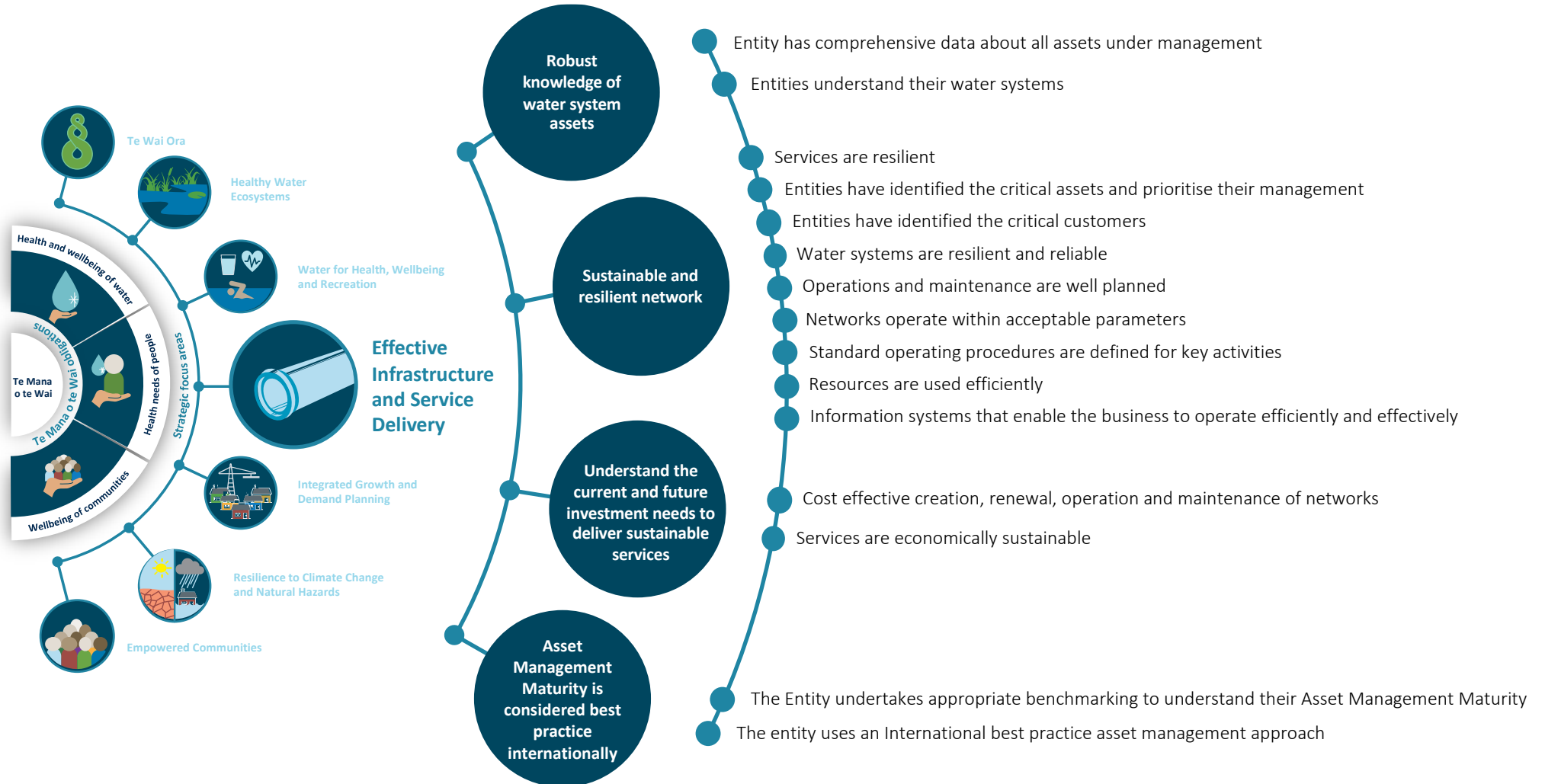


Figure 23: Effective Infrastructure and Service Delivery outcomes

Delivering outcomes over time

The following performance areas are being recommended for Entities to track progress in delivering Effective Infrastructure and Service Delivery over time.

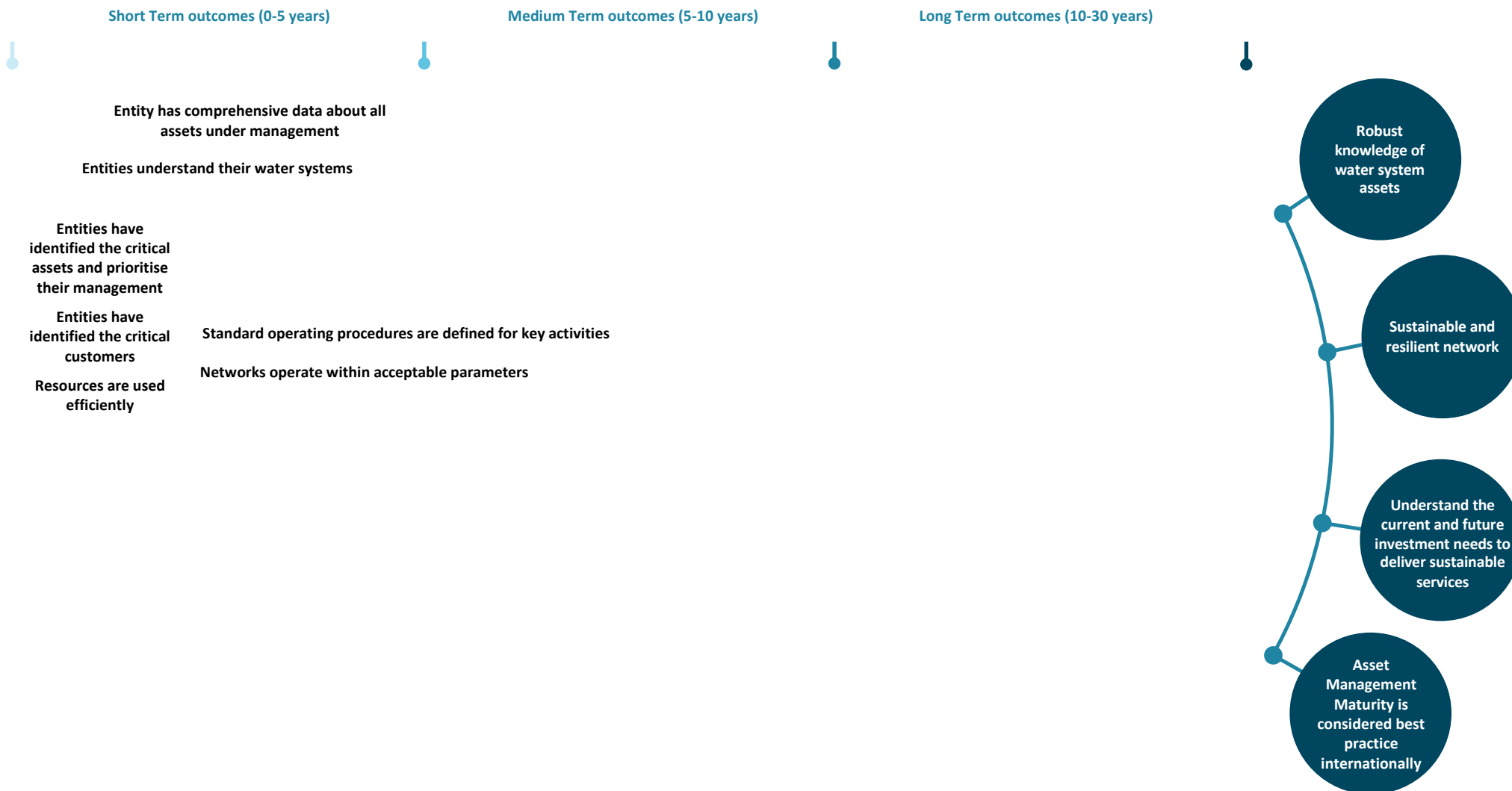













Figure 24: Effective infrastructure and service delivery outcomes and summary measurement areas over time

Measures

Robust knowledge of water system assets

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Asset Information	Entity has comprehensive data about all assets under management	Completeness: Proportion of all assets that are recorded in the Entities Asset Management System	%		Entity	EI001
		Accuracy: Proportion of assets from high confidence sources (as-builts, inspection)	%		Entity	EI002
		Currency: Proportion of asset condition assessments undertaken where assessment date is less than 10 years or less than 5 years for critical assets	%		Entity	EI003
		Reliability: Proportion of asset records that have a data confidence grade of Uncertain, Very uncertain or Unknown (NAMS IIMM Manual)	%		Entity	EI004
		Proportion of assets (primary and meaningful assets) represented spatially in the GIS system	%		Entity	EI005
		Number of new assets found, or asset attributes validated by contractors as part of their operation	Number		Entity	EI006
Asset Base	Entities understand their water systems	Number Treatment Plants that have backup generators	Number		Network	EI007, 017
		Number of Water Pump Stations that have backup Generators	Number		Network	EI008, 015
		Number of treatment plants	Number		Network	EI009, 016
		Number of reservoirs	Number		Network	EI010
		Number of pump stations	Number		Network	EI011, 014, 021
		Total Length of public network	km		Network	EI012, 013, 020
		Total Length of Combined Wastewater and Stormwater Pipelines	km		Network	EI018
		Length of rising mains	km		Network	EI019
		Number of stormwater detention dams	Number		Network	EI022
		Number of stormwater treatment devices	Number		Network	EI023
Asset Age/Condition	Entity has comprehensive data about all assets under management	Condition grade 1: All asset categories managed by Entity	%		Network	EI024, 037, 046
		Condition grade 2: All asset categories managed by Entity	%		Network	EI025, 038, 047
		Condition grade 3: All asset categories managed by Entity	%		Network	EI026, 039, 048

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
		Condition grade 4: All asset categories managed by Entity	%		Network	EI027,040,049
		Condition grade 5: All asset categories managed by Entity	%		Network	EI028,041,050
		Not assessed: All asset categories managed by Entity	%		Network	EI029,042,051
		% of pipelines that have received a condition grading	%		Network	EI030
		% of pipelines in poor or very poor condition	%		Network	EI031
		Average Age of Water Pipelines	Years		Network	EI032
		% of above ground assets that have received a condition grading	%		Network	EI033
		% of above ground assets in poor or very poor condition	%		Network	EI034
		Percentage of asset age by constructed date range	%		Network	EI035,044,053
		Percentage of asset remaining life by time range	%		Network	EI036,045,054
		CCTV inspection (Last 5 years)	%		Network	EI043,052

Sustainable and resilient network

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Criticality	Services are resilient	Have you undertaken an assessment to identify critical assets?	Yes/No		Entity	EI055
	Entities have identified the critical assets and prioritise their management	Proportion of critical assets that are represented spatially in GIS system	%		Entity	EI056
		Does the Entity have an asset criticality framework?	Yes/No		Entity	EI057
		Does the Entity have a framework for the identification of critical customers (incl. importance rating/classification)?	Yes/No		Entity	EI058
		Proportion of critical customers that are represented spatially in GIS system (incl. at risk residents)	%		Entity	EI059
Reliability	Water systems are resilient and reliable	Network Reliability Index – (Proportion of good to poor assets)	Index		Network	EI060, 061, 062
Operational Planning	Operations and maintenance are well planned	Does the Entity have an Operations and Maintenance Plan in place?	Yes/No		Entity	EI063
Operating parameters	Network operate within acceptable parameters	Average system pressure	m		Leak Management Zone	EI064
	Standard operating procedures are defined for key activities	Standard Operating Procedures are developed and implemented for key infrastructure/activities	Yes/No		Entity	EI065
		Standard Operating Procedures are QA audited on a regular cycle	Yes/No		Entity	EI066
Energy Use	Resources are used efficiently	Electricity use	kWh		Entity	EI067, 069, 072
		Energy use from other fuels	GJ		Entity	EI068, 070, 073
		Energy use - Wastewater Treatment Plants	GJ/ML		Facility	EI071
Technology	Information systems that enable the business to operate efficiently and effectively	SCADA/telemetry monitoring - proportion of assets that have monitoring points connected to the SCADA/telemetry system	%		Entity	EI074
		Internet of things	Yes/No		Entity	EI075
		Proportion of SCADA monitored points where data latency meets operational requirements	%		Entity	EI076
		System communications uptime for SCADA system	%		Network	EI077
		Is all network SCADA data for the Entity centralised	Yes/No		Entity	EI078
		Does the Entity have a SCADA integration Strategy?	Yes/No		Entity	EI079

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
		Does the Entity have any network assets with monitoring that are standalone from the SCADA system	Yes/No		Entity	EI080

Understand the current and future investment needs to deliver sustainable services

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Asset Value	Cost effective creation, renewal, operation and maintenance of networks	Annual Depreciation	\$	<div><div></div><div></div><div></div></div>	Network	EI081, 085, 089
		Water treatment facility value	\$	<div><div></div></div>	Facility	EI082
		Other water supply asset value	\$	<div><div></div></div>	Network	EI083
		Decline in Service Potential	Ratio	<div><div></div><div></div><div></div></div>	Network	EI084, 088, 091
		Wastewater treatment facility value	\$	<div><div></div></div>	Facility	EI086
		Other wastewater asset value	\$	<div><div></div></div>	Network	EI087
		Stormwater asset value	\$	<div><div></div></div>	Network	EI090
Capex		Length of mains renewed using internal CAPEX	km	<div><div></div><div></div><div></div></div>	Entity	EI092, 100,108
		Length of new mains constructed using internal CAPEX	km	<div><div></div><div></div><div></div></div>	Entity	EI093, 101,109
		Budgeted Capital Expenditure	\$	<div><div></div><div></div><div></div></div>	Entity	EI094, 102, 110
		Budgeted capital to improve the level of service	\$	<div><div></div><div></div><div></div></div>	Entity	EI095, 103, 111
		Budgeted capital to replace existing assets	\$	<div><div></div><div></div><div></div></div>	Entity	EI096, 104, 112
		Actual Capital Expenditure	\$	<div><div></div><div></div><div></div></div>	Entity	EI097, 105, 113
		Actual capital to improve the level of service	\$	<div><div></div><div></div><div></div></div>	Entity	EI098, 106, 114
Opex	Actual capital to replace existing assets	\$	<div><div></div><div></div><div></div></div>	Entity	EI099, 107, 115	
	Energy Costs	\$	<div><div></div><div></div></div>	Entity	EI116, 122	
	Chemicals and Consumables: Water Supply	\$	<div><div></div></div>	Entity	EI117	
	Routine maintenance	\$	<div><div></div><div></div><div></div></div>	Entity	EI118, 124,128	
	Reactive maintenance	\$	<div><div></div><div></div><div></div></div>	Entity	EI119, 125,129	
	Operating Cost	\$	<div><div></div><div></div><div></div></div>	Entity	EI120,126,130	
	Total Cost	\$	<div><div></div><div></div><div></div></div>	Entity	EI121, 127, 131	

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
		Sludge Disposal Costs: Wastewater	\$	●	Entity	EI123
Revenue	Services are economically sustainable	Operating Revenue	\$	● ● ●	Entity	EI132, 134,136
		Total Revenue	\$	● ● ●	Entity	EI133, 135,137

Asset Management Maturity is considered best practice internationally

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Asset Management Maturity	The Entity undertakes appropriate benchmarking to understand their Asset Management Maturity	Date of last Asset Management Maturity benchmarking review	Date	● ● ●	Entity	EI138
		Overall Asset Management Maturity score from most recent assessment	Rating	● ● ●	Entity	EI139
	The Entity uses International an best practice asset management approach	Does the entity apply the principles of the International Infrastructure Management Manual(IIMM) (published by IPWEA)	Y/N	● ● ●	Entity	EI140

Water Service: ● Water ● Wastewater ● Stormwater

Shaded text: Measures gazetted into legislation by the regulator Taumata Arowai

Bolded text: Measures currently being reported by Councils through the NPR or DIA process

Standard text: Measures that are new or reported by larger water companies in NZ or Internationally

Integrated Growth and Demand Planning

Why this is important?

Over the next generation, growth and development will present many opportunities to reshape and rebuild urban areas to protect and enhance our waterways and receiving environments, while creating desirable, high quality, water sensitive, urban and rural environments.

Built infrastructure of a good quality is essential. A large proportion of new water infrastructure is constructed by private developers which is then subsequently vested to public ownership.

As water systems also incorporate natural environments, similar fit for purpose quality standards should be applied to the natural features and forms. Design standards including conveyance capacity, erosion resistance, ecosystem value and sensitivity of receiving environments need to be developed to protect the natural environment components from continued degradation and cumulative effects.

Integrated growth and demand planning incorporates implementing policy, processes and practices that allow the water system to be resilient to the changing demands made upon it. Using an integrated infrastructure planning approach to forecast future growth and demand and working with other key stakeholders such as local councils, Kainga Ora and developers to ensure growth occurs in a well-planned and sustainable way.

What are the pressures?

It is crucial that land use planning, infrastructure planning, and investment is coordinated to efficiently realise the scale of growth anticipated. Planning activities must be coordinated and aligned with growth to minimise cost, increase productivity, and deliver high quality urban and environmental outcomes. However, under the current development framework issues such as fragmented land ownership, market-led development sequencing, and, site-focussed, effects-based resource management regimes make it difficult to co-ordinate across developments and primary industry sectors to achieve desired efficiencies and waterway outcomes, particularly in brownfields urban areas. A change in the way that urban development is planned and delivered is needed.

The cost of development and growth should be shared equitably, ensuring infrastructure built by others then vested with Entities is to acceptable standards. Robust design standards, approvals and handover acceptance processes will need to be strengthened to ensure urban growth delivers durable, fit for purpose and cost-effective three waters networks.

It is necessary to increase investment in environmental outcomes and strengthen regulatory mechanisms to drive the right outcomes from development. Entities will need an improved understanding of natural processes, the ecosystems and the limits associated with natural resource sustainability.

What does it cover?

The integrated growth and demand planning to change focus area covers:

The water system is adaptable to changes in demand: The impact of growth on network demand, including forward planning to ensure infrastructure is able to keep pace. Consideration of the impact of contracting demand in areas where population decline is occurring. In areas of high variability in seasonal demand, ensuring networks are able to effectively deliver at peak periods.

System assets meet design standards: Ensuring any new infrastructure assets vested with Entities are fit for purpose and comply with design standards

Cost of development and growth is funded equitably: Equitable sharing of the cost of urban development and growth between developers and Entities through developer contributions

Urban growth and spatial planning is integrated and puts the environment first: Maintaining relationships with local councils owners to provide for integrated urban growth planning. Ensuring Entities are able to meaningfully influence spatial planning decisions as it relates to water services. The effects of the use and development of land on a whole of catchment basis (rural and urban), including the effects on receiving environments is considered.

How does it give effect to Te Mana o te Wai?

While integrated growth and demand planning makes a contribution to all three Te Mana o te Wai priorities, it most closely supports the second priority: health needs of people (such as drinking water), through ensuring water services adapt and grow as urban growth occurs and demand for water services increases. Consideration needs to be taken of the first priority: the health and well-being of water bodies and freshwater ecosystems, to ensure that demand growth does not cause water take from ecosystems to exceed sustainable levels. Reporting on the reduction or increase in stream length, wetland areas, and natural water body volumes also supports delivery of the first priority.

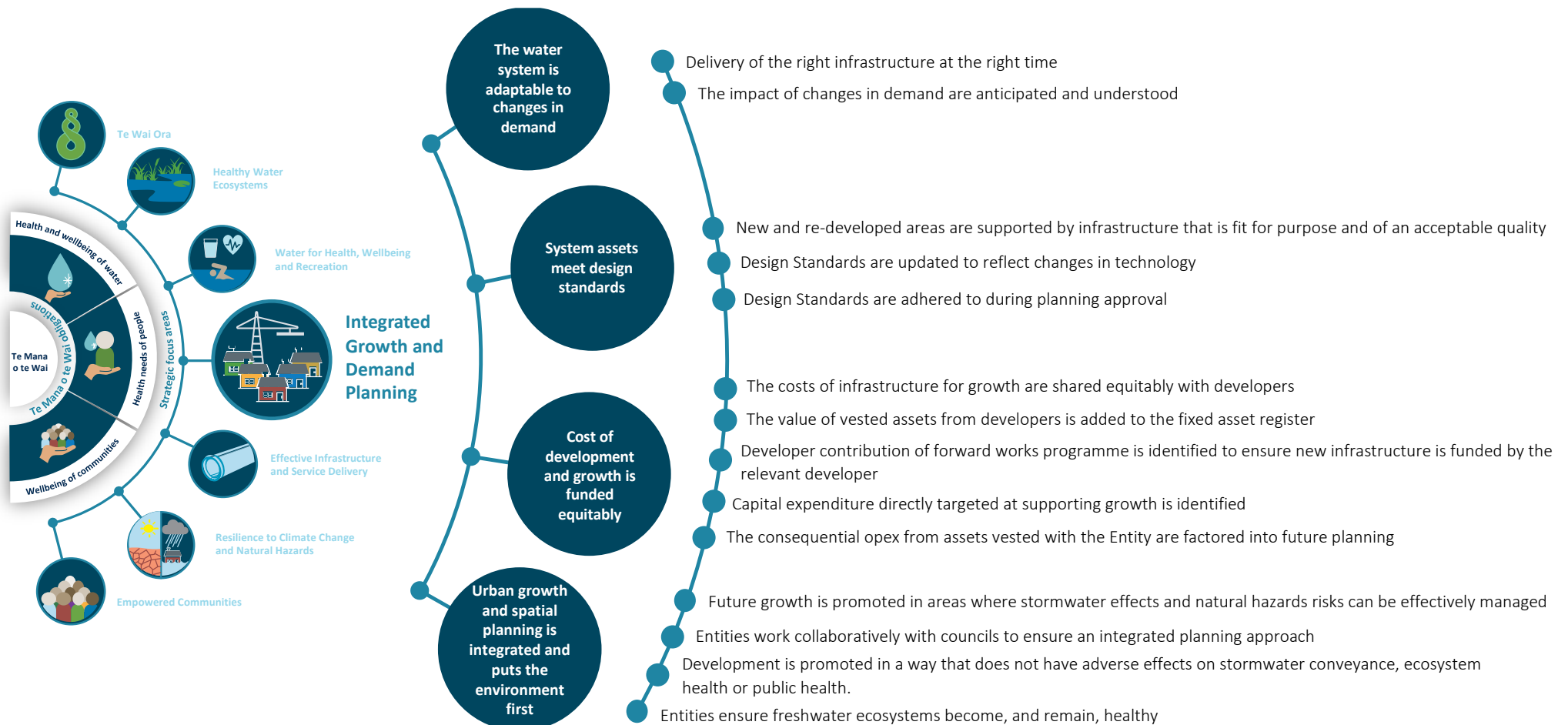


Figure 25: Integrated growth and demand planning outcomes

Delivering outcomes over time

The following performance areas are being recommended for Entities to track progress in delivering Integrated Growth and Demand Planning over time.

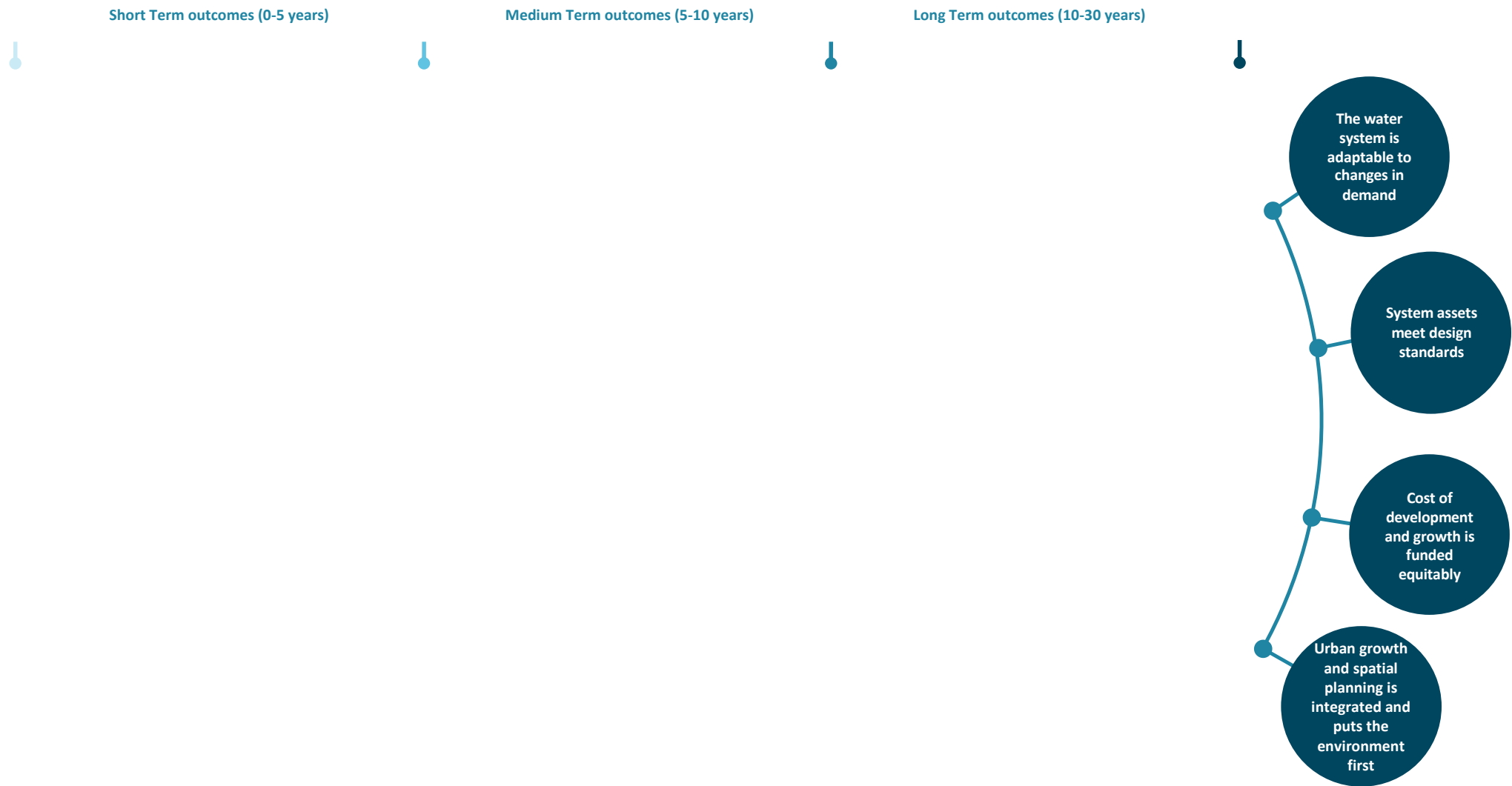


Figure 26: Integrated growth and demand planning outcomes and summary measurement areas over time

Measures








The water system is adaptable to changes in demand

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Demand Planning	Delivery of the right infrastructure at the right time.	Entity has in place a Three Water Services Infrastructure Strategy that is fully costed	Yes/no		Network	IG001
		Entity has a Three Waters Demand Management Plan (short, med, long- term) Including future forecasting scenarios and costs (incl. LoS change) (Specific exclusions due to capacity shortfall)	Yes/no		Network	IG002
	The impact of changes in demand are anticipated and understood	Planning scenarios are undertaken for a range of horizons up to at least 100 years	List of scenarios		Network	IG003
		Projected population (per network) - 10 year, 20 year, 30 year	Number		Network	IG004
		Seasonal Variation - Peak population served and reason for variation (per network)	Number		Network	IG005

System assets meet design standards

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Design Standards	New and re-developed areas are supported by infrastructure that is fit for purpose and of an acceptable quality.	Proportion of vested assets that comply with design standards or approved alternative solutions- (identify through asset handover process?)	%		Entity	IG006
		Proportion of Entity built assets that comply with design standards or approved alternative solutions - (identify through project completion - asset hand over process?)	%		Entity	IG007
	Design Standards are updated to reflect changes in technology	Design standards and approved products are reviewed annually	Yes/no		Entity	IG008
	Design Standards are adhered to during planning approval	Proportion of Submitted designs that are sent back/further reviewed	%		Entity	IG009
		Proportion of submitted designs that were approved but were non- standard design	%		Entity	IG010

Cost of development and growth is funded equitably

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Growth Charge	The costs of infrastructure for growth are shared equitably with developers.	Growth Charge Revenue	\$		Entity	IG011, 013, 015
	The value of vested assets from developers is added to the fixed asset register	Value of vested assets from developers	\$		Entity	IG012, 014, 016
	Developer contribution of forward works programme is identified to ensure new infrastructure is funded by the relevant developer	Revenue from developers to cover the future cost of development (In addition to standard growth charges)	\$		Entity	IG017
Expenditure on Growth	Capital expenditure directly targeted at supporting growth is identified	Budgeted capital to meet additional growth	\$		Entity	IG018, 020, 022
		Actual capital to meet additional growth	\$		Entity	IG019, 021, 023
	The consequential opex from assets vested with the Entity are factored into future planning	The Entity factors in the ongoing operational costs of vested assets and includes this in budget planning (Requires estimating the amount of assets being vested with the Entity in future years)	Yes/no		Entity	IG024
		Budgeted opex for the ongoing operational costs of vested assets	\$		Entity	IG025

Urban growth and spatial planning is integrated and puts the environment first

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Growth & Spatial Planning	Future growth is promoted in areas where stormwater effects and natural hazards risks can be effectively managed.	Proportion of land developments allowed within flood zones (May not be Entity role, what's part of urban network?)	%	●	Entity	IG026
	Entities work collaboratively with councils to ensure an integrated planning approach	The Entity has SLA(s) in place to enable District Council/Regional Council growth and spatial planning	Yes/no	● ● ●	TLA	IG027
		The Entity has SLA(s) in place to enable Inter-agency growth and spatial planning	Yes/no	● ● ●	Agency	IG028
		A framework exists that allows investment prioritisation and programming of projects (that are interlinked) to be agreed with other agencies. Alignment opportunities	Yes/no	● ● ●	TLA/Agency	IG029
Environmental Protection	Development is promoted in a way that does not have adverse effects on stormwater conveyance, ecosystem health or public health.	Percentage of catchments in active catchment planning that fall within growth areas	%	●	Entity	IG030
		Proportion of developments that are approved contrary to expert three waters advice	%	●	Entity	IG037
	Entities ensure freshwater ecosystems become, and remain, healthy	Length of streams, area of wetlands (freshwater and coastal) and lake volume reduced by development	m	●	Entity	IG031
		Length of streams, area of wetlands (freshwater and coastal) and lake volume restored to its natural state	m	●	Entity	IG032
		Net loss/gain in length of streams, area of wetlands (freshwater and coastal) and lake volume from development and restoration	m	●	Entity	IG033
		Area of wetlands (freshwater and coastal) and lake volume reduced by development	m2	●	Entity	IG034
		Area of wetlands (freshwater and coastal) restored to its natural state	m2	●	Entity	IG035
		Net loss/gain in area of wetlands (freshwater and coastal) from development and restoration	m2	●	Entity	IG036

Water Service: ● Water ● Wastewater ● Stormwater

Shaded text: Measures gazetted into legislation by the regulator Taumata Arowai

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Resilience to Climate Change and Natural Hazards

Why this is important?

Catchments, coastlines and communities are already experiencing the effects of flooding and erosion, both along the coast and inland. These hazards will be exacerbated by more extreme storms, changing rainfall patterns and sea-rise due to climate change. Risks will increase to life, property, the environment, infrastructure and the economy. Waterway health will also be further stressed by hotter days and an altered flow regime.

Entities will need to engage the community in open and honest conversations about their risks and their willingness to tolerate these and the costs that any decision may incur, and to empower our communities to recognise, plan for and adapt to their current environment and these future changes. This will drive a response to the growing public sentiment for action on climate and deliver 'no regrets' storm-ready projects across the regions that reduce the risks to communities and build long term resilience.

What are the pressures?

There is continuing pressure for urban growth to occur in areas where flooding, coastal inundation and erosion hazards exist and Council organisations, infrastructure providers and private developers are making decisions to invest in developing land and infrastructure that may be significantly impacted by these hazards in the future. Improving readiness and proactively preparing for changes in rainfall will be critical for reducing the risk and exposure to climate change effects.

Responding to these risks requires fundamental changes in how Entities think about and plan for the future of catchments, coastlines and communities. Some hard decisions will be required about the acceptability and affordability of protecting communities in some areas. There is a need to adapt the way we use land and waterways, and to design, construct, modify and manage buildings and infrastructure to reduce the risks. Making effective use of green infrastructure such as streams to manage elevated volumes of stormwater during severe rain events, and wetlands to sequester carbon.

To build resilience, Entities need to look forward and anticipate the risks and impact natural hazards and climate change present, and make this information available to those who are at risk of being impacted. Then planning for these impacts, mitigating the risks where possible, and having a plan to help communities quickly recover from natural disasters when they occur.

What does it cover?

Adaptation to climate change. Being prepared for hotter and dryer summers, heavier rainfall: Planning for the expected changes in climate: hotter and dryer summers, heavier rainfall, and their effects: longer droughts, increased flooding, sea level rise. Putting in place plans to respond to these expected changes.

Helping communities prepare for the impact of climate change through meaningful conversations: Helping communities prepare for the impact of climate change. Having meaningful conversations with communities about the changes that need to be put in place, and their role in effecting the change.

Avoiding the impacts of climate change on property by implementing appropriate responses: Proactively avoiding the expected impacts of climate change on property by implementing appropriate responses that minimise or eliminate risk by avoiding development in areas expected to be impacted by flooding or sea-level rise.

Predicting where climate change and natural hazards will have the most impact on communities: The use of technology, specifically modelling, to predict where climate change and natural hazards will have the most impact on property and communities.

Water Services are delivered in an Environmentally Sustainable way: Entities operations are environmentally sustainable and look to reduce greenhouse gas emissions, be energy efficient, effectively reuse and recycle resources where possible, and dispose or re-use the by-products of treatment in a responsible way.

How does it give effect to Te Mana o te Wai?

Resilience to climate change and natural hazards is primarily related to the third priority of Te Mana o Te Wai: the ability of people and communities to provide for their social, economic and cultural well-being. Planning and preparing communities for the expected impacts of climate change and the increased occurrences of the associated natural hazards will ensure the ongoing social, economic, and cultural wellbeing of those communities. Taking appropriate action now will avoid communities having to contend with the devastating impacts of severe flooding or drought in future.

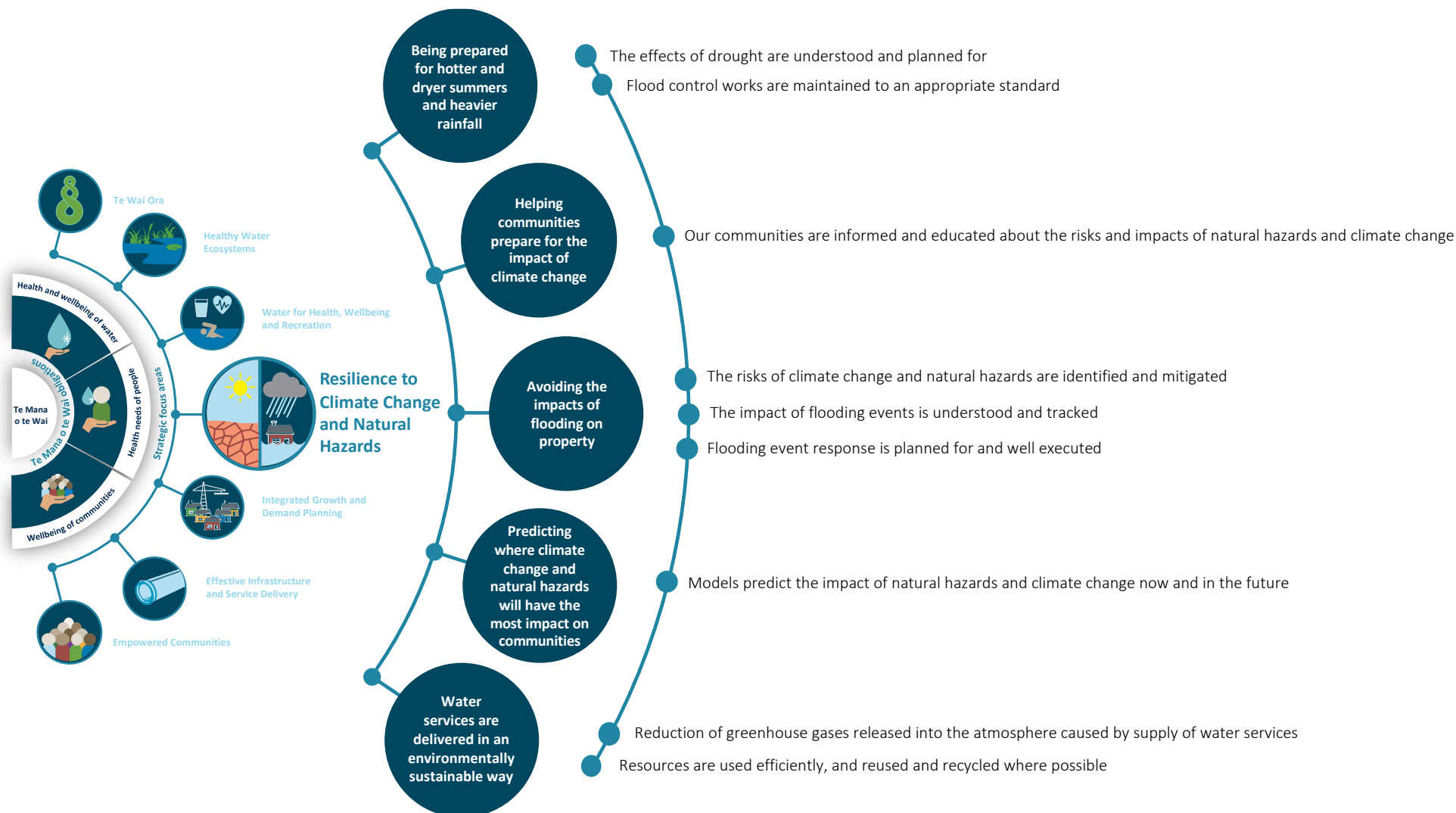


Figure 27: Resilience to climate change and natural hazards outcomes

Delivering outcomes over time

















The following performance areas are being recommended for Entities to track progress in delivering Resilience to Climate Change and Natural Hazards over time.



Figure 28: Resilience to climate change and natural hazards outcomes and summary measurement areas over time

Measures

Being prepared for hotter and dryer summers and heavier rainfall

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Drought	The effects of drought are understood and planned for	Number of mains breaks directly attributable due to dry ground conditions	Number		Network	NH001
		The Entity has a Drought Management Plan	Yes/No		Entity	NH002
		Risk of severe restrictions in a drought - Supply Demand Balance	ML/day	  	Network	NH003
		Proportion of customers at risk of a severe drought	%	  	Network	NH004
		Average number of customers at risk of a severe drought	Number	  	Network	NH005
Flood protection	Flood protection works are maintained to an appropriate standard	Proportion of properties in the following categories: - Population within flood plains - Population at risk of flooding in various frequency scenarios [2yr - 100yr (50% - 1% AEP), probable maximum flood (PMF)] - Flood safety - Population where flood would cause risk to life	%		Entity	NH006
		Proportion of properties protected by flood protection works compared to all properties at risk of flood (1% AEP)	%		Entity	NH007
		Investment in critical flood assets upgraded to cater for climate change impacts.	\$		Entity	NH008
		Investment in Stormwater infrastructure to address frequent flooding impacts by reducing risk (<= 10 year ARI storm event)	Number		Entity	NH009
		Investment to address flooding impacts for infrequent flood events (>10% AEP storm event)	Number		Entity	NH010

Helping communities prepare for the impact of climate change

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Informed Communities	Our communities are informed and educated about the risks and impacts of natural hazards and climate change	Percentage of identified at risk properties with flood exposure information published	%	●	Entity	NH011
		Percentage of published frequency and impact of flooding on people and infrastructure (Risk)	%	●	Entity	NH012
		Percentage of catchments with flood exposure information updated in the last 5 years	%	●	Entity	NH013
		Percentage of catchments with flood exposure information published	%	●	Entity	NH014
		People exposed to flood hazards are informed of their exposure and risk (within floodplain or OLFP)	%	●	Entity	NH015
		Time to respond - People exposed to flood risk access flood advisory services through a request for service	Days	●	Entity	NH016
		Number of proactive offers made to high flood risk customers of access flood advisory services	Number	●	Entity	NH017

Avoiding the impacts of flooding on property

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Risk	The risks of climate change and natural hazards are identified and mitigated	Mitigations/planning to manage risks associated with increases in extreme events	Report	●	Entity	NH018
		Entities have assessed the risks that climate change poses for all 3 waters services outcome areas, including but not limited to; - Water Quality - Firefighting supply - Flooding - Coastal inundation - Increased sedimentation	Yes/No	● ● ●	Entity	NH019
		Risk mitigations/planning in place to address climate change risk	Report	● ● ●	Entity	NH020
Flooding events	The impact of flooding events is understood and tracked	Flooding events resulting from storms	Number	●	Catchment	NH021
		Number of habitable floors affected by storms	Number	●	Catchment	NH022
		Number of habitable floors affected per 1000 stormwater urban properties (served or contributing funding)	Number/1 000 props	●	Catchment	NH023
		Flooding events resulting from other causes	Number	●	Catchment	NH024
		Number of habitable floors affected by flooding from other causes	Number	●	Catchment	NH025
		Number of road closures as a result of storms	Number	●	Catchment	NH026

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
		Number of road closures affected per 1000 stormwater urban properties (served or contributing funding)	Number/1000 properties	●	Catchment	NH027
		Number of road closures as a result of flooding from other causes	Number	●	Catchment	NH028
Disaster Recovery	Flooding event response is planned for and well executed	Level of investment in flood response recovery	\$	●	Entity	NH029
		Does the Entity have a Disaster Recovery Plan	Yes/No	● ● ●	Entity	NH030
		When was the DRP last reviewed	Date	● ● ●	Entity	NH031
		Number of coordination exercises has the entity participated in	number	● ● ●	Entity	NH032
		Number of DRP practice exercises that have been undertaken	number	● ● ●	Entity	NH033
		Number of DRP annual training events that have been undertaken	number	● ● ●	Entity	NH034

Predicting where climate change and natural hazards will have the most impact on communities

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Modelling	Models predict the impact of natural hazards and climate change now and in the future	Number of properties identified as not suitable for underlying land use	Number	●	Entity	NH035
		Land area identified as not suitable for underlying land use	Ha	● ● ●	Entity	NH036
		Proportion of vulnerable use buildings that are exposed to natural hazards	%	●	Entity	NH037
		Number of catchments where the Predicted frequency and impact on people and infrastructure has been determined through modelling	Number	●	Entity	NH038

Water Services are delivered in an Environmentally Sustainable way

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Greenhouse gas emissions	Reduction of greenhouse gases released into the atmosphere caused by supply of water services	Greenhouse gas capital emissions (tonnes/m3)	tCO2-e/m3	● ● ●	Entity	NH039
		Greenhouse gas operational emissions (tonnes/m3)	tCO2-e/m3	● ● ●	Entity	NH040
		Wastewater treatment plant process emissions	tCO2-e	●	Facility	NH041
		Wastewater treatment wetland emissions	tCO2-e	●	Facility	NH042
		Wastewater effluent disposal emissions	tCO2-e	●	Facility	NH043
		Wastewater sludge treatment emissions	tCO2-e	●	Entity	NH044
		Wastewater sludge disposal emissions	tCO2-e	●	Entity	NH045
		Level of carbon sequestration by green infrastructure (e.g. wetlands)	tCO2-e	● ● ●	Entity	NH046
Recycling/Re use	Resources are used efficiently, and reused and recycled where possible	Energy Generation: Water Supply	GJ	●	Entity	NH047
		Investment in water efficiency	\$	●	Entity	NH048
		Volume of water saved from efficiency measures - Change in average daily water use	L/Person/day	●	Entity	NH049
		Energy Generation: Wastewater	GJ	●	Entity	NH050
		Treatment plant effluent reuse - Urban and industrial - Agricultural uses - Beneficial allocations - Within process - Potable water substitution	ML	●	Facility	NH051
		Amount of resource recovery from wastewater (Such as Struvite, Phosphorus, Ammonia)	Tonne	●	Entity	NH052

Water Service: ● Water ● Wastewater ● Stormwater

Shaded text: Measures gazetted into legislation by the regulator Taumata Arowai

Bolded text: Measures currently being reported by Councils through the NPR or DIA process

Standard text: Measures that are NEW or measured by larger water companies in New Zealand or Internationally

Empowered Communities

Why this is important?

Entities will need the trust and support of communities in order to effect the changes needed.

To achieve this Entities will need systemic and integrated approaches, collaborative, inclusive, and informed ways of working, and empowerment of understanding, participation and action within communities.

The challenges Entities face will not be solved by working in isolation from those who will be affected. Entities will need to collaborate in ways that draw out the knowledge, insights and contributions of as many members of the community as possible, and to foster empowered communities where individuals and communities have the power and ability to influence decisions, take action and make change happen in their communities.

Communication through engagement is key. Stakeholders need all the relevant information made available to make informed, evidence-based choices on issues that impact them now and into the future.

Customers expect a service that is reliable of good quality, and when services are interrupted and customer impacted, their requests for service are responded to and resolved promptly.

What are the pressures?

Entities will need to have good understanding of the community's issues in order to put them first and deliver world class service. This starts with understanding who their communities are, appreciating the diversity of communities, and their needs and expectations and examining the service experience and understanding where the gaps and frustrations are.

The new legislative environment creates the requirement to provide meaningful engagement pathways for community input into critical decisions. This will require the development of creative ways to engage with communities that have not traditionally participated in decision-making processes and provide tailored approaches to meet the needs of individual communities.

The infrastructure deficit and aging networks will likely result in 3 waters networks that deliver reduced levels of reliability until the gap is addressed. Enhanced recording and analysis of network interruptions and their causes will be required to ensure those parts of networks delivering the poorest reliability are prioritised for renewal.

What does it cover?

The customer service experience meets expectations: The customer experience and level of satisfaction, including the handling of customer complaints, response times to requests for service, and levels of network reliability. Service recovery post natural disasters. Compliance with stated customer service standards published in Statements of Intent.

Engagement and communication effectively meets the needs of customers and communities: Empowering local communities to be able to have an active role in the provision of three waters services. Compliance with the legislative requirements to undertake community engagement. The formation and operation of consumer forums and reporting of the consumer stocktake.

Advisory services meet the needs of customers and communities: Provision of customer and community advisory services including educating communities on how they can be involved and take ownership of decisions around water.

Access to information is open and transparent and available to all: Operating in an open and transparent manner through the publication of information about all aspects of the operation of water service entities and their performance and making that information accessible to all.

How does it give effect to Te Mana o te Wai?

Empowered Communities is primarily related to the third priority of Te Mana o Te Wai: the ability of people and communities to provide for their social, economic and cultural well-being. Enabling communities to be involved in decision making, providing education and advisory services, and making information open and accessible will all contribute to ensuring the social, economic and cultural well-being of communities.

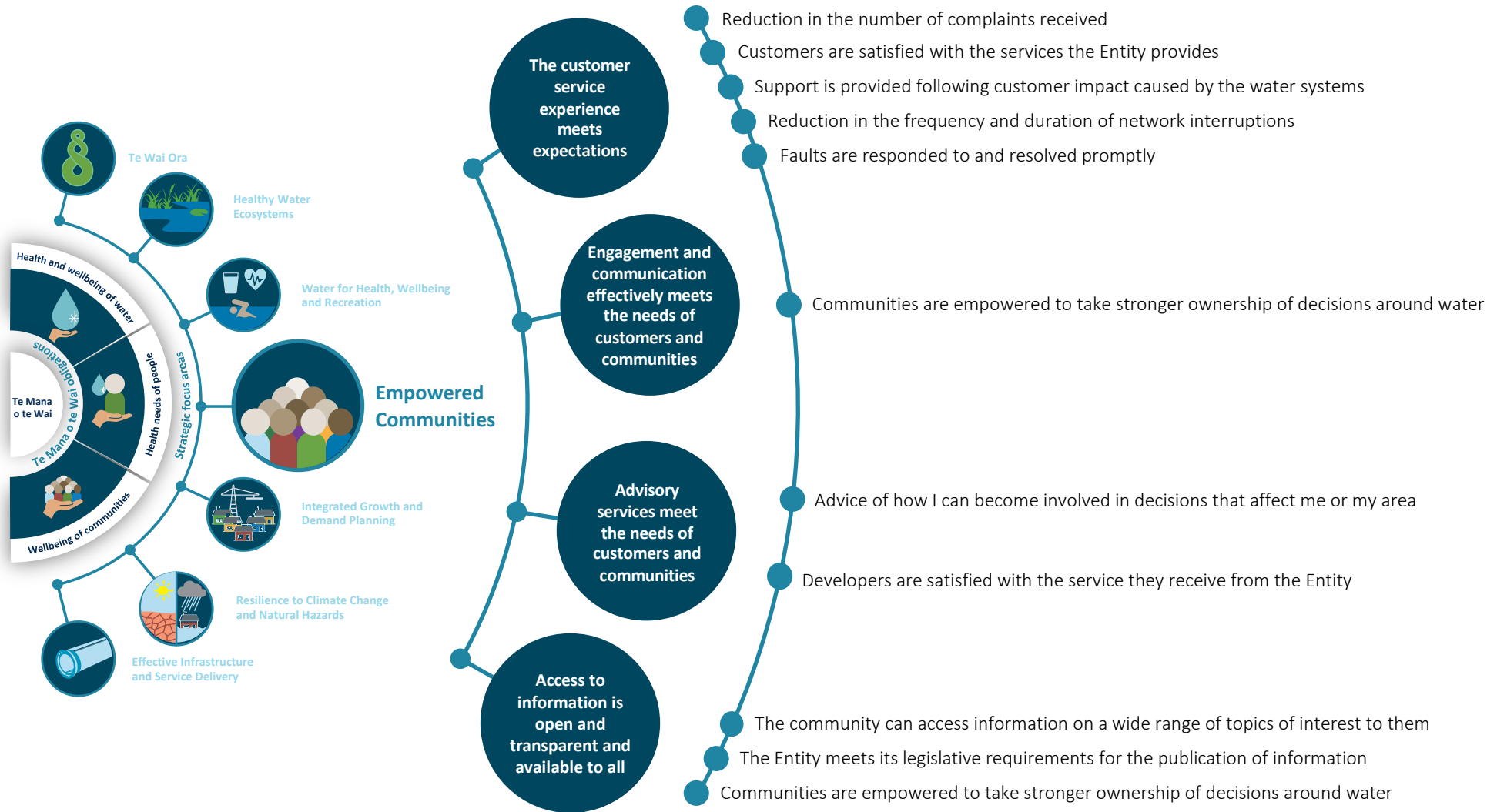


Figure 29: Empowered Communities outcomes

Delivering outcomes over time

The following performance areas are being recommended for Entities to track progress in delivering Empowered Communities over time.



Figure 30: Empowered Communities outcomes and summary measurement areas over time

Measures

The customer service experience meets expectations









Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Complaints / Enquires	Reduction in the number of complaints received	Drinking water clarity complaints	Number	●	Network	EC001
		Drinking water taste complaints	Number	●	Network	EC002
		Drinking water odour complaints	Number	●	Network	EC003
		Drinking water pressure or flow complaints	Number	●	Network	EC004
		Continuity of water supply complaints	Number	●	Network	EC005
		The Entity's response to any of these issues	Number	●	Network	EC006
		Any other complaint related to the delivery of water supply services	Number	●	Network	EC007
		Sewage odour complaints	Number	●	Network	EC008
		Sewerage system fault complaints	Number	●	Network	EC009
		Sewerage system blockage complaints	Number	●	Network	EC010
		The Entity's response to issues with its sewerage system	Number	●	Network	EC011
		Any other complaint related to the delivery of wastewater services	Number	●	Network	EC012
		Number of billing and account complaints	Number	● ●	Network	EC013
		Stormwater blockage complaints	Number	●	Network	EC014
		Stormwater fault complaints	Number	●	Network	EC015
		Any other complaint related to the delivery of stormwater services	Number	●	Network	EC016
		Number of all other administrative transactions enquiries, requests for service	Number	● ● ●	Network	EC018
Customer Satisfaction	Customers are satisfied with the services the Entity provides	Net Promoter Score (Customers that have been engaged with)	Score	● ● ●	Entity	EC019
		Trust score	%	● ● ●	Entity	EC020
		Entity provides value for money	%	● ● ●	Entity	EC021
		Entity safeguards water for future generations	%	● ● ●	Entity	EC022
		Entity cares about its communities	%	● ● ●	Entity	EC023

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
		Entity promotes sustainability	%		Entity	EC024
		Entity water is safe to drink	%		Entity	EC025
		Entity will solve issues and problems that arise	%		Entity	EC026
		Customer satisfaction survey undertaken, percentage of customer base engaged with monthly	%		Entity	EC027
		Media score	Score		Entity	EC028
Customer support	Support is provided following customer impact caused by the water systems	Customers compensated for consequential expenses of customer impact caused by the water systems	Number		Entity	EC029
		Total value of compensation paid to customers for consequential expenses of customer impact caused by the water systems	\$		Entity	EC030
		Customer sentiment: Customer felt informed and supported during customer impact caused by the water systems	%		Entity	EC031
Network reliability	Reduction in the frequency and duration of network interruptions	Planned Interruptions	Number		Network	EC032
		Third Party Incidents	Number		Network	EC033, 038, 039
		System Average Interruption Frequency Index (SAIFI) – Planned water supply interruptions	Index		Network	EC034
		System Average Interruption Frequency Index (SAIFI) – Unplanned water supply interruptions	Index		Network	EC035
		System Average Interruption Duration Index (SAIDI) – Planned water supply interruptions	Index		Network	EC036
		System Average Interruption Duration Index (SAIDI) – Unplanned water supply interruptions	Index		Network	EC037
Response times	Faults are responded to and resolved promptly	Median hours to attend to an urgent fault	hrs		Entity	EC040, 044, 048
		Median hours to attend to a non-urgent fault	hrs		Entity	EC041, 045, 049
		Median hours to resolve an urgent fault	hrs		Entity	EC042, 046, 050
		Median hours to resolve a non-urgent fault	hrs		Entity	EC043, 047, 051







Engagement and communication effectively meet the needs of customers and communities

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Engagement	Communities are empowered to take stronger ownership of decisions around water	Does the entity have a formal Catchment/Community engagement model/plan	Yes/no		Catchment	EC052
		Catchment/Community Engagement model/plan is reviewed and reported annually	Yes/No		Catchment	EC053
		Customers are appropriately engaged on every project in accordance with the Entity's Engagement Model (proportion of projects that had engagement)	%		Entity	EC054
		Community activities/groups/initiatives underway	Number		Activity	EC055
		Customers and communities feel informed about environmental education and protection of assets (private i.e. drains) and (entities i.e. wet wipes) - Customer sentiment survey	%		Entity	EC056
		Customer Engagement: Satisfaction with the process of engagement on a specific project, initiative, plan	Net Promoter Score		Entity	EC057
		Compliance with legislative requirements to engage - Te Mana of te Wai statements - Model constitution - Established customer forum - Undertake annual consumer engagement stocktake - Engage on AMP, FPP, and Info Strategy	List		Entity	EC058

Advisory services meet the needs of customers and communities

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Advisory Services	Advice of how I can become involved in decisions that affect me or my area	Advisory services are defined and there is a pathway to access them, such as: - Development Journey - Leak identification - Reading your bill - Water saving - Becoming involved in decisions that affect me - Connections - Discharges/ attenuation - Education/rules - Community groups - SafeSwim/LAWA - Flooding - Water quality	Yes/no		Topic	EC059
		Advisory services - Visits to website on specific topic	Number		Topic	EC060
		Advisory services - Enquiries through call centre by topic	Number		Topic	EC061
		Advisory services - In context surveys – per topic.	Rating		Topic	EC062
Developer Satisfaction	Developers are satisfied with the service they receive from the Entity	Proportion of formal requests for three waters engineering and technical advice from developers provided on time	%		Entity	EC063
		Sentiment Survey for Developers [Ofwat D-Mex – long term]	Net Promoter Score		Entity	EC064
		Number of formal requests for three waters engineering and technical advice from developers	Number		Entity	EC065
		Proportion of Developer applications returned for further information	%		Entity	EC066

Access to information is open and transparent and available to all

Measure Area	Outcome Statement	Performance Measure	Metric	Water Service	Scale	Measure Code
Access to Information	The community can access information on a wide range of topics of interest to them	Information services are defined and there is a facility to access them: e.g. - Dam levels - Projects - Outages - Growth and Spatial Planning - Water cycle - Community activities/groups - Flood levels - Key performance measures/targets and results - Live faults (urgent and medium)	List		Entity	EC067
		Information publication - Visits to website on specific topic	Number		Topic	EC068
		Information publication - Enquiries through call centre by topic	Number		Topic	EC069
		Information publication - In context surveys – per topic (Was this information useful? button on web page)	Rating		Topic	EC070
	The Entity meets its legislative requirements for the publication of information	Legislative requirements to publish information - Statement of Strategic and Performance expectations - SOI, AMP, FPP, Inf Strategy, Annual Report - Te Mana o te Wai statements and Te Mana o te Wai statements of response	List		Entity	EC071
	Communities are empowered to take stronger ownership of decisions around water	Community activities/groups/initiatives	List of activities		Activity	EC072

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New Zealand Three Waters Reform

Three Waters - Levels of Service and Performance Framework

Measure Definition Guidelines

1 November 2022

Revision History

Version	Prepared by	Date
Final - Issued	Brent Egerton – Principal Infrastructure Advisory, Just Add Lime Sara Dennis – Principal Infrastructure Advisory, Just Add Lime	1 November 2022



Prepared for The Department of Internal Affairs by Just Add Lime Limited

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Introduction

Purpose

This guidance document provides the detailed definitions for each of the infrastructure asset and customer levels of service and performance measures associated with the delivery of three waters services by the four Water Service Entities being established as part of the New Zealand 3-waters reform. This document should be read in conjunction with the literature review report , and the framework detailed design document

Common Information
















Background

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
CI001	Total Area	km2		Entity	Total land area under the Entity's jurisdiction, sourced from Statistics New Zealand, Rural Urban Profile Update.
CI002	Total Population	Number		Entity	Total usually resident population living in the region under the Entity's jurisdiction. Data can be sourced from the Statistics New Zealand most recent population projection.
CI003	Residential properties	Number		Entity	<p>Total number of residential properties in the region under the Entity's jurisdiction. This includes all properties regardless of whether they are connected to water, wastewater and stormwater networks. It includes both occupied and unoccupied dwellings.</p> <p>Multi-unit premises should be counted based on the number of separately occupied dwellings. This may be determined based on the number of dwellings that are separately billed/rated, or if alternative approaches are used these should be specified.</p>
CI004	Non-residential properties	Number		Entity	Total number of properties other than residential including commercial properties and other public buildings (e.g. public schools and hospitals) in the area under the participants' jurisdiction. This includes all properties regardless of whether they are connected to water, wastewater and stormwater networks.
CI005	Total Properties	Number		Entity	<p>Total number of all properties in the region under the Entity's jurisdiction.</p> $\text{Total Properties} = \text{Residential Properties (CI003)} + \text{Non-Residential (CI004)}$
CI006	Household Occupancy	Number		Entity	<p>Average number of usual residents per household.</p> $\text{Household Occupancy} = \frac{\text{Total Population (CI002)}}{\text{Residential properties (CI003)}}$

Water Service:  Water  Wastewater  Stormwater

Te Wai Ora


Connection to Water

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
TW001	Water Literacy (Item 2.1 in CRC Water sensitive cities rating scale)	Rating scale	  	Catchment	<p>The rating of the Entity in promoting water literacy within communities.</p> <p>The rating will use an assessment methodology comparable to that within the Australian Cooperative Research Centre's Water Sensitive Cities Index, specifically indicator 2.1 – Water literacy.</p> <p>The assessment should be undertaken for each catchment(community) within the Entity's region. It would be appropriate for this measure to be further developed with mana whenua</p>
TW002	Connection to Water (Item 2.2 in CRC Water sensitive cities rating scale)	Rating scale	  	Catchment	<p>The rating of the Entity in enabling community connection to water.</p> <p>The rating will use an assessment methodology comparable to that within the Australian Cooperative Research Centre's Water Sensitive Cities Index, specifically indicator 2.2 – Connection with water.</p> <p>The assessment should be undertaken for each catchment(community) within the Entity's region. It would be appropriate for this measure to be further developed with mana whenua</p>
TW003	Shared ownership, management and responsibility of water assets (Item 2.3 in CRC Water sensitive cities rating scale)	Rating scale	  	Catchment	<p>The rating of the Entity in providing the environment for shared ownership, management and responsibility of the water system.</p> <p>The rating will use an assessment methodology comparable to that within the Australian Cooperative Research Centre's Water Sensitive Cities Index, specifically indicator 2.3 – Shared ownership, management and responsibility of water assets.</p> <p>The assessment should be undertaken for each catchment(community) within the Entity's region. It would be appropriate for this measure to be further developed with mana whenua</p>
TW004	Sentiment - The mana and authority of mana whenua to make decisions that maintain, protect, and sustain Te Mana o te Wai, for the benefit of past, present, and future generations is recognised and provided for by the Water Services Entities	Rating scale	  	Catchment	<p>Derived from regular polling of mana whenua groups within the catchment and shows the satisfaction rating based on the response to the statement.</p>
TW005	Sentiment - The mutual Te Tiriti o Waitangi obligations and responsibilities of mana whenua (Tino Rangatiratanga) and the Crown and Water Service Entities (Kāwanatanga) are given effect and provided for in-relation to Te Mana o Te Wai.	Rating scale	  	Catchment	<p>Derived from regular polling of mana whenua groups within the catchment and shows the satisfaction rating based on the response to the statement.</p>

Water Service: ● Water ● Wastewater ● Stormwater




Understanding Te Wai Ora

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
TW006	List of mana whenua groups with a Te Mana o te Wai relationship with the entity	List	● ● ●	Entity	<p>The list of mana whenua groups where the Entity has developed a formal Te Mana o te Wai relationship.</p> <p>A record for each community where an Entity has a Te Mana o te Wai relationship with mana whenua that has kaitiaki, i.e. the Entity has received a Te Mana o te Wai statement and has provided a Te Mana o te Wai statement response.</p> <p>Other measures within the Te Wai Ora focus area are reported against the items in this list.</p>
TW007	Tribal pepeha catchment planning model is fully integrated into Entity planning processes	Yes/No	● ● ●	Mana Whenua Group	An indication that a tribal pepeha catchment planning model is fully integrated into the Entity's planning processes.
TW008	Sentiment - The regeneration of mana whenua whakapapa/ tātai relationships to place are actively supported and provided for by Water Services Entities in relation to Te Mana o te Wai	Rating scale	● ● ●	Mana Whenua Group	Derived from regular polling of the mana whenua groups (see definition above in TW006) and shows the satisfaction rating based on the response to the statement.
TW009	Partnership relationships established with Marae to identify the 3-waters infrastructure solutions to meet their needs and align with their aspirations	List	● ● ●	Marae	A list of all the partnership relationships established with Marae for the purpose of identifying the 3-waters infrastructure solutions to meet their needs
TW010	Marae where 3-waters infrastructure solutions to meet their needs have been identified	List	● ● ●	Marae	A list of all the Marae where 3-waters infrastructure solutions to meet their needs have been identified
TW011	The cost and funding required to implement Marae 3-waters infrastructure solutions including the ongoing operational costs is identified	\$	● ● ●	Marae	The value for each Marae 3-waters infrastructure solution that has been costed and the funding source identified
TW012	Partnership relationships established with Papakāinga for the purpose of identifying the 3-waters infrastructure solutions to meet their needs	List	● ● ●	Papakāinga	A list of all the partnership relationships established with Papakāinga for the purpose of identifying the 3-waters infrastructure solutions to meet their needs
TW013	Papakāinga where 3-waters infrastructure solutions to meet their needs have been identified	List	● ● ●	Papakāinga	A list of all the Papakāinga where 3-waters infrastructure solutions to meet their needs have been identified
TW014	The cost and funding required to implement Papakāinga 3-waters infrastructure solutions including the ongoing operational costs is identified	\$	● ● ●	Papakāinga	The value for each Papakāinga 3-waters infrastructure solution that has been costed and the funding source identified

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
TW015	Sentiment - Mana whenua identity, sense of place, cultural landscapes and whakapapa/ tātai relationships to wai are highly visible, recognised, and celebrated in rural and urban design and development in-relation to Te Mana o Te Wai	Rating scale		Mana Whenua Group	Derived from regular polling of the mana whenua groups (see definition above in TW006) and shows the satisfaction rating based on the response to the statement.

Water Service:  Water  Wastewater  Stormwater

Mātauranga Māori

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
TW016	Sentiment - Mātauranga Māori and Te Ao Māori worldviews are valued and recognised and inform decision making for all water systems, providing an exemplar of world best practice of indigenous thinking and practice	Rating scale		Mana Whenua Group	Derived from regular polling of the mana whenua groups (see definition above in TW006) and shows the satisfaction rating based on the response to the statement.
TW017	Sentiment - Mana whenua pathways for intergenerational transfer of knowledge and practice are developed and supported in-relation to Te Mana o Te Wai	Rating scale		Mana Whenua Group	Derived from regular polling of the mana whenua groups (see definition above in TW006) and shows the satisfaction rating based on the response to the statement.
TW018	3-waters kaitiakitanga practice is recognised and valued nationally	Rating scale		Entity	Indication that the 3-waters kaitiakitanga practices utilised by the Entity are recognised as best practice and valued, as assessed by the mana whenua group

Water Service:  Water  Wastewater  Stormwater

Enabling Kaitiakitanga Practice

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
TW019	Sentiment – Mana whenua are satisfied with the influence Te Mana o te Wai statements have on investment decisions and operational work programmes	Rating scale	● ● ●	Catchment	Derived from regular polling of the mana whenua groups (see definition above in TW006) within the specific catchment and shows the satisfaction rating based on the response to the statement.
TW020	Number of instances kaitiaki practitioners influenced decision making	Number	● ● ●	Entity	Count of the number of times kaitiaki practitioners have had input into the decision making process for programmes and projects
TW021	Number of kaitiaki practitioners working within the Entity's region	List	● ● ●	Entity	A list of the recognised kaitiaki practitioners that are currently working within the Entity's region. A kaitiaki practitioner is a representative of mana whenua who has been granted the mandate to represent the interests of the hapū on matters of kaitiakitanga of the water system
TW022	Number of project steering groups that included mana whenua representatives as co-sponsor	Number	● ● ●	Entity	Count of the number of project steering groups that have included a mana whenua representative as co-sponsor
TW023	Number of scholarships or cadetships supported by the Entity to enable transfer of kaitiakitanga knowledge	Number	● ● ●	Entity	A count of the number of scholarships or cadetships supported by the Entity to increase the knowledge and competency of kaitiakitanga amongst mana whenua
TW024	Number of scholarships or cadetships provided by the entity to increase Māori representation in professional and technical 3waters roles	Number	● ● ●	Entity	A count of the number of scholarships or cadetships supported by the Entity of Māori students in areas of study associated with the 3-waters industry sector
TW025	Te Mana o te Wai monitoring and assessment is fully integrated into 3-waters monitoring	Yes/No	● ● ●	Entity	Indication that the Te Mana o te Wai monitoring and assessment is fully integrated into the 3-waters monitoring undertaken by the Entity

Water Service: ● Water ● Wastewater ● Stormwater

Community engagement with Kaitiakitanga

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
TW026	Number of Wānanga (knowledge centres)	List	● ● ●	Catchment	A list of the Kaitiakitanga wananga established to run at mana whenua lead operational hubs and provide a location where mana whenua can access training in Kaitiakitanga and engage with the community about stewardship
TW027	Number of participants of training in Kaitiakitanga and stewardship at wānanga	Number	● ● ●	Catchment	The number of participants that have attended training in Kaitiakitanga at wananga
TW028	Positive community survey for kaitiakitanga initiatives	Rating	● ● ●	Catchment	Derived from a community polling within the specific catchment and indicates the communities satisfaction with kaitiakitanga initiatives
TW029	Positive participant survey for Wānanga and kaitiakitanga initiatives	Rating	● ● ●	Catchment	Derived from a survey of participants who have been involved in kaitiakitanga initiatives within the specific catchment and indicates the satisfaction rating
TW030	Number of mana whenua led community stewardship and kaitiakitanga initiatives	Number	● ● ●	Catchment	A count of the mana whenua led community kaitiakitanga initiatives undertaken within the catchment









Water Service: ● Water ● Wastewater ● Stormwater

Resilient Local Māori Economy

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
TW031	Achievement of the 5% government procurement target for allocation of contracts to Māori business	%	● ● ●	Catchment	<p>An indication that the Entity meets the 5% government procurement target for allocation of contracts to Māori business within the catchment. Expressed as the percentage of all contracts awarded within the catchment.</p> <p>A Māori business is defined as:</p> <ul style="list-style-type: none"> one that has at least 50% Māori ownership, or, a Māori Authority as defined by the Inland Revenue Department.
TW032	Percentage of total budget spent with local Māori businesses	%	● ● ●	Catchment	A percentage of the Entity's total expenditure budget spent with local Māori businesses within the catchment(see definition in TW031 above). A local Māori business is one where the ownership of the business is by Māori who can claim whakapapa to the specific catchment
TW033	Number of local Māori businesses undertaking Entity activities	Number	● ● ●	Catchment	A count of the local Māori businesses (see definition in TW031 above) undertaking Entity activities. A local Māori business is one where the ownership of the business is by Māori who whakapapa to the specific catchment

Water Service: ● Water ● Wastewater ● Stormwater

Empowered Organisation

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
TW034	Sentiment - The Entity has a high functioning and respected Māori Outcomes Directorate	Rating		Entity	Derived from regular polling of the mana whenua groups (see definition above in TW006) and shows the satisfaction rating based on the response to the statement.
TW035	Number of Māori occupying senior roles	Number		Entity	A count of senior roles within the Entity filled by persons that identify as Māori. People identifying as Māori is a personal choice and inclusion is at the discretion of the individual.
TW036	Percentage of Māori occupying senior roles	%		Entity	The number of senior roles within the Entity filled by personnel that identify as Māori as a percentage of all senior roles. People identifying as Māori is a personal choice and inclusion is at the discretion of the individual.
TW037	Number of Māori staff	Number		Entity	A count of Entity staff that identify as Māori. Staff can be fulltime, parttime or casual. Does not include staff of contractors or consultants or staff of sub-contractors. People identifying as Māori is a personal choice and inclusion is at the discretion of the individual.
TW038	Percentage of Māori staff	%		Entity	The proportion of staff within the Entity that identify as Māori as a percentage of all staff. Staff can be fulltime, parttime or casual. Does not include staff that contractors or consultants or staff of sub-contractors. People identifying as Māori is a personal choice and inclusion is at the discretion of the individual.
TW039	Number of Māori specialist staff	Number		Entity	The number of staff within the Entity undertaking roles that involve tasks that require specialist knowledge and skills specific to the delivery of Māori outcomes. Staff can be fulltime, parttime or casual. Does not include staff that contractors or consultants or staff of sub-contractors.
TW040	Percentage of Māori specialist staff	%		Entity	The proportion of staff within the Entity undertaking roles that involve tasks that require specialist knowledge and skills specific to the delivery of Māori outcomes. Staff can be fulltime, parttime or casual. Does not include staff that contractors or consultants or staff of sub-contractors.
TW041	Number of Māori occupying professional or technical roles	Number		Entity	The number of professional or technical roles within the Entity filled by personnel that identify as Māori as a percentage of all professional or technical roles. A professional or technical role is one where the role requires a formal professional

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
					<p>or technical qualification or that the person undertaking the role requires particular certification to undertake the role.</p> <p>Staff in this category can include those counted in measures TW035 and TW039</p> <p>People identifying as Māori is a personal choice and inclusion is at the discretion of the individual.</p>
TW042	Percentage of Māori occupying professional or technical roles	%	● ● ●	Entity	<p>The proportion of professional or technical roles within the Entity filled by personnel that identify as Māori as a percentage of all professional or technical roles.</p> <p>A professional or technical role is one where the role requires a formal professional or technical qualification or that the person undertaking the role requires particular certification to undertake the role.</p> <p>Staff in this category can include those counted in measures TW036 and TW040</p> <p>People identifying as Māori is a personal choice and inclusion is at the discretion of the individual.</p>
TW043	Percentage of all staff and contractors with base competency in Te Tiriti o Waitangi and Te Mana o te Wai	%	● ● ●	Entity	<p>The proportion of all Entity staff (see definition in TW037 above) that have received training in the principles of Te Tiriti o Waitangi and Te Mana o te Wai, and demonstrate a base competency in the application of these principles to the operation of the organisation.</p>
TW044	The Entity provides place-based competency training in how to embed Te mana o te Wai including regular refresher courses	Yes/No	● ● ●	Entity	<p>Indication that the Entity has in place and delivers to staff, particularly new staff inducted into the organisation, place-based competency training developed in partnership with mana whenua, in how to embed Te Mana o te Wai. This includes the Entity providing regular refresher courses to staff.</p>

Water Service: ● Water ● Wastewater ● Stormwater

Healthy Water Ecosystems

Ecosystem Health

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW001	*Assessment of the current health of waterways that are part of the system	% of waterways within the total catchment	●	Entity	Measure of the progress of a programme of work to assess the current health of waterways. Reported as a percentage of the number of waterways that have been assessed compared to the total number of waterways.
HW002	Contaminant load discharged to waterways (freshwater and coastal)	Tonne	● ●	Catchment	The mass of contaminant load discharged to freshwater and coastal waterways as determined through modelling
HW003	Source of contaminants discharged to waterways (whole of catchment)	%	● ●	Catchment	The proportion of contaminant source discharged to waterways as determined through modelling
HW004	*Assessment of hydraulic capacity, and stream bank stability of waterways	% of waterways within the total catchment	●	Entity	Measure of the progress of a programme of work to assess the current health of waterways, and specifically the hydraulic capacity, and stream bank stability of waterways. Reported as a percentage of the number of waterways that have been assessed compared to the total number of waterways.
HW005	*Locations where stream flow regime cause poor ecosystem health outcomes	% of stream length	●	Entity	The proportion of stream length where stream flow regime cause poor ecosystem health outcomes. Reported as the length of waterway with poor performance compared to the overall length of the waterway.
HW006	*Waterway erosion index	Index	●	Waterway	For each waterway reported, the waterway erosion index. (to be defined in a stream health index system to be developed)
HW007	Physical habitat of river, wetland, lake and coastal receiving or take-affected waterways (throughout downstream lengths affected by discharge and/or take)	% (of length, area)	● ●	Catchment	The proportion of downstream lengths affected by discharge and/or take for the waterway compared to the overall length of the waterway
HW008	Proportion of stream length with riparian margin	%	●	Catchment	The proportion of stream length that have a riparian margin compared to the total stream length. A riparian margin must be at least 5m wide and be planted with riparian vegetation.
HW009	Length of stream with opportunities for habitat to be rehabilitated/enhanced	m	●	Entity	The length of streams where opportunities for the natural habitat to be rehabilitated or enhanced has been identified
HW010	Length of stream rehabilitated/enhanced	m	●	Entity	The length of streams where the natural habitat has been rehabilitated or enhanced
HW011	Number of wetland/pond areas that need rehabilitation	Number	●	Entity	A list of the wetland/pond areas assessed and identified as in need of rehabilitation
HW012	Number of wetland/pond areas rehabilitated	Number	●	Entity	A list of the wetland/pond areas that have been rehabilitated

* These measures will require the development of a stream health index system that lists and weights the factors to be used in assessing the health of waterways.

Environment (Fish Passage)

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW0013	Number of unmitigated structures that are an impediment to fish passage	Number	●	Entity	A list of the locations where unmitigated structures that are an impediment to fish passage.
HW0014	Number of unmitigated structures that are an impediment to fish passage assessed to allow for safe passage of fish	Number	●	Entity	A list of the locations where unmitigated structures that are an impediment to fish passage have been assessed to allow for safe passage of fish

Water Service: ● Water ● Wastewater ● Stormwater

Water Sources

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW015	Number of Entity drinking water abstraction points	Number	●	Network	Total number of physical points where water is abstracted to supply the network, may include multiple bores, or multiple abstraction points within the same surface water body. May also include multiple different water sources, i.e., groundwater and surface water.
HW016	Drinking water network source type	Selection	●	Network	For each abstraction point select from bore, roof, spring, lake, or river/stream/creek.
HW017	Water Supplied to the drinking water network	m3/year	●	Network	Volume of water supplied in area under the network operator's jurisdiction. This is 'Water Supplied' in terms of the standard Water Balance. It includes system losses after the treatment plant.
HW018	Number of stream catchments assessed in terms of water takes	Number	●	Entity	A list of the stream catchments has been assessed for water take to determine sustainable environmental flow regimes
HW019	Sufficient environmental and cultural flows maintained at water sources to meet Te Mana o te Wai	Report	●	Network	For each water extraction point within the network, confirmation that sufficient environmental and cultural flows have been maintained to meet the principles of Te Mana o te Wai
HW020	Volume of water returned to waterways as environmental flows.	m3	●	Network	The volume of non-potable water returned by the Entity to the environment being Raw water input from other sources used to maintain ecosystem health of a waterway (flow regime for environmental flows)

Water Service: ● Water ● Wastewater ● Stormwater

Integrated Water Management

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW021	The Entity has service level agreements in place with associated councils/agencies where either party undertakes an asset management function on behalf of the other party	Yes/No	● ● ●	Entity	An indication that the Entity has service level agreements (SLA) in place with associated councils and agencies where either party undertakes an asset management function on behalf of the other party
HW022	Service level agreements are annually reviewed with the other party and assessed for relationship and agreement efficacy	Yes/No	● ● ●	Entity	An indication that where the Entity has service level agreements in place with associated councils and agencies, where either party undertakes an asset management function on behalf of the other party, that the SLA is reviewed annually with the other party and assessed for relationship and agreement efficacy
HW023	Sentiment - Cross-sector institutional arrangements and processes (Item 1.3 in CRC Water sensitive cities rating scale)	Rating	● ● ●	Entity	<p>The rating of the Entity in establishing and maintaining effective cross-sector institutional arrangements and processes.</p> <p>The rating will use an assessment methodology comparable to that within the Australian Cooperative Research Centre's Water Sensitive Cities Index, specifically indicator 1.3 – Cross-sector institutional arrangements and processes.</p>

Water Service: ● Water ● Wastewater ● Stormwater

Consent Compliance

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW024	Number of resource consents that are held	List	●	Entity	Includes all resource consents related to drinking water network operation. Includes consents related to water permits, discharge permits (to land, air, or water), coastal permits and land use consents.
HW025	Type of resources consent (e.g., water take consent, discharge consents, etc)	List	●	Network	For each of the listed consents identified in HW024 above describe whether the consent relates to: <ul style="list-style-type: none"> Water permits - take, use, dam, and divert. Discharge permits - to land, air, and water. Coastal permits - construction, deposit, disturb, and alter. Land use consent - build, excavation, and damage to habitat.
HW026	Resource consent reference numbers	List	●	Network	List the resource consent reference number for each of the resource consents listed, in accordance with HW024.
HW027	Expiry dates for resource consents	Date	●	Network	List expiry dates for each of the resource consents listed, in accordance with HW024
HW028	Proportion of audits that resulted in adverse construction impacts from works including reinstatement/realignment of assets	%	●	Entity	The percentage of environmental compliance audits, undertaken to assess any construction impacts from works including reinstatement/realignment of assets, found to be non-compliant, against the total number of audits undertaken.
HW029	Treatment Plant effluent resource consent expiry date	Date	●	Consent	List the expiry dates for each of the resource consents held for wastewater treatment plant effluent discharge
HW030	Wastewater Treatment plant effluent consent status	List	●	Consent	List expiry dates for each of the resource consents held for wastewater treatment plant effluent discharge
HW031	Wastewater treatment plant consent non-conformance	Number	●	Entity	The number of breaches of wastewater treatment plant consent conditions. Nonconformances related to sludge and odour consents at treatment plants should also be included in this measure. The number reported is to be based on the number of non-conformances. Technical nonconformances (e.g. late reports) as well as performance breaches are to be included. Include an outline of the nature of non-conformances. The measure is to also include all non-conformances that occurred throughout the reporting period regardless of whether they have been resolved at the time of reporting.
HW032	Non-compliance actions in response to trade waste breaches	Report	●	Entity	List any actions taken in response to trade waste breaches during the reporting period. For example, issuing of infringement notices, fines, prosecution, infrastructure damage charges, non-conformance charges or performance management measures.

Water Service: ● Water ● Wastewater ● Stormwater

Wastewater Discharges

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW033	Volume of treated effluent outflow from wastewater treatment plants <ul style="list-style-type: none"> Primary Secondary Tertiary 	m3	●	Facility	The volume of treated outflow from the wastewater treatment plant at each stage of treatment, being: <ul style="list-style-type: none"> Primary (solid removal) Secondary (aeration and filtration) Tertiary (contaminant removal)
HW034	Amount of wastewater effluent discharged to land <ul style="list-style-type: none"> Primary Secondary Tertiary 	m3	●	Facility	The volume of wastewater effluent discharged to land from the wastewater treatment plant at each stage of treatment, being: <ul style="list-style-type: none"> Primary (solid removal) Secondary (aeration and filtration) Tertiary (contaminant removal)
HW035	Volume of untreated wastewater discharged from treatment plant	m3	●	Facility	Volume of untreated wastewater discharged from the wastewater treatment plant due to bypass
HW036	Number of properties with wastewater to stormwater cross connection identified	Number	●	Entity	The number of properties where a service wastewater cross connection has been identified
HW037	Number of properties with wastewater to stormwater cross connections that have been rectified	Number	●	Entity	The number of properties where a service wastewater cross connection has been rectified

Water Service: ● Water ● Wastewater ● Stormwater

Stormwater Discharges

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW038	Proportion of stormwater discharges with resource consents	%	●	Entity	The proportion of stormwater discharges covered by resource consents compared to the total number of identified stormwater discharges.

Water Service: ● Water ● Wastewater ● Stormwater

Overflows

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW039	Peak wet to average dry weather flows entering wastewater treatment plant	Ratio	●	Network	<p>Peak wet to dry weather flow ratio: The peak wet weather flow (during the reporting period) as a ratio of dry weather flow i.e.</p> $\text{Peak wet to dry weather flow ratio} = \frac{\text{Peak wet weather flow}}{\text{Average dry weather flow}}$ <p>Where:</p> <p>Peak wet weather flow is the highest instantaneous peak flow recorded coming into the plant.</p> <p>Average dry weather flow is the average instantaneous flow on days without precipitation.</p>
HW040	Dry weather overflows caused by blockages	Number	●	Network	<p>The number of dry weather overflows caused by blockages e.g. fat oil and grease build up, tree route intrusion</p> <p>A dry weather overflow is when untreated sewage spills, surcharges, discharges or otherwise escapes from the wastewater network under the organisation's control to the external environment. Dry weather overflows may occur at pump stations, manholes, etc.</p> <p>Do not include overflows resulting from stormwater inflow and infiltration into the sewer, or those caused by blockages in sewer service connections (property to mains connections), however do include overflows that occur in the public system and surcharge into private property.</p> <p>Dry weather overflows should be recorded from actual (and verified) incidents.</p>
HW041	Dry weather overflows caused by other causes	Number	●	Network	<p>The number of dry weather overflows (see definition in HW040) from causes other than blockages e.g. plant failures , pump station ragging, power outages (including those from the electricity supplier's network), pump mechanical value</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW042	Wet weather overflows from the wastewater network	Number	●	Network	<p>The number of wet weather overflows not counted as part of HW043.</p> <p>A wet weather overflow is when untreated sewage spills, surcharges, discharges or otherwise escapes from the wastewater network to the external environment.</p> <p>A monitored site which has overflowed within the previous 24 hr period is considered as one event.</p> <p>An event needs to be at least 3min in duration to be classed as an event. This criteria is used to eliminate sensor 'noise'.</p> <p>It includes overflows (both contained and uncontained) from pump stations, pipes, manholes and designed overflow structures as a result of wet weather events.</p> <p>It does not include those caused by blockages in public or private sewers, pump station failures during dry weather or engineered spills to designed storage facilities where no pollution of the environment occurs e.g. an emergency storage tunnel.</p> <p>Wet weather wastewater overflows may be determined from either monitoring, field observation or modelling data (e.g. SCADA alarms or hydraulic models).</p> <p>A new overflow starts after a continuous 24 hour period without an overflow. An overflow that continues for longer than 24 hours will be counted as a separate overflow event for each 24 hour period.</p> <p>Wet weather overflows typically result from excessive stormwater inflow and infiltration, and may be permitted by network discharge consents. Such events should still be included.</p>
HW043	Wet weather overflows from combined stormwater and wastewater networks	Number	●	Network	<p>Wet weather overflows (see definition in HW042) from combined stormwater and wastewater networks: Any overflow from the piped reticulation network that receives combines stormwater and wastewater flows.</p>
HW044	Wastewater overflows on private properties	Number	●	Network	<p>Overflows (see definition in HW040) that occurred on private property because of issues within the public wastewater network.</p> <p>Does not include overflow events due to problems within private property boundaries.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW045	Sewage containment of the existing network	List	●	Network	<p>If the Entity has a specified standard for containing diluted sewage without an overflow, indicate where these are specified and provide details:</p> <ul style="list-style-type: none"> Containment standard in consent (specify level of service in comments field) Internal technical level of service (specify level of service in comments field) Performance below design standards for new sewers considered unacceptable in existing network also Multiple varying standards for different areas of the network (provide detail in comments) No specified sewage containment standards
HW046	Overflows recorded through SCADA monitoring on constructed overflow locations	%	●	Entity	The proportion of overflows (see definition in HW042) recorded through SCADA monitoring at engineered overflow points, pump stations, or other known overflow locations.
HW047	Overflows predicted through calibrated hydraulic models	Yes/No	●	Entity	An indication that overflows (see definition in HW042) are predicted through calibrated hydraulic models
HW048	Proportion of constructed overflow locations covered by resource consents	%	●	Network	The percentage of constructed overflow locations where the Entity holds a resource consent compared to the total number of constructed overflow locations

Water Service: ● Water ● Wastewater ● Stormwater

Treatment by-products

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
HW049	Water Treatment Sludge Production	tDS	●	Facility	Amount of water sludge produced. The sludge produced from removal of sediment and algae in the raw water and from coagulation of dissolved minerals and use of coagulation and flocculation chemicals, from the treatment of surface water.
HW050	Disposal of Water Treatment sludge in year to on site stockpile	%	●	Facility	The proportion of Water Treatment Sludge produced that was disposed of by stockpiling
HW051	Disposal of Water Treatment sludge in year to landfill	%	●	Facility	The proportion of Water Treatment Sludge produced that was disposed of to landfill
HW052	Disposal of Water Treatment sludge in year to composting and reuse	%	●	Facility	The proportion of Water Treatment Sludge produced that was disposed of by composting and reuse
HW053	Disposal of Water Treatment sludge in year to other routes	%	●	Facility	The proportion of Water Treatment Sludge produced that was disposed of to routes other than stockpiling, landfill, or composting and reuse
HW054	Wastewater Treatment Plant sludge production of wet sludge/biosolids	tonne	●	Facility	The total mass of wet solids produced each year by wastewater treatment on-site, following processing (including dewatering and digestion processes) and prior to subsequent storage or discharge off site. If sludge solids are retained in on-site lagoons or oxidation ponds without regular measurement then estimate quantities
HW055	Percentage of dry solids in wastewater sludge/biosolids	%	●	Facility	The average percentage of dry solids in wet sludge/biosolids listed in measure HW049.
HW056	Disposal of wastewater sludge in year to on site stockpile	%	●	Facility	The proportion of Wastewater Treatment Sludge produced that was disposed of by stockpiling
HW057	Disposal of wastewater sludge in year to landfill	%	●	Facility	The proportion of Wastewater Treatment Sludge produced that was disposed of to landfill
HW058	Disposal of wastewater sludge in year to composting and reuse	%	●	Facility	The proportion of Wastewater Treatment Sludge produced that was disposed of by composting and reuse
HW059	Disposal of wastewater sludge in year to other routes	%	●	Facility	The proportion of Wastewater Treatment Sludge produced that was disposed of to routes other than stockpiling, landfill, or composting and reuse

Water Service: ● Water ● Wastewater ● Stormwater

Water for Health, Wellbeing and Recreation

Access

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH001	Water Serviced Properties	Number	●	Network	<p>Total number of all properties serviced by a reticulated water supply network.</p> <p><i>Water Serviced Properties</i> = <i>Number of residential connections (WH003)</i> + <i>Number of non-residential connections (WH004)</i></p>
WH002	Number of drinking water networks	Number	●	Entity	<p>The number of distinct drinking water supply systems operated the Entity. A network includes:</p> <ul style="list-style-type: none"> the source of raw water water treatment plants the distribution system (storage and pipe Network). <p>A common water source does not constitute a common network. For example, Nelson City Council and Richmond, in the Tasman District. Despite sharing a connection to the Roding Dam, the networks that are operated in these two locations are considered separate.</p>
WH003	Number of residential connections in the drinking water network	Number	●	Network	<p>Total number of residential connections serviced by a reticulated drinking water network. Include method for determining number of serviced connections in multi-unit buildings in the comments field.</p> <p>The total number of residential connections provides a proxy for water serviced properties. The total number of connections should be determined by providing the total number of household units:</p> <ul style="list-style-type: none"> connected to the network operator's network and/or the subject of separate billing for the drinking water supply (fixed and/or consumption). <p>A single residential building will usually contain a single household unit. Multi-unit buildings should be counted based on the number of separate household units. The approach used to determine this figure should be specified. This may be determined based on the number of household units that are separately billed/rated e.g., a multi-unit apartment building with only one supply connection but with 100 apartments, each receiving a separate water bill will be counted as 100. If a multi-unit complex (e.g., retirement village) received a single bill, but consists of multiple household units these should be included, where information is available to do so.</p> <p>A tenanted property which is separately metered and in respect of which the tenant is liable for water usage counts as one property (i.e., the owner and tenant of a single rented property are not counted as separate connections).</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
					<p>This includes:</p> <ul style="list-style-type: none"> connected but non-rateable properties. <p>This does not include:</p> <ul style="list-style-type: none"> vacant lots that are connected, or rated but unconnected properties.
WH004	Number of non-residential connections in the drinking water network	Number	●	Network	<p>Total number of non-residential connections serviced by a reticulated drinking water network.</p> <p>Non-residential is defined as any business or other activity that is not identified as residential.</p> <p>Where a single non-residential connection services multiple tenancies, but multiple accounts are issued, the number of connections (in this case 1), not the number of accounts should be recorded.</p>
WH005	Total population served by the drinking water network	Number	●	Network	<p>The number of consumers served by each drinking water network. This should be consistent with values entered in Hinekōrako, and calculated using the approach outlined here.</p>
WH006	Water Supply Service Coverage	%	●	Entity	<p>The percentage of the population serviced by the public reticulated water supply network.</p> $\text{Water Supply Service Coverage} = \frac{\text{Water Served Properties: Residential}}{\text{Residential Properties}}$
WH007	% of residential customers with water meters	%	●	Entity	<p>The percentage of serviced residential properties with water meters compared to the total number of serviced residential connections.</p>
WH008	% of non-residential customers with water meters	%	●	Entity	<p>The percentage of serviced non-residential properties with water meters compared to the total number of serviced non-residential connections.</p>
WH009	Number of residential connections with water meters	Number	●	Entity	<p>The number of residential properties with metered water connections.</p>
WH010	Number of non-residential connections with water meters	Number	●	Entity	<p>The number of non-residential properties with metered water connections</p>
WH011	Number of non-payments of water bills	Number	●	Entity	<p>The number of water services bills where the customer defaulted on payment on time and in full.</p>
WH012	Proportion of Marae with registered supplies	%	●	Entity	<p>The number of Marae that have registered water supplies compared to the total number of Marae within the Entity's region where the Marae water supply falls within the definition of a supply that would require it to be registered with Taumata Arowai</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH013	Wastewater Serviced Population	Number	●	Network	<p>Total residential population served by a reticulated wastewater system.</p> <p>Wastewater Serviced Population = Household Occupancy Rate × Wastewater Serviced Properties: Residential</p>
WH014	Wastewater Service Coverage	%	●	Network	<p>The percentage of the population serviced by the public reticulated wastewater supply network.</p> <p>Wastewater Supply Service Coverage = $\frac{\text{Wastewater Serviced Properties: Residential}}{\text{Residential Properties}}$</p>
WH015	Wastewater Serviced Properties: Residential	Number	●	Network	<p>Total number of residential properties served by a reticulated wastewater system.</p> <p>A wastewater serviced property is:</p> <ul style="list-style-type: none"> connected to the Entity's public reticulated wastewater network the subject of billing for wastewater services (fixed and/or consumption) <p>It does include:</p> <ul style="list-style-type: none"> a tenanted property which is separately metered and in respect of which the tenant is liable for water usage counts as 1 property (i.e. the owner and tenant of a rented property are not counted as separate properties). a connected but non-rateable property, and a connected but non-metered property <p>It does not include rated but unconnected properties.</p> <p>Multi-unit dwellings should be counted based on the number of separately occupied dwellings. This may be determined based on the number of dwellings that are separately billed/rated e.g. a body corporate with only one supply connection but with 100 apartments, each receiving a separate water bill will be counted as 100. If a multi-unit dwelling (e.g. retirement village) received a single bill, but consists of multiple dwellings these should be included, where information is available to do so.</p>
WH016	Wastewater Serviced Properties: Non-residential	Number	●	Network	<p>The total number of non-residential properties served by the reticulated wastewater network. Non-residential properties are any property which is not identified as a residential connection.</p> <p>Where a single non-residential connection services multiple tenancies, but multiple accounts are issued, the number of accounts (not the number of connections) should be recorded.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH017	Total Wastewater Served Properties	Number	●	Network	Total number of all properties serviced by a reticulated wastewater network <i>Total Wastewater Served Properties</i> = Wastewater Served Properties: Residential (WH0015) + Wastewater Served Properties: Non-residential (WH0016)
WH018	Total number of septic systems that are failing within a wastewater reticulated area	Number	●	Entity	The number of septic systems that are assessed to be failing and are within a wastewater reticulated area where a connection to the network is possible.
WH019	Number of trade waste customers	Count	●	Network	The number of trade waste customers connected to the reticulated wastewater network
WH020	Stormwater Served Population	Number	●	Network	Total residential population served by a reticulated stormwater system. Stormwater Served Population = Household Occupancy Rate × Stormwater Served Properties: Residential
WH021	Stormwater Served Properties - Residential	Number	●	Network	Stormwater serviced properties which at the end of the reporting period are billed for stormwater services. This includes properties that do not have an explicit stormwater charge but are billed through other means to fund stormwater infrastructure
WH022	Stormwater Served Properties - Non-residential	Number	●	Network	Non-residential is defined as any business or other property that is not identified as a residential connection. Service is defined as any property, which at the end of the reporting period is billed for stormwater services. This includes properties that do not have an explicit stormwater charge but are billed through other means to fund stormwater infrastructure
WH023	Total Stormwater Served Properties (Within serviceable proximity to network)	Number	●	Network	Total number of all properties served by a reticulated stormwater system. Calculated using the following formula: <i>Stormwater Served Properties</i> = Stormwater Served Properties: Residential (WH0021) + Stormwater Served Properties: Non-residential (WH0022)

Water Service: ● Water ● Wastewater ● Stormwater

Affordability

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH025	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	●	Network	<p>The average residential water charge per annum. This is based on the amount the customer would pay for average annual consumption of 200m³ of water.</p> <p>The amount should be calculated using the tariff structure used for the network and include all fixed and variable charges directly levied on water customers.</p> <p>Where water is billed through an annual fixed charge this should be used. Where the charge is linked to property value, the currently published average house price for the area should be used to determine an average value.</p> <p>Where a number of different charging structures are used within the network, a weighted average value should be determined.</p>
WH026	Average hours on a minimum wage to pay water bill	Hours	●	Network	<p>A measure of the affordability of water services based on a comparison to the current minimum wage. Calculated using the following formula:</p> $\text{Average hours on a minimum wage to pay water bill} = \frac{\text{Average Residential Water Charge Based on 200 m3/yr (WH025)}}{\text{Minimum wage rate}}$ <p>The current minimum wage is that published by Inland Revenue</p>
WH027	Average Annual Residential Wastewater Charge Based on 200 m3/yr	\$/200m3	●	Network	<p>The average residential wastewater charge per annum. This is based on the amount the customer would pay for average annual consumption of 200m³ of water where wastewater volumetric charging is linked to water consumption. Otherwise the value should be calculated considering the tariff structure used for the network and include all fixed and variable charges directly levied on wastewater customers.</p> <p>Where water is billed through an annual fixed charge this should be used. Where the charge is linked to property value, the currently published average house price for the area should be used to determine an average value.</p> <p>Where a number of different charging structures are used within the network, a weighted average value should be determined.</p>
WH028	Average Annual Residential Stormwater Charge	\$/annum	●	Network	<p>The average residential stormwater charge per annum.</p> <p>Where water is billed through an annual fixed charge this should be used. Where the charge is linked to property value, the currently published average house price for the area should be used to determine an average value.</p> <p>Where a number of different charging structures are used within the network, a weighted average value should be determined.</p>

Water Service: ● Water ● Wastewater ● Stormwater

Restrictions

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH029	Properties with Water Restrictors for residential use	Number	●	Entity	<p>The number of residential properties with water restrictors. Restrictors are used on low flow supply areas and used as a demand management intervention)to ensure continuity of supply.</p> <p>This measure excludes properties where the low flow supply is used as a secondary source to primary sources such as rainwater tanks.</p>
WH030	Water restriction days	Properties* days	●	Network	<p>The total number of days water restrictions were in place, multiplied by the number of affected properties.</p> <p>Example: Water restrictions are applied in two schemes this calendar year. In scheme 1, which services 100 properties, restrictions are applied for 10 days. In Scheme 2, which services 200 properties, restrictions are applied for 20 days. The number of affected property days entered in the box will be 5,000 = ((100*10) + (200*20)).</p>
WH031	Number of days water restrictions applied	Days	●	Entity	The total number of days water restrictions were in place across the Entity for the reporting period.
WH032	Number of affected connections (proportion of customers)	%	●	Entity	The proportion of customers affected by water restrictions, with each individual connection counted as a connected property. For example, if a water supplier providing water to 4,000 connections, operates four separate networks, with 1,000 connections in each network, and only one network had water restrictions, this would be considered 25% (1,000/4,000).

Water Service: ● Water ● Wastewater ● Stormwater

Water Quality

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH034	Number do not drink notices for a period greater than x hours/days	Number	●	Entity	The total number of do not drink notices issued by the Entity where the restriction was in place for a period greater than x hours/days
WH035	Number of boil water alerts	Number	●	Entity	The total number of boil water alerts issued by the Entity
WH036	Percentage of small potable water supply systems comply with Drinking Water Standards	%	●	Entity	The proportion of identified small potable water supply systems that are complaint with Taumata Arowai's standards for water supply compared to the total number of small potable water supply systems

Water Service: ● Water ● Wastewater ● Stormwater

Safe Recreational Use

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH037	The proportion of time beaches and freshwater swimming locations are suitable for contact recreation outside the summer swimming season	%	●	Entity	<p>The proportion of time beaches and freshwater swimming locations were suitable for contact recreation outside the summer swimming season</p> <p>The period outside the summer swimming season is 1 May to 31 October.</p> <p>Locations need to be identified and then tracked in SafeSwim or LAWA</p>
WH038	Incidences of adverse outcomes from human contact with water bodies.	List	●	Entity	<p>The list of incidences where there were reported adverse outcomes from human contact with water bodies.</p> <p><i>It is recommended DIA work with local Regional public health services and Health NZ to identify specific contamination sources resulting to human illness related to water recreational use. This is a longer term initiative.</i></p>
WH039	Number of inlet and outlet screens on recreational waterways assessed as unsafe	Number	●	Entity	<p>The number of inlet and outlet screens on waterways at locations identified as recreational where the screen has been assessed as unsafe.</p> <p>A recreational waterway is one that has been identified by the Entity as a known location for swimming or water-sports and tracked in SafeSwim or LAWA.</p>
WH040	The proportion of time beaches and freshwater swimming locations are suitable for contact recreation during the summer swimming season	%	●	Entity	<p>The proportion of time beaches and freshwater swimming locations were suitable for contact recreation during the summer swimming season</p> <p>The summer swimming season period is 1 November to 30 April.</p> <p>Locations need to be identified and then tracked in SafeSwim or LAWA</p>
WH041	The proportion of beaches and freshwater swimming locations where real-time and predicted water quality information is available to the public	%	●	Entity	<p>The proportion of beaches and freshwater swimming locations where real-time and predicted water quality information is available to the public, through either the SafeSwim or LAWA information channels, compared to all locations listed in SafeSwim or LAWA.</p>

Water Service: ● Water ● Wastewater ● Stormwater

Mahinga Kai

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH042	Incidents of waterbody closure to collection of kai due to public health concern	Days/location	●	Location	<p>A measure of the number of days specific sites identified in collaboration with mana whenua as significant for the collection of mahinga kai were closed to the collection of food due to public health concerns.</p>

Water Service: ● Water ● Wastewater ● Stormwater

Demand

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH043	Volume of water received (System input)	Megalitres	●	Network	The volume of water received into the network from all sources. This includes water imported from other suppliers. The measure is the System Input component of the standard water balance
WH044	Water from river abstractions	ML	●	Network	The volume of water input into the network where the water source was from river abstractions
WH045	Water from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes	ML	●	Network	The volume of water input into the network where the water source was from groundwater works, excluding managed aquifer recharge (MAR) water supply schemes
WH046	Water from artificial recharge (AR) water supply schemes	ML	●	Network	The volume of water input into the network where the water source was from artificial recharge (AR) water supply schemes
WH047	Water from water reuse schemes	ML	●	Network	The volume of water input into the network where the water source was from water reuse schemes
WH048	Water imported from other suppliers	ML	●	Entity	Volume of water imported from a separate supplier that is used to supply the drinking water network(s). This measure is 'Water Imported' in terms of the standard water balance
WH049	Water exported to other suppliers	ML	●	Entity	Volume of water provided by the network operator that is exported for use to other water networks. This is 'Water Exported' in terms of the standard water balance
WH050	Volume of recycled water supplied to managed aquifer recharge	ML	●	Entity	The total volume of recycled water supplied to managed aquifer recharge
WH051	Volume of wastewater collected	ML	●	Network	The total volume of wastewater collected and sent for treatment
WH052	Volume of trade waste	ML	●	Network	The billable volume of trade waste from all trade waste customers whether it be metered or estimated. Does not include the sewage component from trade waste customers.
WH053	Volume of wastewater receiving treatment at sewage treatment works	ML	●	Network	The volume of wastewater that received treatment at

Water Service: ● Water ● Wastewater ● Stormwater

Fire Supply

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH054	Have you adopted the FENZ Code of Practice (SNZ PAS 4509:2008)?	Yes/No	●	Entity	An indication the Entity has adopted the Firefighting Water Supplies Code of Practice (SNZ PAS 4509:2008)
WH055	Fire hydrants tested in the previous five years	%	●	Entity	If the answer to WH054, is yes, what percentage of key fire hydrants were inspected in the previous five years (as defined in Clause G5 of Appendix G SNZ PAS 4509:2008) Firefighting Water Supplies Code of Practice?

Water Service: ● Water ● Wastewater ● Stormwater

Water System Capacity

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH056	Water Stored in Reservoirs	ML	●	Network	Annual arithmetic mean of the 24 hour average volume of water stored in reservoirs. Includes the volume stored in distribution system reservoirs, treated water tanks at reservoirs etc. but does not include bulk raw water storage.
WH057	Capacity of Water Storage Reservoirs	ML	●	Network	Total volume of water that could be stored in water supply reservoirs. Include distribution system reservoirs, treated water tanks at treatment plants etc. but not bulk raw water storage.
WH058	Days of treated water stored in reservoirs on average	days	●	Network	The number days the water stored in water reservoirs would last if bulk water supply was lost, based on average network demand $\text{Days of treated water stored in reservoirs} = \frac{\text{Capacity of Water Storage Reservoirs}}{(\text{Annual volume of water delivered}/365)}$
WH059	Reservoir average level	%	●	Network	The average annual level of reservoir water storage stated as a percentage of total reservoir capacity $\text{Reservoir average level} = \frac{\text{Water Stored in Reservoirs (WH056)}}{\text{Capacity of Water Storage Reservoirs (WH057)}}$
WH060	Network capacity	ML	●	Network	The theoretical maximum capacity of the water supply network based on the maximum allowable water take volumes of all water sources, and the maximum designed output of water treatment plants.
WH061	Target headroom	ML	●	Network	The minimum buffer that Entities should plan to maintain between supply and demand for water supply networks in order to cater for current and future uncertainties.

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
					This measure is also used in determination of severe drought risk.

Water Service:
● Water
 ● Wastewater
 ● Stormwater

Water Leakage/Loss

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH062	Estimated total network water loss (Water Losses in Water Balance)	m3	●	Network	Total drinking water network water losses, calculated as the difference between system input and authorised consumption, as illustrated in the water balance figure below.
WH063	CARL (current annual real loss)	L/connection/day	●	Network	<p>Current annual water losses from the pressurised system, and overflows from service reservoirs, up to the point of measurement (or estimation) of customer consumption. The annual volume lost through all types of leaks, bursts and overflows depends on frequencies, flow rates, and average duration of individual leaks and overflows.</p> <p>Real Losses are calculated as the difference between Water Losses and Apparent Losses. Apparent Losses relate to unauthorised consumption (theft or illegal use) plus customer meter under registration (where how much water is being supplied to a connection is unknown because that connection has been missed off the metering programme).</p> <p>Current Annual Real Losses should be reported at a drinking water network level.</p> <p>When the Density of Connections is 20/km or more, losses should be reported in litres/service/connection/day.</p> <p>This measure is used in the determination of the Infrastructure Leakage Index</p>
WH064	CARL (current annual real loss)	m3/km mains/day	●	Network	<p>See definition in WH063.</p> <p>When the Density of Connections is less than 20/km, losses should be reported in m3/km mains/day.</p>
WH065	UARL (unavoidable annual real loss)	L/connection/day	●	Network	<p>The lowest technically achievable annual real losses for any combination of mains length, number of connections, customer meter location and average operating pressure – assuming the distribution system infrastructure is in good condition with high standards for management of Real Losses.</p> $UARL = \left(18 \times \frac{Lm}{Nc} + 0.8 \right) \times \frac{P}{10}$ <p>where</p> <ul style="list-style-type: none"> ● Lm = Length of mains(km) ● 0.8 = water loss in litres per connection per metre of pressure from mains connection to property boundary ● Nc = Number of Service Connections ● P = Operating pressure of the network (kPa) ● when expressed as litres of water lost/connection/day <p>This measure is used in the determination of the Infrastructure Leakage Index</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH066	Infrastructure Leakage Index (CARL/UARL)	Index	●	Network	<p>Infrastructure Leakage Index (ILI) - a dimensionless measure that classifies water loss levels as very high, high, moderate, or low, to compare loss levels across different networks, based on what is technically (and practically) achievable.</p> $ILI = \frac{CARL}{UARL}$
WH067	Number of water main breaks, bursts, and leaks per 100km of network per year	Number/100km	●	Network	The number of watermain breaks and leaks recorded on the network per 100km of water supply network in a year. Reporting of this measure at a more frequent interval may produce misleading conclusions.
WH068	Leakage ratio day/night flows	Ratio	●	Leak Management Zone	The ratio of peak daytime to minimum night-time flow rates for the leak management zone.
WH069	Billed Authorised Consumption	m3	●	Network	<p>The volume of billed consumption from authorised legal network connections</p> <p>This measure forms part of the standard water balance (see diagram below)</p>
WH070	Unbilled Authorised Consumption	m3	●	Network	<p>The estimated volume of unbilled consumption from authorised legal network connections.</p> <p>This measure is the sum of measures WH072 and WH073</p> <p>This measure forms part of the standard water balance (see diagram below)</p>
WH071	Apparent Losses	m3	●	Network	<p>The estimated volume apparent losses from the network from unauthorised consumption and metering under-registration.</p> <p>This measure is the sum of measures WH074 and WH075</p> <p>This measure forms part of the standard water balance (see diagram below)</p>
WH072	Unbilled metered consumption	m3	●	Network	<p>The volume of metered authorised consumption that was not billed to customers</p> <p>This measure forms part of the standard water balance (see diagram below)</p>
WH073	Unbilled unmetered consumption	m3	●	Network	<p>The estimated volume of unmetered authorised consumption that was not billed to customers</p> <p>This measure forms part of the standard water balance (see diagram below)</p>
WH074	Unauthorised consumption	m3	●	Network	<p>The estimated volume of unauthorised consumption of water from the network</p> <p>This measure forms part of the standard water balance (see diagram below)</p>
WH075	Customer metering under-registration	m3	●	Network	<p>The estimated losses from the network from meter under-registration</p> <p>This measure forms part of the standard water balance (see diagram below)</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH076	Leakage on mains	m3	●	Network	The current annual real losses (CARL) expressed as cubic metres per year This measure forms part of the standard water balance (see diagram below)
WH077	Revenue Water	m3	●	Network	The volume of water that was billed to registered customers, either metered or unmetered, including billed water exported to other systems. This measure is the sum of measures WH048 and WH069 This measure forms part of the standard water balance (see diagram below)
WH078	Non-revenue water	m3	●	Network	The volume of water that was lost due to network leaks or unbilled consumption and did not therefore contribute to revenue. This measure forms part of the standard water balance (see diagram below)

Water Service: ● Water ● Wastewater ● Stormwater

Own Sources	System Input	Water Exported			Billed Water Exported to other Systems	Revenue Water
		Water Supplied	Authorised Consumption	Billed Authorised Consumption	Billed Metered Consumption by Registered Customers	
Water Imported	(allow for bulk meter errors)				Billed Unmetered Consumption by Registered Customers	Non-Revenue Water
			Unbilled Authorised Consumption	Metered		
				Unmetered		
			Apparent Losses	Unauthorised Consumption		
			Customer Metering Under-registration			
				Real Losses	Leakage on Mains Leakage and Overflows at Service Reservoirs Leakage on Service Connections up to the street/property boundary	

The approach for calculating components of the standard water balance and ILI is outlined in the Water New Zealand [Water Loss Guidelines](#)

Consumption

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH079	The average consumption of drinking water per day per resident	L/Person/day	●	Network	<p>Calculated residential water consumption based on "Water Supplied to Own System" and "Total Water Serviced Population".</p> <p>This measure is derived based on the formula below. If a more accurate measure of residential water use exists (e.g. based on meter reads) this should be used.</p> $\text{Average Daily Residential Water Consumption} = \frac{\text{Water Supplied to Own System (WH080)} - \text{Total nonresidential Water Consumption (WH082)} - \text{Estimated total network water loss (WH062)} - \text{Water exported to other authorities (WH048)}}{365 \times \text{Total water serviced population (WH005)} \times 1000}$
WH080	Water Supplied to Own System	m3	●	Network	Volume of water supplied in area serviced from the network. This is 'Water Supplied' in terms of the standard Water Balance (see above). It includes system losses after the treatment plant.
WH081	Authorised Consumption	m3	●	Network	<p>Total volume of potable water consumed by all customers (residential and non-residential) in the water serviced area including any water exported to other systems.</p> <p>This is "Billed Authorised Consumption" and "Unbilled Authorised Consumption" in terms of the standard Water Balance (see above).</p> <p>This relates to both metered and unmetered consumption by both residential and non-residential customers.</p>
WH082	Non-residential Water Consumption	m3	●	Network	<p>Water consumption for non-residential properties, including rural and agricultural uses, and outdoor areas.</p> <p>If rural schemes include a known number of residential properties, which are not separately metered, an estimate of residential consumption should be subtracted from non-residential water consumption. This water use can be determined by multiplying the number of residential properties in the rural scheme, by the estimated average daily residential water consumption (WH079).</p>
WH083	Average residential water consumption	L/connection/day	●	Network	<p>The average residential water use per residential connection.</p> <p>If water consumption based on residential water metering is available, provide median water use per connection.</p>
WH084	Do you have a water conservation education programme in place?	Yes/No	●	Entity	Indication that the Entity has a water conservation education programme in place to educate and inform the community about ways to conserve water

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH085	Volume of recycled water supplied to residential customers	m3	●	Network	The volume of recycled water that was supplied to residential customers for non-potable use.
WH086	Volume of recycled water supplied to non-residential customers	m3	●	Network	The volume of recycled water that was supplied to non-residential customers for non-potable use.
WH087	Volume of non-potable water supplied (SW harvesting)	m3	●	Network	The volume of recycled water that was supplied to customers for non-potable use sourced by stormwater harvesting.
WH088	Number of customers augmenting their water supply with rainwater tanks	Number	●	Network	The number of water supply customers that augment their network supply with on-site rainwater tanks
WH089	Net reduction in average daily consumption by customers augmenting their water supply with rainwater tanks	L/Person/day	●	Network	For the customer identified in WH088, the net reduction in average daily consumption expressed as litre/per person per day, based on metered consumption.

Water Service: ● Water ● Wastewater ● Stormwater

Informed Communities

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
WH090	SafeSwim/LAWA usage	No of enquiries	●	Entity	The number of discrete visits to the SafeSwim/LAWA websites to source information about public health warnings for recreational swimming sites at beaches and waterways.
WH091	Customer satisfaction with SafeSwim/LAWA	Rating	●	Entity	Derived from regular customer satisfaction surveys and rates the satisfaction of users with SafeSwim/LAWA websites from people that have accessed information
WH092	SafeSwim/LAWA uptime	%	●	Entity	The system availability of the SafeSwim/LAWA websites
WH093	Swimming sites covered by SafeSwim/LAWA	List	●	Entity	The list of swimming sites covered by the SafeSwim/LAWA system(s)

Water Service: ● Water ● Wastewater ● Stormwater

Effective Infrastructure and Service Delivery

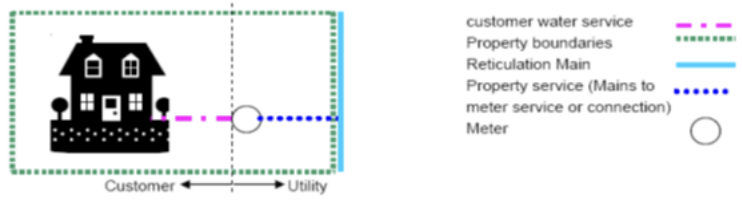
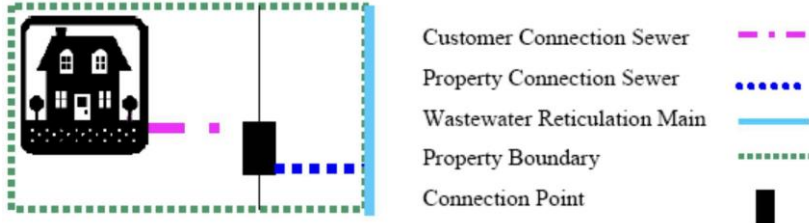
Asset Information

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI001	Completeness: Proportion of all assets that are recorded in the Entities Asset Management System	%		Entity	A measure of the completeness of asset information held by the Entity within their asset management system.
EI002	Accuracy: Proportion of assets from high confidence sources (as-built, inspection)	%		Entity	<p>A measure of the accuracy of asset information held by the Entity within their asset management system.</p> <p>Determined by assessing the number of asset records that are flagged as being from high confidence sources (as-built, inspection) as a proportion of all asset records</p>
EI003	Currency: Proportion of asset condition assessments undertaken where assessment date is less than 10 years or less than 5 years for critical assets (primary and meaningful assets)	%		Entity	<p>A measure of the currency of asset information held by the Entity within their asset management system.</p> <p>Determined by assessing the date of last condition assessment of asset records where assessment date is less than 10 years or less than 5 years for critical assets (primary and meaningful assets) as a proportion of all asset records that are subject to regular condition assessment.</p> <p>An asset condition assessment methodology needs to be developed (by asset type, risks, etc)</p>
EI004	Reliability: Proportion of asset records that have a data confidence grade of Uncertain, Very uncertain or Unknown (NAMS IIMM Manual)	%		Entity	<p>A measure of the reliability of asset information held by the Entity within their asset management system.</p> <p>Determined by assessing the number of asset records that have a data confidence grade of Uncertain, Very uncertain or Unknown as defined in the NAMS IIMM Manual as a proportion of all asset records</p>
EI005	Proportion of assets (primary and meaningful assets) represented spatially in the GIS system	%		Entity	A measure of the completeness of asset information of primary and meaningful assets held by the Entity within their GIS system. This measure is a comparison of the number of 'known' assets recorded in the asset management system with the number of assets recorded on in the GIS.
EI006	Number of new assets found, or asset attributes validated by contractors as part of their operation	Number		Entity	<p>The number of new assets found, or asset attributes validated by contractors as part of their asset maintenance operations.</p> <p>The purpose of this measure is to ensure that information (such as asset condition) about assets collected by contractors as they expose and work on underground assets, or assets previously not recorded discovered by contractors is fed back to the Entity and recorded in the asset management system</p>

Water Service: Water Wastewater Stormwater

Asset Base

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI007	Number of Water Treatment Plants that have backup Generators	Number	●	Network	The number of water treatment plants with backup generators. If a plant has more than one back-up generator to meet the total power needs list this only as one. Portable generators are included in the figure.
EI008	Number of Water Pump Stations that have backup Generators	Number	●	Network	The number of water pump stations with backup generators. If a pump has more than one back-up generator to meet the total power needs list this only as one. Portable generators are included in the figure.
EI009	Number of water treatment plants	Number	●	Network	<p>A water treatment plant is defined as the location of equipment that directly enables any form of treatment that improves water quality, towards making the water safe to drink. For example, a cartridge filter, an Ultraviolet (UV) unit, a sand filter, a clarifier, or a chlorine dosing system, are all examples of water treatment plants.</p> <p>Where multiple treatment components are used in a collective process, or located in a common building, compound, or discrete geographic area, these are considered a single treatment plant.</p>
EI010	Number of reservoirs	Number	●	Network	<p>Total number of water supply reservoirs on the network operated by the Entity, (but excluding raw water storage, including bulk storage reservoirs and sub-surface suction tanks where applicable) in the council or council-controlled organisation's city/district.</p> <p>Includes distribution system reservoirs, tanks, treated water tanks, and reservoirs. Does not include bulk raw water storage facilities, or small break pressure rural tanks.</p> <p>If one site or location has more than one tank/reservoir, then count each tank/reservoir separately.</p>
EI011	Number of pump stations	Number	●	Network	Includes any pump station used to deliver treated drinking water after the final stage of the water treatment process. Do not include treatment plants with a pump station on site to deliver treated water into the water distribution system.
EI012	Kilometres of pipe	km	●	Network	<p>Total length of public water mains (excluding private laterals). This includes all trunks, reticulation mains and service leads up to the meter, or point of supply for the supply of potable water.</p> <p>It does not include lengths associated with customer water services within private property boundaries (as indicated on the figure below), or source works such as bore fields not associated with the reticulated water supply network. Do not count disused pipe lengths, even if they are maintained for possible future use.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
					
EI013	Total Length of Public Wastewater Network	km	●	Network	<p>Total length of public wastewater piped reticulation (gravity and pressure) servicing all properties in the total Wastewater Serviced Area. This includes all trunks, reticulation mains and service leads up to the point of supply but does not include customers private laterals (as indicated in the figure below) or pipes carrying treated effluent.</p> <p>Do not count disused pipe lengths, even if they are maintained for possible future use.</p> 
EI014	Wastewater Pump Stations	Number	●	Network	<p>Total number of wastewater pump stations (before the first stage of wastewater treatment processes) transporting sewage, regardless of whether the station is off or actually on the treatment plant site. Pump stations thereafter should be excluded as they are considered a component of the treatment plant.</p>
EI015	Number of Wastewater Pump Stations that have backup Generators	Number	●	Network	<p>The number of wastewater pump stations with backup generators. If a pump station has more than one back-up generator to meet the total power needs list this only as one. Include portable generators.</p>
EI016	Number of wastewater treatment plants	Number	●	Network	<p>A water treatment plant is defined as the location of equipment that directly enables any form of wastewater treatment</p> <p>Where multiple treatment components are used in a collective process, or located in a common building, compound, or discrete geographic area, these are considered a single treatment plant.</p>
EI017	Number of Wastewater Treatment Plant backup generators	Number	●	Network	<p>The number of standby generators at the treatment plant. Include portable generators. If so add these to the summed value in the main data column.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI018	Total Length of Combined Wastewater and Stormwater Pipelines	km	●	Network	Total length of the piped reticulation network that has been designed to receive both stormwater and wastewater. These pipelines should also be accounted for in field EI013 Total Length of Public Wastewater network.
EI019	Length of rising mains	km	●	Network	A rising main is a pipeline through which wastewater is pumped from a pumping station to join with the main wastewater system.
EI020	Total Length of Public Stormwater Network	km	●	Network	This includes all pipes, culverts and lined channels that form part of the primary stormwater reticulation network. It does not include pipes associated with house branch connections and ditches, unlined channels, swales and streams (which in the past have proven difficult to consistently quantify).
EI021	Stormwater Pump Stations	Number	●	Network	Total number of stormwater pump stations
EI022	Number of stormwater detention dams	Number	●	Network	The total number of stormwater detention dams. A detention dam is designed to catch surface runoff and stream water flow to regulate the water flow in areas below the dam.
EI023	Number of stormwater treatment devices	Number	●	Network	The number of stormwater treatment devices such as rain gardens and water quality ponds

Water Service: ● Water ● Wastewater ● Stormwater

Asset Age/Condition

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI024	Condition grade 1: Water supply network assets	%	●	Network	<p>The percentage of water supply assets assessed as having a particular condition grade as a proportion of all asset within that asset type.</p> <p>Condition grades should be determined for all water supply asset types managed by the Entity where maintenance and renewal decision making is influenced by the condition grade of the asset.</p> <p>This measure should be reported separately for each asset type.</p> <p>Condition grades can be derived by theoretical desktop analysis based on interpolation of age or other factors where grades assigned through asset inspection are not available.</p> <p>The condition grade definitions should align with the definitions provided in the IPWEA International Infrastructure Management Manual (IIMM)</p>
EI025	Condition grade 2: Water supply network assets	%	●	Network	
EI026	Condition grade 3: Water supply network assets	%	●	Network	
EI027	Condition grade 4: Water supply network assets	%	●	Network	
EI028	Condition grade 5: Water supply network assets	%	●	Network	
EI029	Not assessed: Water supply network assets	%	●	Network	Percentage of water supply network assets that have not had their condition graded
EI030	% of pipelines that have received a condition grading	%	●	Network	<p>The percentage of pipelines (both above ground and underground), by length, that have received a condition grade using a standardised grading structure or methodology.</p> <p>All pipelines that have received a condition grade should be included, regardless of the mix of attributes being used to assign the grades. For example, not only pipelines assessed using direct inspection methods should be included, but also pipelines that have received a condition grading based on interpolation of age or other factors.</p>
EI031	% of pipelines in poor or very poor condition	%	●	Network	<p>The percentage of pipelines (both above ground and underground), by length, that have received a poor or very poor condition grade.</p> <p>This value should be a percentage of all pipelines, not a percentage of pipelines that have received a condition assessment.</p> <p>The definitions of poor, and very poor condition, should align with the definitions provided in the IPWEA International Infrastructure Management Manual (IIMM):</p> <ul style="list-style-type: none"> • Poor Condition – Consider Renewal • Very Poor Condition – Approaching Unserviceable. <p>If condition grades used do not adhere to these definitions, specify the alternate condition grading approach.</p> <p>For Asbestos Cement pipelines, further guidance is provided in the definition of poor and very poor condition assets in the Water New Zealand, National Asbestos Cement Pressure Pipe Manual. These categories may also provide guidance for other pipe materials and so are provided here for reference:</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
					<ul style="list-style-type: none"> Poor condition assets: less than 25 % of the life of a new AC pipe remaining. Very Poor: pipe failure due to deterioration can be expected within a few years and some pipe failures may have already occurred.
EI032	Average Age of Water Pipelines	Years	●	Network	<p>Weighted average age of all water pipelines within all of the network operators drinking water networks. This should be calculated by taking into account the length and age (in years) of pipelines as follows.</p> $\frac{\sum(\text{length of pipeline} \times \text{age of pipeline})}{\sum \text{length of pipeline}}$
EI033	% of above ground assets that have received a condition grading	%	●	Network	<p>The percentage of above ground assets, of the kinds listed below, that have received a condition grade using a standardised grading structure or methodology:</p> <ul style="list-style-type: none"> Water treatment plant buildings, including ancillary buildings Above ground service reservoirs, including contact tanks within the distribution zone Pumping stations, including above ground ancillary buildings (such as detached chemical storage sheds). <p>The individual condition grading of components of each of these assets does not need to be considered.</p>
EI034	% of above ground assets in poor or very poor condition	%	●	Network	<p>The percentage of above ground assets (defined in EI033) that have received a poor or very poor condition, in alignment with the definition in the International Infrastructure Management Manual:</p> <ul style="list-style-type: none"> Poor Condition – Consider Renewal Very Poor Condition – Approaching Unserviceable. <p>If condition grades used do not adhere to these definitions, specify the alternate condition grading approach, or definition in the comments.</p> <p>Further guidance is provided in the definition of poor and very poor condition assets in the Water New Zealand, Visual Assessment Manual for Utility Assets. The Manual expands on the International Infrastructure Management Manual definitions, provided here for reference:</p> <ul style="list-style-type: none"> Poor: Either not working or is working poorly because of damage or deterioration. Condition or structure is poor or structural integrity is in question. Very Poor: Needs urgent attention. <p>The individual condition grading of components of each of these assets need not be considered.</p> <p>This value should be a percentage of all assets, not a percentage of assets that have received a condition assessment.</p>
EI035	Percentage of water assets age by constructed date	%	●	Network	<p>The percentage of water supply network assets whose age falls within a particular</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
	range				<p>age range based on constructed date.</p> <p>The age ranges should be rolled up by decade with a decade being from the year ending in a 0 to the year ending in a 9 e.g. 2010 to 2019.</p> <p>This measure should be reported separately for each asset type.</p>
EI036	Percentage of water assets remaining life by time range	%	●	Network	<p>The percentage of water supply network assets whose remaining life falls within a particular range.</p> <p>The ranges should be rolled up by 10 year increments with a decade being from the year ending in a 0 to the year ending in a 9 e.g. 30 to 39 years.</p> <p>This measure should be reported separately for each asset type.</p>
EI037	Condition Grade 1: Wastewater network assets	%	●	Network	<p>The percentage of wastewater network assets assessed as having a particular condition grade as a proportion of all asset within that asset type.</p> <p>Condition grades should be determined for all wastewater asset types managed by the Entity where maintenance and renewal decision making is influenced by the condition grade of the asset.</p> <p>This measure should be reported separately for each asset type.</p> <p>Condition grades can be derived by theoretical desktop analysis based on interpolation of age or other factors where grades assigned through asset inspection are not available.</p> <p>The condition grade definitions should align with the definitions provided in the IPWEA International Infrastructure Management Manual (IIMM)</p>
EI038	Condition Grade 2: Wastewater network assets	%	●	Network	
EI039	Condition Grade 3: Wastewater network assets	%	●	Network	
EI040	Condition Grade 4: Wastewater network assets	%	●	Network	
EI041	Condition Grade 5: Wastewater network assets	%	●	Network	
EI042	Not assessed: Wastewater network assets	%	●	Network	Percentage of wastewater network assets that have not had their condition graded
EI043	Wastewater CCTV inspection (Last 5 years)	%	●	Network	<p>Percent of wastewater network that has had CCTV completed in the last 5 years.</p> <p>Include CCTV inspections conducted following the inspection of new pipes, as well as any inspections conducted as part of maintenance or renewal works.</p>
EI044	Percentage of wastewater assets age by constructed date range	%	●	Network	<p>The percentage of wastewater network assets whose age falls within a particular age range based on constructed date.</p> <p>The age ranges should be rolled up by decade with a decade being from the year ending in a 0 to the year ending in a 9 e.g. 2010 to 2019.</p> <p>This measure should be reported separately for each asset type.</p>
EI045	Percentage of wastewater assets remaining life by time range	%	●	Network	<p>The percentage of wastewater network assets whose remaining life falls within a particular range.</p> <p>The ranges should be rolled up by 10 year increments with a decade being from the</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
					<p>year ending in a 0 to the year ending in a 9 e.g. 30 to 39 years.</p> <p>This measure should be reported separately for each asset type.</p>
EI046	Condition Grade 1: Stormwater network assets	%	●	Network	<p>The percentage of stormwater network assets assessed as having a particular condition grade as a proportion of all asset within that asset type.</p> <p>Condition grades should be determined for all wastewater asset types managed by the Entity where maintenance and renewal decision making is influenced by the condition grade of the asset.</p> <p>This measure should be reported separately for each asset type.</p> <p>Condition grades can be derived by theoretical desktop analysis based on interpolation of age or other factors where grades assigned through asset inspection are not available.</p> <p>The condition grade definitions should align with the definitions provided in the IPWEA International Infrastructure Management Manual (IIMM)</p>
EI047	Condition Grade 2: Stormwater network assets	%	●	Network	
EI048	Condition Grade 3: Stormwater network assets	%	●	Network	
EI049	Condition Grade 4: Stormwater network assets	%	●	Network	
EI050	Condition Grade 5: Stormwater network assets	%	●	Network	
EI051	Not assessed: Stormwater network assets	%	●	Network	Percentage of stormwater network assets that have not had their condition graded
EI052	Stormwater network CCTV inspection (Last 5 years)	%	●	Network	<p>Percent of stormwater network that has had CCTV completed in the last 5 years.</p> <p>Include CCTV inspections conducted following the inspection of new pipes, as well as any inspections conducted as part of maintenance or renewal works.</p>
EI053	Percentage of stormwater assets age by constructed date range	%	●	Network	<p>The percentage of stormwater network assets whose age falls within a particular age range based on constructed date.</p> <p>The age ranges should be rolled up by decade with a decade being from the year ending in a 0 to the year ending in a 9 e.g. 2010 to 2019.</p> <p>This measure should be reported separately for each asset type.</p>
EI054	Percentage of stormwater assets remaining life that fall into age ranges	%	●	Network	<p>The percentage of stormwater network assets whose remaining life falls within a particular range.</p> <p>The ranges should be rolled up by 10 year increments with a decade being from the year ending in a 0 to the year ending in a 9 e.g. 30 to 39 years.</p> <p>This measure should be reported separately for each asset type.</p>

Water Service: ● Water ● Wastewater ● Stormwater

Criticality

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI055	Have you undertaken an assessment to identify critical assets?	Yes/No	●	Entity	Indication that the Entity has undertaken an assessment to identify its critical assets. Critical assets are defined as those which have a high consequence of failure.
EI056	Proportion of critical assets that are represented spatially in GIS system	%	● ● ●	Entity	The proportion of critical assets that are represented spatially in the Entity's GIS system. The underlying GIS database should include a data element that discretely records the fact that a particular asset is designated as critical.
EI057	Does the Entity have an asset criticality framework	Yes/No	● ● ●	Entity	Indication that the Entity has an asset criticality framework that describes the particular assessment criteria for determining the criticality of assets.
EI058	Does the Entity have a framework for the identification of critical customers	Yes/No	● ● ●	Entity	Indication that the Entity has a framework for the identification of critical customers that describes the particular assessment criteria for determining the criticality of customers. The framework should include an importance rating within its classification methodology Examples of critical customers include: <ul style="list-style-type: none"> • Large water based industries such as breweries • Critical healthcare providers such as hospitals • At risk residents – dialysis patients
EI059	Proportion of critical customers that are represented spatially in GIS system	%	● ● ●	Entity	The proportion of critical assets that are represented spatially in the Entity's GIS system. This should include recording at risk residents The underlying GIS database should include a data element that discretely records the fact that a particular customer is designated as defined as critical.

Water Service: ● Water ● Wastewater ● Stormwater

Reliability

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI060	Network Reliability Index – Water Supply *	Index	●	Network	An rating index that provides an indication of the overall reliability of the water supply network based the multi criteria analysis of a number of contributing factors, such as the proportion of good to poor assets, asset age, and asset performance.
EI061	Network Reliability Index – Wastewater *	Index	●	Network	An rating index that provides an indication of the overall reliability of the wastewater network based the multi criteria analysis of a number of contributing factors, such as the proportion of good to poor assets, asset age, and asset performance.
EI062	Network Reliability Index – Stormwater *	Index	●	Network	An rating index that provides an indication of the overall reliability of the stormwater network based the multi criteria analysis of a number of contributing factors, such as the proportion of good to poor assets, asset age, and asset performance.

Water Service: ● Water ● Wastewater ● Stormwater

*These measures will require the development of a suitable multi-dimensional reliability index methodology on which to base the rating system.

Operational Planning

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI063	Does the Entity have an Operations and Maintenance Plan in place	Yes/No	● ● ●	Entity	Indication that the Entity has an Operations and Maintenance Plan in place that describes the key system operating parameters, maintenance procedures and schedules, and methods necessary to for the proper operation and maintenance of the 3-waters networks.

Water Service: ● Water ● Wastewater ● Stormwater

Operating parameters

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI064	Average system pressure	m	●	Leak Management Zone	Average distribution system pressure for the Leak Management Zone. Methods for calculation are outlined in Appendix E of the “Water New Zealand: Water Loss Guidelines February 2010”, available at the following page; https://www.waternz.org.nz/waterlossguidance

Water Service: ● Water ● Wastewater ● Stormwater

Operating Procedures

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI065	Standard Operating Procedures are developed and implemented for key infrastructure/activities	Yes/No	● ● ●	Entity	Indication that the Entity has developed and implemented Standard Operating Procedures for key infrastructure/activities
EI066	Standard Operating Procedures are QA audited on a regular cycle	Yes/No	● ● ●	Entity	Indication that the Entity’s Standard Operating Procedures are QA audited on a regular cycle

Water Service: ● Water ● Wastewater ● Stormwater








Energy Use

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI067	Electricity use - Water	kWh	●	Entity	<p>The total grid-sourced electricity consumed by the drinking water network's pumps, water treatment plants, and other network components.</p> <p>Do not include electricity use related to fleet vehicles or offices.</p> <p>Do not include electricity generated on site, for example through solar panels or micro-turbines.</p> <p>Sources of energy other than electricity, including biomass, diesel, and gas should be separately reported in EI068.</p>
EI068	Energy use from other fuels - Water	GJ	●	Entity	<p>The total energy consumed from external sources other than electricity, by water system pumps, water treatment plants, and other network components. This could include fuel provided by biomass, diesel, or gas.</p> <p>Do not include energy use related to fleet vehicles or offices.</p>
EI069	Electricity use - Wastewater	kWh	●	Entity	<p>The total grid-sourced electricity consumed by the wastewater network's pumps, water treatment plants, and other network components.</p> <p>Do not include electricity use related to fleet vehicles or offices.</p> <p>Do not include electricity generated on site.</p> <p>Sources of energy other than electricity, including diesel, and gas should be separately reported in EI070.</p>
EI070	Energy use from other fuels - Wastewater	GJ	●	Entity	<p>The total energy consumed from external sources other than electricity by the wastewater network's pumps and wastewater treatment plants, and other network components in Gigajoules.</p> <p>Do not include energy use related to fleet vehicles or offices.</p>
EI071	Energy use - Wastewater Treatment Plants	GJ/ML	●	Facility	<p>Energy Intensity: Wastewater is the energy use per megalitre of wastewater collected</p> $\text{Energy Intensity} = \frac{\text{Energy Consumption}}{\text{Total Wastewater Produced}}$
EI072	Electricity use - Stormwater	kWh	●	Entity	<p>The total grid-sourced electricity consumed by the drinking water network's pumps, water treatment plants, and other network components.</p> <p>Do not include electricity use related to fleet vehicles or offices.</p> <p>Do not include electricity generated on site, for example through solar panels or micro-turbines.</p> <p>Sources of energy other than electricity, including diesel, and gas should be</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
					separately reported in EI073.
EI073	Energy use from other fuels - Stormwater	GJ	●	Entity	<p>The total energy consumed from external sources other than electricity by stormwater pumps, and treatment devices.</p> <p>Does not include energy use related to fleet vehicles or offices.</p>

Water Service: ● Water ● Wastewater ● Stormwater

Technology

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI074	SCADA/telemetry monitoring - proportion of assets that have monitoring points connected to the SCADA/telemetry system	%		Entity	<p>The approximate proportion of assets (pump stations, treatment plants, bores, intakes, reservoirs etc) that have monitoring points connected to the SCADA/telemetry system.</p> <p>A monitoring point is defined as any digital or analogue field input into the SCADA system (e.g. flow monitoring points, overflow monitoring point etc.).</p>
EI075	Internet of things	Yes/No		Entity	<p>The Internet of things refers to a system of internet-connected objects that can collect and transfer data over a wireless network without human intervention, such as smart meters and water sensors.</p> <p>Responses should be provided as a Yes, or a No, indicating whether Internet of things devices have been installed on either drinking water, wastewater or stormwater networks.</p>
EI076	Proportion of SCADA monitored points where data latency meets operational requirements	%		Entity	<p>The approximate proportion of assets (pump stations, treatment plants, bores, intakes, reservoirs etc) that have monitoring points connected to the SCADA/telemetry system meet data latency operational requirements.</p> <p>Data latency issues occur when the either change of state or analogue measurement being monitored by the SCADA is not timestamped at source and the information is returned to the SCADA master station at a later time, causing a difference between the time the event/measurement occurred and that captured by the SCADA system.</p>
EI077	System communications uptime for SCADA system	%		Network	<p>The system uptime for the communications utilised by the SCADA system.</p> <p>Uptime should be recorded for all SCADA communications channels.</p>
EI078	Is all network SCADA data for the Entity centralised	Yes/No		Entity	Indication that all 3-waters networks SCADA data for the Entity centralised to a single SCADA master station.
EI079	Does the Entity have a SCADA integration Strategy	Yes/No		Entity	Indication that the Entity has a SCADA integration Strategy developed that outlines the plan to achieve a fully centralised SCADA system
EI080	Does the Entity have any network assets with monitoring that are standalone from the SCADA system	Yes/No		Entity	Indication that the Entity has network assets with monitoring that are standalone from the SCADA system, and either the data needs to be retrieved by an on-site visit, or the monitoring site returns the information to a centralised data repository that is separate from the SCADA system.

Water Service:  Water  Wastewater  Stormwater

Asset Value

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI081	Annual Depreciation: Water Supply	\$	●	Network	The depreciation cost in the reporting period as reported in the latest replacement cost valuation.
EI082	Water treatment facility value	\$	●	Facility	The closing book value of water supply treatment plants and facilities.
EI083	Other water supply asset value	\$	●	Network	The closing book value of other assets (such as reticulation systems).
EI084	Decline in Service Potential: Water Supply	Ratio	●	Network	Ratio of Capital Expenditure to replace existing assets (Actual) to Annual Depreciation. $= \frac{\text{Decline in service potential Actual capital expenditure to replace existing assets[EI099]}}{\text{Depreciation [EI081]}}$
EI085	Annual Depreciation: Wastewater	\$	●	Network	The depreciation cost in the reporting period as reported in the latest replacement cost valuation
EI086	Wastewater treatment facility value	\$	●	Facility	The closing book value of wastewater treatment plants and facilities.
EI087	Other wastewater asset value	\$	●	Network	The closing book value of other wastewater assets (such as reticulation systems).
EI088	Decline in Service Potential: Wastewater	Ratio	●	Network	Ratio of Capital Expenditure to replace existing assets (Actual) to Annual Depreciation. $= \frac{\text{Decline in service potential Actual capital expenditure to replace existing assets[EI104]}}{\text{Depreciation [EI085]}}$
EI089	Annual Depreciation: Stormwater	\$	●	Network	The depreciation cost in the reporting period as reported in the latest replacement cost valuation
EI090	Stormwater asset value	\$	●	Network	The closing book value of stormwater assets.
EI091	Decline in Service Potential: Stormwater	Ratio	●	Network	Ratio of Capital Expenditure to replace existing assets (Actual) to Annual Depreciation. $= \frac{\text{Decline in service potential Actual capital expenditure to replace existing assets[EI115]}}{\text{Depreciation [EI089]}}$

Water Service: ● Water ● Wastewater ● Stormwater

Capex

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI092	Length of water mains renewed using internal CAPEX: Water Supply	km	●	Entity	Length of water mains renewed using internal CAPEX:
EI093	Length of new water mains constructed using internal CAPEX: Water Supply	km	●	Entity	Length of new water mains constructed using internal CAPEX Does not include assets vested to the organisation by developers
EI094	Budgeted Capital Expenditure: Water Supply	\$	●	Entity	Budgeted capital expenditure budget for water supply in the reporting period.
EI095	Budgeted capital to improve the level of service: Water Supply	\$	●	Entity	Budgeted capital expenditure on existing assets that is not driven by asset condition or age.
EI096	Budgeted capital to replace existing assets: Water Supply	\$	●	Entity	Budgeted capital expenditure related to renewals or replacements.
EI097	Actual Capital Expenditure: Water Supply	\$	●	Entity	Actual capital expenditure on water supply for the reporting period
EI098	Actual capital to improve the level of service: Water Supply	\$	●	Entity	Actual capital expenditure on existing assets that is not driven by asset condition or age.
EI099	Actual capital to replace existing assets: Water Supply	\$	●	Entity	Actual capital expenditure related to renewals or replacements.
EI100	Length of wastewater mains renewed using internal CAPEX: Wastewater	km	●	Entity	Length of wastewater mains renewed using internal CAPEX:
EI101	Length of new wastewater mains constructed using internal CAPEX	km	●	Entity	Length of new wastewater mains constructed using internal CAPEX Does not include assets vested to the organisation by developers
EI102	Budgeted Capital Expenditure: Wastewater	\$	●	Entity	Budgeted capital expenditure budget for water supply in the reporting period.
EI103	Budgeted capital to improve the level of service: Wastewater	\$	●	Entity	Budgeted capital expenditure on existing assets that is not driven by asset condition or age.
EI104	Budgeted capital to replace existing assets: Wastewater	\$	●	Entity	Budgeted capital expenditure related to renewals or replacements.
EI105	Actual Capital Expenditure: Wastewater	\$	●	Entity	Actual capital expenditure on water supply for the reporting period
EI106	Actual capital to improve the level of service: Wastewater	\$	●	Entity	Actual capital expenditure on existing assets that is not driven by asset condition or age.
EI107	Actual capital to replace existing assets: Wastewater	\$	●	Entity	Actual capital expenditure related to renewals or replacements.
EI108	Length of stormwater mains renewed using internal CAPEX: Stormwater	km	●	Entity	Length of water mains renewed using internal CAPEX:
EI109	Length of new stormwater mains constructed using	km	●	Entity	Length of new water mains constructed using internal CAPEX

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
	internal CAPEX: Stormwater				Does not include assets vested to the organisation by developers
EI110	Budgeted Capital Expenditure: Stormwater	\$	●	Entity	Budgeted capital expenditure budget for water supply in the reporting period.
EI111	Budgeted capital to improve the level of service: Stormwater	\$	●	Entity	Budgeted capital expenditure on existing assets that is not driven by asset condition or age.
EI112	Budgeted capital to replace existing assets: Stormwater	\$	●	Entity	Budgeted capital expenditure related to renewals or replacements.
EI113	Actual Capital Expenditure: Stormwater: Stormwater	\$	●	Entity	Actual capital expenditure on water supply for the reporting period
EI114	Actual capital to improve the level of service: Stormwater	\$	●	Entity	Actual capital expenditure on existing assets that is not driven by asset condition or age.
EI115	Actual capital to replace existing assets: Stormwater	\$	●	Entity	Actual capital expenditure related to renewals or replacements.

Water Service: ● Water ● Wastewater ● Stormwater

Opex

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI116	Energy Costs: Water Supply	\$	●	Entity	Electricity, gas and diesel costs across the public water supply network. Excludes fleet vehicle use.
EI117	Chemicals and Consumables: Water Supply	\$	●	Entity	Cost of chemicals and consumables used to treat water before supplying to customers. Does not include the cost of fluoride.
EI118	Routine maintenance: Water Supply	\$	●	Entity	All scheduled operational and maintenance works and external consultants and contractors used for such works. If routine and reactive maintenance cannot be separated, then the total can be reported here.
EI119	Reactive maintenance: Water Supply	\$	●	Entity	All unscheduled operational and maintenance works and external consultants and contractors used for such works. If routine and reactive maintenance cannot be separated then report the total against EI118.
EI120	Operating Cost: Water Supply	\$	●	Entity	Total operating cost for the reporting period associated with water supply
EI121	Total Cost: Water Supply	\$	●	Entity	Total cost for the reporting year associated with water supply to the region under the Entity's jurisdiction, calculated using the following formula: <i>Total cost = Operating cost + Interest + Annual Depreciation + Actual capital expenditure</i>
EI122	Energy Costs: Wastewater	\$	●	Entity	Electricity/gas/fuel costs associated with wastewater reticulation and treatment.
EI123	Sludge Disposal Costs: Wastewater	\$	●	Entity	Net Cost of Sludge Disposal (i.e. less any revenue from sale of biosolids).
EI124	Routine Maintenance: Wastewater	\$	●	Entity	All scheduled operational and maintenance works and external consultants and contractors used for such works. If routine and reactive maintenance cannot be separated, then the total can be reported here.
EI125	Reactive Maintenance: Wastewater	\$	●	Entity	All unscheduled operational and maintenance works and external consultants and contractors used for such works. If routine and reactive maintenance cannot be separated then report the total against EI124.
EI126	Operating Cost: Wastewater	\$	●	Entity	Operating cost for the reporting year associated with providing wastewater services
EI127	Total Cost: Wastewater	\$	●	Entity	Total cost for the reporting year associated with wastewater services in the region under the Entity's jurisdiction, calculated using the following formula: <i>Total cost = Operating cost + Interest + Annual Depreciation + Actual capital expenditure</i>
EI128	Routine maintenance: Stormwater	\$	●	Entity	All scheduled operational and maintenance works and external consultants and contractors used for such works. If routine and reactive maintenance cannot be separated, then the total can be reported here.

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI129	Reactive maintenance: Stormwater	\$	●	Entity	All unscheduled operational and maintenance works and external consultants and contractors used for such works. If routine and reactive maintenance cannot be separated then report the total against EI128.
EI130	Operating Cost: Stormwater	\$	●	Entity	Operating cost for the reporting year associated with providing stormwater services
EI131	Total Cost: Stormwater	\$	●	Entity	<p>Total cost for the reporting year associated with stormwater services in the region under the Entity's jurisdiction, calculated using the following formula:</p> $\text{Total cost} = \text{Operating cost} + \text{Interest} + \text{Annual Depreciation} + \text{Actual capital expenditure}$

Water Service: ● Water ● Wastewater ● Stormwater

Revenue

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI132	Operating Revenue: Water Supply	\$	●		<p>Operating revenue (income) for the supply of water services in the region under the Entity's jurisdiction.</p> <p>It includes revenue obtained from fixed charges and volumetric charges, special levies that apply to serviced properties, lease of land or space reserved for assets (e.g. decommissioned pipes as cable ducts, or cell phone towers on reservoirs), revenue from asset sales, and other revenue from operations which would otherwise be included e.g. interest income.</p> <p>It excludes all developer cash or asset contributions and revenue received from grants.</p>
EI133	Total Revenue: Water Supply	\$	●		<p>Total water supply revenue for the reporting period</p> $\text{Total Revenue} = \text{Revenue from Supply of Water to Other Entities} + \text{Operating Revenue} + \text{Developer Contribution Revenue}$
EI134	Operating Revenue: Wastewater	\$	●		<p>Operating revenue (income) associated with reticulation and treatment of wastewater in the region under the Entity's jurisdiction.</p> <p>Includes revenue obtained from minimum or fixed charges and volumetric charges, special levies that apply to serviced properties, lease of land or space reserved for assets (e.g. decommissioned pipes as cable ducts) revenue from asset sales, other revenue from operations which would otherwise be included e.g. interest income.</p> <p>It excludes all developer cash or asset contributions and revenue received from grants.</p>
EI135	Total Revenue: Wastewater	\$	●		<p>Total wastewater revenue for the reporting period</p> $\text{Total Revenue} = \text{Revenue from the provision of wastewater services to another Entity} + \text{Operating Revenue} + \text{Developer Contribution Revenue}$
EI136	Operating Revenue: Stormwater	\$	●		<p>Operating revenue (income) for the reporting year relating to the supply of stormwater services in the region under the Entity's jurisdiction.</p> <p>It includes revenue allocated to the Entity's stormwater department from Council rates, plus the following where applicable: external contracting income, lease of land or space reserved for assets (e.g. decommissioned pipes as cable ducts), interest income, any other income accrued to the stormwater department or unit.</p> <p>It excludes all developer cash or asset contributions and revenue received from grants.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI137	Total Revenue: Stormwater	\$	●		Total wastewater revenue for the reporting period <i>Total Revenue = Operating Revenue + Developer Contribution Revenue</i>






Asset Management Maturity

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EI138	Date of last Asset Management Maturity benchmarking review	Date	● ● ●	Entity	The date of the most recent Asset Management Maturity benchmarking review undertaken by the Entity to compare the maturity of its asset management approach to other 3-waters services or large infrastructure management organisations, nationally and internationally
EI139	Overall Asset Management Maturity score from most recent assessment	Rating	● ● ●	Entity	The overall Asset Management Maturity rating score achieved by the Entity in the most recent Asset Management Maturity benchmarking review undertaken by the Entity. State the benchmarking approach used, and the methodology for determination of the rating score.
EI140	Does the entity apply the principles of the International Infrastructure Management Manual(IIMM)	Yes/No	● ● ●	Entity	Indication that the Entity applies the principles of the International Infrastructure Management Manual(IIMM), published by IPWEA, to its asset management approach and associated processes and practices

Water Service: ● Water ● Wastewater ● Stormwater






Integrated Growth and Demand Planning

Demand Planning

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
IG001	Entity has in place a Three Water Services Infrastructure Strategy that is fully costed	Yes/no		Network	An indication that the Entity's Three Water Services Infrastructure Strategy that is fully costed. The Infrastructure Strategy is required to be updated every 3 years.
IG002	Entity has a Three Waters Demand Management Plan (short, med, long- term	Yes/no		Network	An indication that the Entity has a Three Waters Demand Management Plan covering the short, medium and long- term that includes future forecasting scenarios and costs. The Demand Management Plan should include any proposed changes to levels of service and any specific exclusions due to capacity shortfall. The Demand Management Plan should be updated every 6 years (2 planning cycles)
IG003	Planning scenarios are undertaken for a range of horizons up to at least 100 years	List of scenarios		Network	A list of the planning scenarios the Entity uses in system demand planning. The Entity should use a range of planning horizons of up to at least 100 years.
IG004	Projected population (per network) <ul style="list-style-type: none"> 10 year 20 year 30 year 	Number		Network	The population projections for each 3-waters network service estimated for the following horizons: <ul style="list-style-type: none"> 10 year 20 year 30 year Projections should be sourced from the Statistics New Zealand most recent population projection. If an Entity has access to a more accurate population estimate this may be substituted.
IG005	Seasonal Variation - Peak population served and reason for variation (per network)	Number		Network	The peak population served by the 3-waters network service due to seasonal variation due to visitor influx which is variable in nature.

Water Service:  Water  Wastewater  Stormwater

Design Standards

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
IG006	Proportion of vested assets that comply with design standards or approved alternative solutions	%		Entity	The percentage of vested assets that when received by the Entity from the developer complied with National or Entity design standards or approved alternative solutions. Compliance is determined during the asset handover process.
IG007	Proportion of Entity built assets that comply with design standards or approved alternative solutions	%		Entity	The percentage of Entity built assets that when completed by the Entity complied with National or Entity design standards or approved alternative solutions. Compliance is determined during the project completion and asset handover process.
IG008	Design standards and approved products are reviewed annually	Yes/no		Entity	An indication that the Entity reviews its design standards and approved products to factor in new technology or revoke discontinued our outdated materials or methods. This review should occur annually.
IG009	Proportion of submitted designs that are sent back/further reviewed	%		Entity	The percentage of network designs submitted by developers that were sent back or required further review, compared to all designs received.
IG010	Proportion of submitted designs that were approved but were non-standard design	%		Entity	The percentage of network designs submitted by developers that were approved even though they were non-standard, compared to all designs received.

Water Service:  Water  Wastewater  Stormwater

Growth Charge

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
IG011	Growth Charge Revenue: Water Supply	\$	●	Entity	Developer revenue (income) for the reporting period for water supply. This includes all developer contributions or infrastructure growth charges. It excludes developer asset contributions.
IG012	Value of vested assets from developers: Water Supply assets (Replacement cost)	\$	●	Entity	Value of water supply assets vested in the council during the reporting year as part of development contributions. The value is determined by calculating the replacement cost of the assets at current unit rates.
IG013	Growth Charge Revenue: Wastewater	\$	●	Entity	Developer revenue (income) for the reporting period for wastewater. This includes all developer contributions or infrastructure growth charges. It excludes developer asset contributions.
IG014	Value of vested assets from developers: Wastewater assets (Replacement cost)	\$	●	Entity	Value of wastewater assets vested in the council during the reporting year as part of development contributions. The value is determined by calculating the replacement cost of the assets at current unit rates.
IG015	Growth Charge Revenue: Stormwater	\$	●	Entity	Developer revenue (income) for the reporting period for stormwater. This includes all developer contributions or infrastructure growth charges. It excludes developer asset contributions.
IG016	Value of vested assets from developers: Stormwater assets (Replacement cost)	\$	●	Entity	Value of stormwater assets vested in the council during the reporting year as part of development contributions. The value is determined by calculating the replacement cost of the assets at current unit rates.
IG017	Revenue from developers to cover the future cost of development (In addition to standard growth charges)	\$	● ● ●	Entity	Revenue received from developers intended to cover the future cost of servicing a development but is in addition to any standard growth charges levied on the developer for a particular development. These charges are normally used when there is an additional cost to the Entity to expedite supporting infrastructure ahead of planned growth in the area of the development.

Water Service: ● Water ● Wastewater ● Stormwater

Expenditure on Growth

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
IG018	Budgeted capital to meet additional growth: Water Supply	\$	●	Entity	Budgeted capital expenditure related to growth in the water supply system including new works for subdivision developments.
IG019	Actual capital to meet additional growth – Water Supply	\$	●	Entity	The actual capital expenditure by the entity for the reporting period on water supply assets related to growth including new works subdivision developments
IG020	Budgeted capital to meet additional growth: Wastewater	\$	●	Entity	Budgeted capital expenditure related to growth in the wastewater system including new works for subdivision developments.
IG021	Actual capital to meet additional growth – Wastewater	\$	●	Entity	The actual capital expenditure by the entity for the reporting period on wastewater assets related to growth including new works subdivision developments
IG022	Budgeted capital to meet additional growth: Stormwater	\$	●	Entity	Budgeted capital expenditure related to growth in the stormwater system including new works and subdivision developments.
IG023	Actual capital to meet additional growth – Stormwater	\$	●	Entity	The actual capital expenditure by the entity for the reporting period related to growth in the stormwater system including new works subdivision developments.
IG024	The Entity factors in the ongoing operational costs of vested assets and includes this in budget planning	Yes/no	● ● ●	Entity	<p>An indication that the Entity factors in the impact of ongoing operational costs (consequential opex) from developer supplied vested assets within its budget planning</p> <p>This requires estimating the amount of assets likely to be vested with the Entity in future years based on expected growth</p>
IG025	Budgeted opex for the ongoing operational costs of vested assets	\$	● ● ●	Entity	The budgeted operational expenditure related to the ongoing operational costs (consequential opex) from developer supplied vested assets.

Water Service: ● Water ● Wastewater ● Stormwater

Growth & Spatial Planning

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
IG026	Proportion of land developments allowed within flood zones	%	●	Entity	The percentage of land developments allowed to proceed which lie within flood zones (determined by modelling) compared to the total number of land developments. (1% AEP) This measure applies only to serviced new developments.
IG027	The Entity has SLA(s) in place to enable District Council/Regional Council growth and spatial planning	Yes/no	● ● ●	TLA	Indication that the Entity has a Service Level Agreement in place with each of the Territorial Local Authorities (TLAs) within its region that sets out how the Entity and the TLA will collaborate on growth and spatial planning
IG028	The Entity has SLA(s) in place to enable Inter-agency growth and spatial planning	Yes/no	● ● ●	Agency	Indication that the Entity has a Service Level Agreement in place with relevant agencies within its region that sets out how the Entity and the agency will collaborate on growth and spatial planning. Agencies include Kainga Ora and Waka Kotahi
IG029	A framework exists that allows investment prioritisation and programming of projects (that are interlinked) to be agreed with other agencies.	Yes/no	● ● ●	TLA/Agency	Indication that the Entity has a framework that allows investment prioritisation and programming of projects (that are interlinked) to be agreed with other agencies including local councils and government agencies such as Kainga Ora and Waka Kotahi.

Water Service: ● Water ● Wastewater ● Stormwater

Environmental Protection

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
IG030	Percentage of catchments in active catchment planning that fall within growth areas	%	●	Entity	The number of catchments that are in active catchment planning and fall within designated growth areas compared to the total number of catchments in active catchment planning
IG031	Length of streams, area of wetlands (freshwater and coastal) and lake volume reduced by development	m	●	Entity	A measure of the reduction in the length of streams reduced by development. i.e. development bounding the riparian margin.
IG032	Length of streams, area of wetlands (freshwater and coastal) and lake volume restored to its natural state	m	●	Entity	A measure of the increase in the length of streams from restoration. i.e. land restored to its natural state bounding the riparian margin.
IG033	Net loss/gain in length of streams, area of wetlands (freshwater and coastal) and lake volume from development and restoration	m	●	Entity	The net loss or gain in the length of streams from development and restoration $Net\ loss/gain = RC032 - RC031$
IG034	Area of wetlands (freshwater and coastal) and lake volume reduced by development	m2	●	Entity	A measure of the reduction in the area of wetlands (freshwater and coastal) reduced by development.
IG035	Area of wetlands (freshwater and coastal) restored to its natural state	m2	●	Entity	A measure of the increase in the area of wetlands (freshwater and coastal) from restoration. i.e. wetlands restored to its natural state
IG036	Net loss/gain in area of wetlands (freshwater and coastal) from development and restoration	m2	●	Entity	The net loss or gain in the area of wetlands (freshwater and coastal) from development and restoration $Net\ loss/gain = RC035 - RC034$
IG037	Proportion of developments that are approved contrary to expert three waters advice	%	●	Entity	The percentage of developments that were completed against advice from the Entity. This is an indicator of where development has been allowed outside of any controls the Entity has for restricting land development, and where the Entity has advised the appropriate planning authority of their objection to the development.

Water Service: ● Water ● Wastewater ● Stormwater

Resilience to Climate Change and Natural Hazards

Drought

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH001	Number of mains breaks directly attributable due to dry ground conditions	Number	●	Network	A count of the main breaks that can be attributed to dry ground conditions caused by extended periods of dry weather or drought
NH002	The Entity has a Drought Management Plan	Yes/No	●	Entity	Indication that the Entity has a Drought Management Plan that describes the methodology for determining the risk of drought occurring, and the planned response to drought should it occur.
NH003	*Risk of severe restrictions in a drought - Supply Demand Balance	ML/day	●	Network	<p>The Supply Demand Balance (SDB), being the measure of the difference between the amount of water that can be supplied from water sources to the amount of water consumed, stated as megalitres per day.</p> $SDB = DO - OA - DD - TH$ <p>where:</p> <p>Deployable Output (DO) is the forecast supply including reductions due to:</p> <ul style="list-style-type: none"> • Sustainability reductions (water take limits) • Climate change <p>Outage allowance (OA) – an allowance to cover short term disruption to bulk supply</p> <p>Dry year demand forecast (DD)</p> <p>Target headroom (TH) – the minimum buffer between supply and demand (Measure WH061)</p>
NH004	*Proportion of customers at risk of a severe drought	%	●	Network	The proportion of all Entity customers at risk of a severe drought (1 in 200 year) based on forecast modelling
NH005	*Average number of customers at risk of a severe drought	Number	●	Network	The average number of all Entity customers at risk of a severe drought (1 in 200 year) based on forecast modelling

Water Service: ● Water ● Wastewater ● Stormwater

*These drought measures are derived from the OfWat publication 'Drought-Resilience-Metric.PDF' that describes a methodology for the determination of risk of severe drought to communities forecast 25 years into the future and assessing the risk of a 1 in 200 year drought event occurring. Watercare has adopted the base methodology and now uses it to determine risk. It is recommended the OfWat approach be adopted but adjusted for the NZ context.

Flood Protection

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH006	Proportion of properties in the following categories: (vs. Total Population) <ul style="list-style-type: none"> Population within flood plains Population at risk of flooding in various frequency scenarios [2yr - 100yr (50% - 1% AEP), probable maximum flood (PMF)] Flood safety - Population where flood would cause risk to life 	%	●	Entity	The proportion of the population in properties that fall within the following flood risk scenarios compared to the total population within the Entity's region <ul style="list-style-type: none"> Population within flood plains Population at risk of flooding in various frequency scenarios [2yr - 100yr (50% - 1% AEP), probable maximum flood (PMF)] Flood safety - Population where flood would cause risk to life
NH007	Proportion of properties protected by flood protection works compared to all properties at risk of flood (1% AEP)	%	●	Entity	The proportion of properties that are protected by flood protection works compared to all properties that are at risk of a 1 in 100 year (1% AEP) flood event.
NH008	Investment in critical flood assets upgraded to cater for climate change impacts.	\$	●	Entity	The amount of investment by the Entity in critical flood assets that were upgraded to cater for the expected impact of climate change
NH009	Investment in Stormwater infrastructure to address frequent flooding impacts by reducing risk (<= 10 year ARI storm event)	Number	●	Entity	The number of locations where risk has been reduced through investment by the Entity in Stormwater infrastructure to address the impacts of frequent nuisance flooding Frequent flooding impacts are defined as flood water occurring < equal to 10 yr ARI storm event. Avoids the impact on people and property of flooding up to the 10% AEP event now and in the future
NH010	Investment to address flooding impacts for infrequent flood events (>10% AEP storm event)	Number	●	Entity	The number of locations where risk has been reduced through investment by the Entity in Stormwater infrastructure to address the impacts of infrequent nuisance flooding. Infrequent flooding impacts are defined as flood water occurring >= 10 yr ARI storm event. Reduces the impact on people and property of flooding up to the 1% AEP event now and in the future.

Water Service: ● Water ● Wastewater ● Stormwater

Informed Communities

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH011	Percentage of identified at risk properties with flood exposure information published	%	●	Entity	The proportion of properties that have an identified risk of flood exposure where the information about those properties has been published.
NH012	Percentage of published frequency and impact of flooding on people and infrastructure (Risk)	%		Entity	The proportion of catchments where the frequency and impact of flooding on people and infrastructure has been published.
NH013	Percentage of catchments with flood exposure information updated in the last 5 years	%	●	Entity	The proportion of catchments where the flood exposure information based on modelling has been updated in the last 5 years
NH014	Percentage of catchments with flood exposure information published	%	●	Entity	The proportion of catchments where the risk of flood exposure information within those catchments has been published.
NH015	People exposed to flood hazards are informed of their exposure and risk (within floodplain or OLFP)	%	●	Entity	The proportion of people with the region whose properties are within a floodplain or overland flow path have been directly informed of exposure and risk
NH016	Time to respond - People exposed to flood risk access flood advisory services through a request for service	Days	●	Entity	The timeframe to respond to a request for service for flood risk access advisory services
NH017	Number of proactive offers made to high flood risk customers of access flood advisory services	Number	●	Entity	The number of proactive offers of advisory services made to identified high flood risk customers

Water Service: ● Water ● Wastewater ● Stormwater

Risk

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH018	Mitigations/planning to manage risks associated with increases in extreme events	Report	●	Entity	A report listing the mitigations/planning in place to manage the risks associated with increases in the occurrence of extreme weather events
NH019	Entities have assessed the risks that climate change poses for all 3 waters services outcome areas, including but not limited to; <ul style="list-style-type: none"> • Water Quality • Firefighting supply • Flooding • Coastal inundation • Increased sedimentation 	Yes/No	● ● ●	Entity	Indication that the Entity has assessed the potential risks that climate change could impact on the following: <ul style="list-style-type: none"> • Water Quality • Firefighting supply • Flooding • Coastal inundation • Increased sedimentation
NH020	Risk mitigations/planning in place to address climate change risk	Report	● ● ●	Entity	A report listing the mitigations/planning in place to manage the risks identified in NH019

Water Service: ● Water ● Wastewater ● Stormwater

Flooding Events

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH021	Flooding events resulting from storms	Number	●	Catchment	<p>Number of flooding events that occur in an Entity's region as a result of the capacity of the stormwater network (either primary or secondary flow paths) being exceeded.</p> <p>Only events that have led to the flooding of habitable floors should be counted.</p> <p>Floods related to tidal inundation or rivers bursting flood banks should not be included.</p> <p>Floods that occur in areas outside of the stormwater serviced district should not be included.</p> <p>Extreme events, such as civil defence emergencies skew long-term trends in Entity performance. Any such events should be clearly identified in the comments section.</p>
NH022	Number of habitable floors affected by storms	Number	●	Catchment	<p>It may be that one event results in multiple floors being flooded, each floor must be counted in this measure. "Habitable floor" refers to a floor of a building (including a basement) but does not include ancillary structures such as stand-alone garden sheds or garages.</p>
NH023	Number of habitable floors affected per 1000 stormwater urban properties (serviced or contributing funding)	Number/1000 props	●	Catchment	$= \frac{\text{Number of habitable floors affected by storms (NH022)}}{\text{Total Stormwater Serviced Properties (WH023) / 1000}}$
NH024	Flooding events resulting from other causes	Number	●	Catchment	<p>Number of flooding events that occur in an Entity's region that are not a result of the capacity of the stormwater network (either primary or secondary flow paths) being exceeded. This may include floods related to tidal inundation or rivers bursting flood banks.</p> <p>Only events that have led to the flooding of habitable floors should be counted.</p> <p>Extreme events, such as civil defence emergencies skew long-term trends in Entity performance. Any such events should be clearly identified in the comments section.</p>
NH025	Number of habitable floors affected by flooding from other causes	Number	●	Catchment	<p>It may be that one event results in multiple floors being flooded, each floor must be counted in this measure. "Habitable floor" refers to a floor of a building (including a basement) but does not include ancillary structures such as stand-alone garden sheds or garages.</p>
NH026	Number of road closures as a result of storms	Number	●	Catchment	<p>A count of the road closures attributable to flooding due as a result of storms</p> <p>A road closure is defined as where the local road controlling authority has put traffic management in place to prevent the use of the road from being accessible to vehicular traffic. Where the road closure results in the restriction of traffic in a number of roads or streets within a defined and contiguous area, this should be counted as one event.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH027	Number of road closures affected per 1000 stormwater urban properties (serviced or contributing funding)	Number/1000 props	●	Catchment	<p>The number of road closures (see definition in NH026 above) per 1000 stormwater urban serviced properties.</p> <p>A stormwater urban serviced property is defined as a property is within the urban realm, and is either directly connected to the piped stormwater network, or makes a contribution to the funding of the stormwater network through rates or other charges.</p>
NH028	Number of road closures as a result of flooding from other causes	Number	●	Catchment	<p>The number of road closures (see definition in NH026 above) as a result of by flooding from other causes (see definition in NH024 above).</p> <p>This measure includes all road closures across the catchment, both urban and rural</p>

Water Service: ● Water ● Wastewater ● Stormwater

Disaster Recovery

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH029	Level of investment in flood response recovery	\$	●	Entity	The level of investment by the Entity in responding to and recovering from the damage caused due to flooding
NH030	Does the Entity have a Disaster Recovery Plan	Yes/No	● ● ●	Entity	An indication that the Entity has a documented disaster recovery plan that outlines any anticipated disaster scenarios and the planned response to each of those scenarios. The Disaster recovery plan should also include (or reference) the incident response procedures to be used in responding to disaster events.
NH031	When was the DRP last reviewed	Date	● ● ●	Entity	The date that the Disaster Recovery Plan was last reviewed and updated.
NH032	Number of coordination exercises has the entity participated in	Number	● ● ●	Entity	The number of disaster response practice exercises the Entity has participated in, coordinated with other relevant agencies
NH033	Number of DRP practice exercises that have been undertaken	number	● ● ●	Entity	The number of practice exercises the Entity has undertaken to rehearse the processes documented in the Disaster Recovery Plan
NH034	Number of DRP annual training events that have been undertaken	number	● ● ●	Entity	The number of annual training events the Entity has undertaken to train staff in processes documented in the Disaster Recovery Plan

Water Service: ● Water ● Wastewater ● Stormwater

Modelling

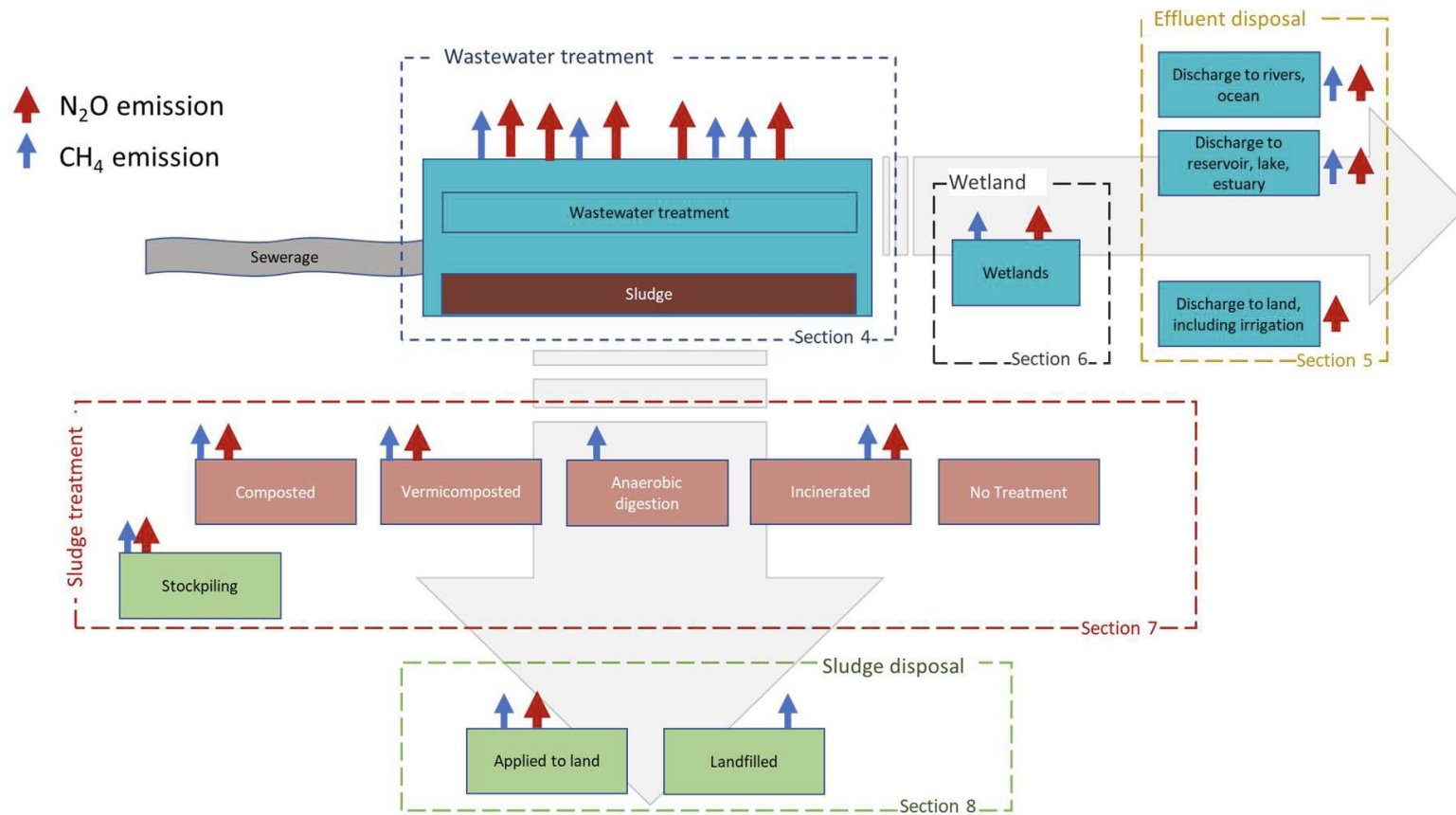
Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH035	Number of properties identified as not suitable for underlying land use	Number	●	Entity	A count of the properties that have been identified by the Entity as not being suitable for their underlying land use (e.g. Properties with habitable buildings within high flood risk areas, land identified for development in high flood risk areas)
NH036	Land area identified as not suitable for underlying land use	Ha	● ● ●	Entity	The land area of the properties that have been identified by the Entity as not being suitable for their underlying land use (e.g. Properties with habitable buildings within high flood risk areas, , land identified for development in high flood risk areas)
NH037	Proportion of vulnerable use buildings that are exposed to natural hazards	%	●	Entity	The proportion of vulnerable use buildings that are exposed to natural hazards as a percentage of all properties that are within a flood plain or overland flow route. Natural hazards include coastal inundation, flooding, and drought
NH038	Number of catchments where the predicted frequency and impact on people and infrastructure has been determined through modelling	Number	●	Entity	A count of the catchments where predicted frequency and impact on people and infrastructure has been determined through modelling

Water Service: ● Water ● Wastewater ● Stormwater

Greenhouse Gas Emissions

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH039	Greenhouse gas capital emissions (tonnes/m3)	tCO2-e/m3	● ● ●	Entity	The volume of greenhouse gas emissions from the creation of new assets. Includes production of concrete, fuel use
NH040	Greenhouse gas operational emissions (tonnes/m3)	tCO2-e/m3	● ● ●	Entity	The volume of greenhouse gas emissions from the operation of the water system. Includes fuel use
NH041	Wastewater treatment plant process emissions	tCO2-e	●	Facility	Boundaries for the emissions sources from wastewater treatment plants are shown in the figure below. . The tonnes of carbon dioxide equivalent greenhouse gas emissions (tCO2-e) calculated by summing methane and nitrous oxide from the following sources: NH038 Wastewater treatment plant process emissions NH039 Wastewater treatment wetland emissions NH040 Wastewater effluent disposal emissions NH041 Wastewater sludge treatment emissions NH042 Wastewater sludge disposal emissions Emissions should be entered for the treatment plants they are associated with if available. If the treatment chain is not relevant to wastewater treatment plants in the district (for example there is no wetland or sludge disposal) a zero may be entered. Guidance for estimating emissions is provided in the Water New Zealand Carbon accounting guidelines for wastewater treatment: CH4 and N2O. available in the Water New Zealand library at this link : Where an alternative emissions factor or approach has been adopted list this should be noted.
NH042	Wastewater treatment wetland emissions	tCO2-e	●	Facility	
NH043	Wastewater effluent disposal emissions	tCO2-e	●	Facility	
NH044	Wastewater sludge treatment emissions	tCO2-e	●	Entity	
NH045	Wastewater sludge disposal emissions	tCO2-e	●	Entity	
NH046	Level of carbon sequestration by green infrastructure (e.g. wetlands)	tCO2-e	● ● ●	Entity	The offset volume of greenhouse gas emission equivalent through sequestration by natural or constructed green assets such as wetlands within the Entity's region.

Water Service: ● Water ● Wastewater ● Stormwater



Recycling/Reuse

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
NH047	Energy Generation: Water Supply	GJ	●	Entity	The total energy generated onsite by the Entity within the water supply system. This could include energy generated by micro-turbines or through co-location of renewables on site.
NH048	Investment in water efficiency	\$	●	Entity	The investment by the Entity in the delivery of water efficiency initiatives. This includes investment in the promotion of water efficiency to communities.
NH049	Volume of water saved from efficiency measures	L/Person/day	●	Entity	A proxy measure for the effectiveness of water efficiency initiatives and the promotion of water efficiency to communities. Calculated as the change in average daily use over the reporting period measured in litre per person per day.
NH050	Energy Generation: Wastewater	GJ/year	●	Entity	Energy generated through anaerobic digestion at wastewater treatment plants measured in Gigajoules per year. If other energy is generated elsewhere in the wastewater network indicate this separately.
NH051	Treatment plant effluent reuse <ul style="list-style-type: none"> Urban and industrial Agricultural uses Beneficial allocations Within process Potable water substitution 	ML	●	Facility	Volume of effluent reused – the net volume (ML) of all treated effluent that is used by either the Entity, a business supplied by the Entity, or supplied through a third pipe system for urban reuse. Includes: <ul style="list-style-type: none"> Urban and industrial Agricultural uses Beneficial allocations Within process Potable water substitution
NH052	Amount of resource recovery from wastewater (Such as Struvite, Phosphorus, Ammonia)	Tonne	●	Entity	The mass of resource recovery from the by-products of wastewater treatment such as struvite, phosphorus and ammonia.

Water Service: ● Water ● Wastewater ● Stormwater











Empowered Communities

Complaints/Enquiries

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC001	Drinking water clarity complaints	Number	●	Network	Total number of complaints received by the Entity in the reporting period.
EC002	Drinking water taste complaints	Number	●	Network	Complaints should be recorded using the following definition of a complaint in ASNZ10002- 2014 Complaints management standard: “Expression of dissatisfaction made to or about an organisation, related to its products, services, staff or the handling of a complaint, where a response or resolution is explicitly or implicitly expected or legally required”. If an Entity receives a request for service but the customer does not express dissatisfaction this is not defined as a complaint. e.g. a customer may request that their water pressure is reduced, but may not be dissatisfied with the delivery pressure, these should be captured as a request for service under measure EC018.
EC003	Drinking water odour complaints	Number	●	Network	
EC004	Drinking water pressure or flow complaints	Number	●	Network	
EC005	Continuity of water supply complaints	Number	●	Network	
EC006	The Entity’s response to any of these water supply issues	Number	●	Network	
EC007	Any other complaint related to the delivery of water supply services	Number	●	Network	Where there is more than one complaint per event each individual complainant is counted separately, not each event or occurrence. Where there are multiple complaints made by a single complainant in relation to one event, these may be counted as a single complaint.
EC008	Sewage odour complaints	Number	●	Network	Complaints related to Entity policies and procedures in relation to 3-water services delivery but not assets, operation or water quality should be captured in EC007, EC012, or EC016 for the relevant water service. Complaints related to water rates and charging regimes as well as water restrictions should be captured under measure EC013.
EC009	Sewerage system fault complaints	Number	●	Network	
EC010	Sewerage system blockage complaints	Number	●	Network	
EC011	The Entity’s response to issues with its sewerage system	Number	●	Network	Complaints related to issues on customers service line and private laterals should not be included.
EC012	Any other complaint related to the delivery of wastewater services	Number	●	Network	
EC013	Number of billing and account complaints	Number	● ● ●	Network	
EC014	Stormwater blockage complaints	Number	●	Network	The Entity’s response to any issues relates to complaints about previously reported complaints, specifically of the types listed. For example, if a contractor attends a drinking water odour complaint call, does not accept the customers assessment of there being an odour problem and leaves, causing the customer to complain again about the contractors handling of the issue.
EC015	Stormwater fault complaints	Number	●	Network	
EC016	Any other complaint related to the delivery of stormwater services	Number	●	Network	Sewage odour includes all odour related complaints including at wastewater treatment plants
EC018	Number of all other administrative transactions enquiries, requests for service	Number	● ● ●	Network	Sewerage system faults includes faults with pump stations as well as the reticulation network Sewerage system blockages includes blockages at pump stations as well as the reticulation network

Water Service: ● Water ● Wastewater ● Stormwater

Customer Satisfaction

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC019	Overall Customer Satisfaction - Net Promoter Score	Score		Entity	<p>An overall rating of the Entity based on a survey of Entity customers that have had a recent experience of engaging with the Entity.</p> <p><i>Net promoter score = % promoters – % detractors</i></p> <p>where:</p> <p>promoters are those customers that give a rating of 9 or 10</p> <p>detractors are those customers that give a rating of 0, 1, 2, 3, 4, 5 or 6.</p> <p>Customers that gave a rating of 7 or 8 were excluded.</p>
EC020	Trust score	%		Entity	<p>A measure of the level of trust the community has in the Entity as an organisation.</p> <p>Percentage of people scoring 7 or greater out of 10.</p>
EC021	Entity provides value for money	%		Entity	<p>Derived from regular customer satisfaction surveys and show the customer satisfaction rating based on the response to each of the statements.</p> <p>The survey is undertaken of a random sample of residents within the Entity's region, irrespective of them having had a recent engagement with the Entity.</p> <p>Percentage of people scoring 7 or greater out of 10.</p>
EC022	Entity safeguards water for future generations	%		Entity	
EC023	Entity cares about its communities	%		Entity	
EC024	Entity promotes sustainability	%		Entity	
EC025	Entity water is safe to drink	%		Entity	
EC026	Entity will solve issues and problems that arise	%		Entity	
EC027	Customer satisfaction survey undertaken	%		Entity	The percentage of the customer base engaged with monthly through the customer satisfaction survey process
EC028	Media score	Score		Entity	<p>Media score measures the ratio of positive to negative media mentions the Entity received in the reporting period. The score is usually assessed by a media monitoring company.</p> <p><i>Media score = $\frac{\text{Positive mentions}}{\text{Negative mentions}}$</i></p>

Water Service:  Water  Wastewater  Stormwater

Customer Support

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC029	Customers compensated for consequential expenses of customer impact caused by the water systems	Number	● ● ●	Entity	The number of customers who received financial assistance from the Entity In line with the Entity's policy on compensation of expenses from impacts caused by the water systems
EC030	Total value of compensation paid to customers for consequential expenses of customer impact caused by the water systems	\$	● ● ●	Entity	The total expenditure on financial assistance to customers from the Entity In line with the Entity's policy on compensation of expenses from impacts caused by the water systems
EC031	Customer sentiment: Customer felt informed and supported during customer impact caused by the water systems	%	● ● ●	Entity	The customer satisfaction rating from customer surveys based on the response the statement

Water Service: ● Water ● Wastewater ● Stormwater

Network reliability

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC032	Planned Interruptions	Number	●	Network	<p>Total number of planned drinking water network interruptions for maintenance or renewal works, excluding water meter or water restrictor replacements. A network interruption is any event causing a total loss (cessation or outage) of water supply.</p> <p>An interruption can affect just one customer, or it can affect many customers, but it is only counted once e.g. one break affects 30 dwellings in a street but only one interruption is recorded.</p> <p>It excludes interruptions that occur in the customer water connection (i.e. within privately owned pipes), or interruptions caused by meter or water restrictor replacement programmes.</p>
EC033	Third Party Incidents – Water supply	Number	●	Network	<p>The number of unplanned interruptions to service caused by third parties.</p> <p>An ‘incident’ can affect just one customer, or it can affect many customers, but it is only counted once e.g. one break affects 30 dwellings in a street but only one incident is recorded. If one break affects one dwelling, then one incident is recorded.</p> <p>Third party incidents are the number of incidents where one or more customers experience an unplanned total loss of water supply service caused by third parties (i.e. not the network operator or its contractor(s)).</p> <p>It excludes interruptions caused by bursts or leaks in the property service connection i.e. mains to meter connection or customer water service connection.</p>
EC034	System Average Interruption Frequency Index (SAIFI) – Planned water supply interruptions	Index	●	Network	<p>The System Average Interruption Frequency Index (SAIFI) of planned interruptions to water service for maintenance or renewal works, excluding water meter or water restrictor replacements.</p> <p>A planned water supply interruption is any event causing a total loss (cessation or outage) of water supply for maintenance or renewal works.</p> <p>SAIFI is defined as follows:</p> <p>System Average Interruption Frequency Index (SAIFI) corresponds to the average number of times per year the supply of a customer is interrupted. It is calculated by means of the following formula:</p> $SAIFI = \frac{\Sigma(N_i)}{N_T}$ <p>and stated as the number of interruptions per customer per year.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC035	System Average Interruption Frequency Index (SAIFI) – Unplanned water supply interruptions	Index	●	Network	<p>The System Average Interruption Frequency Index (SAIFI) of unplanned total interruptions to service experienced by properties excluding interruptions caused by third party damage.</p> <p>An unplanned water supply interruption is any event causing a total loss (cessation or outage) of water supply to customers due to an asset failure in the public reticulation network.</p> <p>It excludes interruptions caused by bursts or leaks in the customer water connection (i.e. within the customers' property boundary) or interruptions due to planned meter replacements.</p> <p>SAIFI is defined as follows:</p> <p>System Average Interruption Frequency Index (SAIFI) corresponds to the average number of times per year the supply of a customer is interrupted. It is calculated by means of the following formula:</p> $SAIFI = \frac{\Sigma(N_i)}{N_T}$ <p>and stated as the number of interruptions per customer per year.</p>
EC036	System Average Interruption Duration Index (SAIDI) – Planned water supply interruptions	Index	●	Network	<p>The System Average Interruption Duration Index (SAIDI) of planned interruptions to water service for maintenance or renewal works, excluding water meter or water restrictor replacements.</p> <p>A planned water supply interruption is any event causing a total loss (cessation or outage) of water supply for maintenance or renewal works.</p> <p>SAIDI is defined as follows:</p> <p>System Average Interruption Duration Index (SAIDI) gives the average overall duration per year the supply to a customer is interrupted. It is calculated by means of the following formula:</p> $SAIDI = \frac{\Sigma(r_i N_i)}{N_T}$ <p>where the summation is taken over all supply interruptions; r_i is the restoration time for each incident; N_i is the number of customers affected by each interruption; N_T is the total number of customers in the system for which the index is calculated, and expressed in minutes lost per customer per year. This number is cumulative and indicates the amount of time an average customer can expect to be without service during the year, which can be as the result of a number of interruptions.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC037	System Average Interruption Duration Index (SAIDI) – Unplanned water supply interruptions	Index	●	Network	<p>The System Average Interruption Duration Index (SAIDI) of unplanned total interruptions to service experienced by properties excluding interruptions caused by third party damage.</p> <p>An unplanned water supply interruption is any event causing a total loss (cessation or outage) of water supply to customers due to an asset failure in the public reticulation network.</p> <p>It excludes interruptions caused by bursts or leaks in the customer water connection (i.e. within the customers’ property boundary) or interruptions due to planned meter replacements.</p> <p>SAIDI is defined as follows:</p> <p>System Average Interruption Duration Index (SAIDI) gives the average overall duration per year the supply to a customer is interrupted. It is calculated by means of the following formula:</p> $SAIDI = \frac{\sum(r_i N_i)}{N_T}$ <p>where the summation is taken over all supply interruptions; r_i is the restoration time for each incident; N_i is the number of customers affected by each interruption; N_T is the total number of customers in the system for which the index is calculated, and expressed in minutes lost per customer per year. This number is cumulative and indicates the amount of time an average customer can expect to be without service during the year, which can be as the result of a number of interruptions.</p>
EC038	Third Party Incidents – Wastewater	Number	●	Network	<p>The number of unplanned interruptions to service caused by third parties.</p> <p>An ‘incident’ can affect just one customer, or it can affect many customers but it is only counted once e.g. 1 break or blockage affects 30 dwellings in a street but only 1 incident is recorded. 1 break or blockage affects 1 dwelling, 1 incident is recorded.</p> <p>Third Party Incidents are the number of incidents where one or more customers experience a complete inability to flush or otherwise dispose of objectives to sewer caused by third party (i.e. not the water organisation or its contractor(s)) disruptions to the network.</p> <p>It excludes interruptions caused by issues in the customer wastewater service connection, within private property boundaries.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC039	Third Party Incidents – Stormwater	Number	●	Network	<p>The number of unplanned interruptions to service caused by third parties.</p> <p>An ‘incident’ can affect just one customer, or it can affect many customers but it is only counted once e.g. 1 break affects 30 dwellings in a street but only 1 incident is recorded. 1 break affects 1 dwelling, 1 incident is recorded.</p> <p>Third Party Incidents are the number of incidents where one or more customers experience a complete inability of stormwater to drain into the stormwater network caused by third party (i.e. not the water organisation or its contractor(s)) disruptions to the network.</p> <p>It excludes interruptions caused by issues in the customer stormwater service connection, within private property boundaries.</p>

Water Service: ● Water ● Wastewater ● Stormwater

Response Times

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC040	Median hours to attend to an urgent fault – Water supply	Hours	●	Entity	<p>The median time from when an Entity receives notification of an urgent fault or unplanned service interruption to a drinking water network, to when service personnel reach the site in response.</p> <p>An urgent fault is one that directly results in a complete loss of service for one or more connections. For example, a complete interruption of supply, or provision of water that is not safe or not known to be safe to drink.</p> <p>This measure only refers to confirmed faults with the network, not all customer complaints. For example, time taken to attend a customer complaint, that is later determined to be on the customer side of the boundary does not need to be captured.</p> <p>Extreme events, such as civil defence events may skew overall trends in performance. Any such events should be clearly identified.</p>
EC041	Median hours to attend to a non-urgent fault – Water supply	Hours	●	Entity	<p>The median time from when an Entity receives notification of a non-urgent fault or unplanned service interruption to a drinking water network, to when service personnel reach the site in response.</p> <p>A non-urgent fault is any fault that is not considered an urgent fault. Examples include, reduced pressure of supply, or an aesthetic issue with the water supply if it can be confirmed the water is still safe to drink.</p>
EC042	Median hours to resolve an urgent fault – Water supply	Hours	●	Entity	<p>The median time from when an Entity operator receives notification of an urgent fault or unplanned service interruption (as defined in EC040) to the time that service personnel confirm permanent return to service. A permanent resolution/return to service does not necessarily imply asset reinstatement, as this does not impact on the service itself.</p> <p>This measure only refers to confirmed faults with the network, not all customer complaints. For example, time taken to attend a customer complaint, that is later determined to be on the customer side of the boundary does not need to be captured.</p>
EC043	Median hours to resolve a non-urgent fault – Water supply	Hours	●	Entity	<p>The median time from when an Entity operator receives notification of a non-urgent fault or unplanned service interruption (as defined in EC041) to the time that service personnel confirm permanent return to service. A permanent resolution/return to service does not necessarily imply asset reinstatement, as this does not impact on the service itself.</p>


Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC044	Median hours to attend to an urgent fault – Wastewater	Hours	●	Entity	<p>The median time from when an Entity receives notification of an urgent fault or unplanned service interruption to a wastewater network, to when service personnel reach the site in response.</p> <p>An urgent fault is one that directly results in a complete loss of service for one or more connections. For example, a blockage is causing or has the potential to cause damage to property.</p> <p>This measure only refers to confirmed faults with the network, not all customer complaints. For example, time taken to attend a customer complaint, that is later determined to be on the customer side of the boundary does not need to be captured.</p>
EC045	Median hours to attend to a non-urgent fault – Wastewater	Hours	●	Entity	<p>The median time from when an Entity receives notification of a non-urgent fault or unplanned service interruption to a wastewater network, to when service personnel reach the site in response.</p> <p>A non-urgent fault is any fault that is not considered an urgent fault. An example is odour complaints.</p>
EC046	Median hours to resolve an urgent fault – Wastewater	Hours	●	Entity	<p>The median time from when an Entity operator receives notification of an urgent fault or unplanned service interruption (as defined in EC044) to the time that service personnel confirm permanent return to service. A permanent resolution/return to service does not necessarily imply asset reinstatement, as this does not impact on the service itself.</p> <p>This measure only refers to confirmed faults with the network, not all customer complaints. For example, time taken to attend a customer complaint, that is later determined to be on the customer side of the boundary does not need to be captured.</p>
EC047	Median hours to resolve a non-urgent fault – Wastewater	Hours	●	Entity	<p>The median time from when an Entity operator receives notification of a non-urgent fault or unplanned service interruption (as defined in EC045) to the time that service personnel confirm permanent return to service. A permanent resolution/return to service does not necessarily imply asset reinstatement, as this does not impact on the service itself.</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC048	Median hours to attend to an urgent fault – Stormwater	Hours	●	Entity	<p>The median time from when an Entity receives notification of an urgent fault or unplanned service interruption to a stormwater network, to when service personnel reach the site in response.</p> <p>An urgent fault is one that directly results in a complete loss of service for one or more connections. For example, flooding is causing or has the potential to cause damage to property.</p> <p>This measure only refers to confirmed faults with the network, not all customer complaints. For example, time taken to attend a customer complaint, that is later determined to be on the customer side of the boundary does not need to be captured.</p>
EC049	Median hours to attend to a non-urgent fault – Stormwater	Hours	●	Entity	<p>The median time from when an Entity receives notification of a non-urgent fault or unplanned service interruption to a stormwater network, to when service personnel reach the site in response.</p> <p>A non-urgent fault is any fault that is not considered an urgent fault.</p>
EC050	Median hours to resolve an urgent fault – Stormwater	Hours	●	Entity	<p>The median time from when an Entity operator receives notification of an urgent fault or unplanned service interruption (as defined in EC048) to the time that service personnel confirm permanent return to service. A permanent resolution/return to service does not necessarily imply asset reinstatement, as this does not impact on the service itself.</p> <p>This measure only refers to confirmed faults with the network, not all customer complaints. For example, time taken to attend a customer complaint, that is later determined to be on the customer side of the boundary does not need to be captured.</p>
EC051	Median hours to resolve a non-urgent fault – Stormwater	Hours	●	Entity	<p>The median time from when an Entity operator receives notification of a non-urgent fault or unplanned service interruption (as defined in EC049) to the time that service personnel confirm permanent return to service. A permanent resolution/return to service does not necessarily imply asset reinstatement, as this does not impact on the service itself.</p>

Water Service: ● Water ● Wastewater ● Stormwater





Engagement

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC052	Does the entity have a formal Catchment/Community engagement model/plan	Yes/no		Catchment	Indication that the Entity has a documented plan for the engagement of catchments/communities that outline the formalises the model the Entity intends to use.
EC053	Catchment/Community Engagement model/plan is reviewed and reported annually	Yes/No		Catchment	Indicates that the Entity reviews its Catchment/Community Engagement model/plan annually to ensure it remains relevant and reflects the needs of the community.
EC054	Customers are appropriately engaged on every project in accordance with the Entity's Engagement Model (proportion of projects that had engagement)	%		Entity	<p>The proportion of projects where the Entity undertook appropriate community engagement against the total number of projects where engagement should have occurred in accordance with the Entity's Engagement Model</p> $\text{Proportion of projects that had engagement} = \frac{\text{Projects engaged on}}{\text{Projects requiring engagement}}$
EC055	Community activities/groups/initiatives underway	Number		Activity	<p>The number of active community-based activities/groups/initiatives the Entity has in progress that provide an opportunity for communities to be actively involved in the care, restoration and enhancement of the water system, and thereby contribute to enabling Te Mana o te Wai.</p> <p>Examples include groups with a special interest in the preservation or restoration of a particular waterway, and community monitoring of holistic measures for ecosystem health.</p>
EC056	Customers and communities feel informed about environmental education and protection of assets (private i.e. drains) and (entities i.e. wet wipes) - Customer sentiment survey	%		Entity	<p>Derived from regular customer satisfaction surveys and show the customer satisfaction rating based on the response to the statement.</p> <p>The survey is undertaken of a random sample of residents within the Entity's region, irrespective of them having had a recent engagement with the Entity.</p>
EC057	Customer Engagement: Satisfaction with the process of engagement on a specific project, initiative, plan	Net Promoter Score		Entity	<p>Derived from a customer satisfaction survey and indicates the customer satisfaction rating.</p> <p>Uses the Net Promoter Score rating system</p> $\text{Net promoter score} = \% \text{ promoters} - \% \text{ detractors}$ <p>where:</p> <p>promoters are those customers that give a rating of 9 or 10</p> <p>detractors are those customers that give a rating of 0, 1, 2, 3, 4, 5 or 6.</p> <p>Customers that gave a rating of 7 or 8 were excluded.</p> <p>The survey is undertaken of a sample of residents likely to be affected by the specific project, initiative, or plan</p>

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC058	Compliance with legislative requirements to engage on: <ul style="list-style-type: none"> Te Mana of te Wai statements Model constitution Established customer forum Undertake annual consumer engagement stocktake Asset Management Plan, Funding and Pricing Plan, and Infrastructure Strategy 	List		Entity	Confirms the Entity has complied with the legislative requirements for engaging with the community, which includes: <ul style="list-style-type: none"> Engagement on the development of Te Mana of te Wai statements Engagement on the development of Model constitution Establishing a customer forum Undertaking an annual consumer engagement stocktake Engagement on the Asset Management Plan, Funding and Pricing Plan, and Infrastructure Strategy

Water Service:  Water  Wastewater  Stormwater

Advisory Services

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC059	<p>Advisory services are defined and there is a pathway to access them, such as:</p> <ul style="list-style-type: none"> • Development Journey • Leak identification • Reading your bill • Water saving • Becoming involved in decisions that affect me • Connections • Discharges/ attenuation • Education/rules • Community groups • SafeSwim/LAWA • Flooding • Water quality 	Yes/no		Topic	<p>Indication that the Entity has developed and documented the advisory services to be offered to customers and the community, and the information is accessible.</p> <p>Advisory service topics include but are not limited to:</p> <ul style="list-style-type: none"> • The development Journey • Leak identification • Reading your bill • Water saving • Becoming involved in decisions that affect me • Connections • Discharges/ attenuation • Education/rules • Community groups • SafeSwim/LAWA • Flooding • Water quality <p>The Entity should document the complete list of advisory services they offer.</p>
EC060	Advisory services - Visits to website on specific topic	Number		Topic	For the specific advisory service topic, the number of discrete visits to the website/chat page for that particular topic
EC061	Advisory services - Enquiries through call centre by topic	Number		Topic	For the specific advisory service topic, the number of enquiries through call the centre for that particular topic
EC062	Advisory services - In context surveys	Rating		Topic	<p>For the specific advisory service topic, the rating derived from an in-context survey on website page for that particular topic.</p> <p>An in-context survey takes the form of a button on the web page that asks a yes/no question such as "Was this information useful?" The rating is an indication of the percentage of respondents that answered yes to the question.</p>






Water Service:  Water  Wastewater  Stormwater

Developer Satisfaction

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC063	Proportion of formal requests for three waters engineering and technical advice from developers provided on time	%	● ● ●	Entity	<p>The proportion of formal requests received by the Entity for three waters engineering and technical advice from developers provided on time, as defined by the Entity for such requests, compared to the total number of requests received.</p> $\text{Proportion of requests responded to on time} = \frac{\text{Number of requests responded to on time}}{\text{Total number of requests (EC065)}}$
EC064	Sentiment Survey for Developers [Ofwat D-Mex – long term]	Net Promoter Score	● ● ●	Entity	<p>Derived from a developer satisfaction survey and indicates the developer satisfaction rating.</p> <p>Uses the Net Promoter Score rating system</p> $\text{Net promoter score} = \% \text{ promoters} - \% \text{ detractors}$ <p>where:</p> <p>promoters are those customers that give a rating of 9 or 10</p> <p>detractors are those customers that give a rating of 0, 1, 2, 3, 4, 5 or 6.</p> <p>Customers that gave a rating of 7 or 8 were excluded.</p> <p>The survey is undertaken of a sample of developers that have had a recent engagement with the Entity.</p>
EC065	Number of formal requests for three waters engineering and technical advice from developers	Number	● ● ●	Entity	The total number of requests received by the Entity from developers for three waters engineering and technical advice
EC066	Proportion of Developer applications returned for further information	%	● ● ●	Entity	<p>The proportion of developer applications that needed to be sent back to developers for further information compared to the total number of applications received.</p> $\text{Proportion of applications sent back} = \frac{\text{Number of applications sent back}}{\text{Total number of applications}}$

Water Service: ● Water ● Wastewater ● Stormwater

Access to Information

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC067	Information services are defined and there is a facility to access them: e.g. <ul style="list-style-type: none"> Dam levels Projects Outages Growth and Spatial Planning Water cycle Community activities/groups Flood levels Key performance measures/targets and results Live faults (urgent and medium) 	List		List	The list of topics that the Entity makes available via a publicly accessible website, which may include but is not limited to: <ul style="list-style-type: none"> Dam levels Projects Outages Growth and Spatial Planning Water cycle Community activities/groups Flood levels Key performance measures/targets and results Live faults (urgent and medium)
EC068	Information publication - Visits to website on specific topic	Number		Topic	For the specific information publication topic, the number of discrete visits to the website page for that particular topic
EC069	Information publication - Enquiries through call centre by topic	Number		Topic	For the specific information publication topic, the number of enquiries through the call centre for that particular topic
EC070	Information publication - In context surveys	Rating		Topic	For the specific information publication topic, the rating derived from an in-context survey on website page for that particular topic. An in-context survey takes the form of a button on the web page that asks a yes/no question such as "Was this information useful?" The rating is an indication of the percentage of respondents that answered yes to the question.
EC071	Legislative requirements to publish information <ul style="list-style-type: none"> Statement of Strategic and Performance expectations Statement of Intent I Asset Management Plan Funding and Pricing Plan Infrastructure Strategy Annual Report Te Mana o te Wai statements Te Mana o te Wai statements of response 	List		Entity	Confirms the Entity has complied with the legislative requirements for the publication of information, which is easily accessible to the community, which includes: <ul style="list-style-type: none"> Statement of Strategic and Performance expectations Statement of Intent I Asset Management Plan Funding and Pricing Plan Infrastructure Strategy Annual Report Te Mana o te Wai statements Te Mana o te Wai statements of response

Measure Code	Performance Measure	Metric	Water Service	Scale	Definition
EC072	Information publication - Community activities/groups/initiatives	List of activities	● ● ●	Activity	<p>The list of active community-based activities/groups/initiatives, the details of which are published and accessible on the Entity's website, that the Entity has in progress that provide an opportunity for communities to be actively involved in the care, restoration and enhancement of the water system, and thereby contribute to enabling Te Mana o te Wai.</p> <p>Examples include groups with a special interest in the preservation or restoration of a particular waterway, and community monitoring of holistic measures for ecosystem health.</p>

Water Service: ● Water ● Wastewater ● Stormwater

Appendix A: Scale definitions

The following table provides the definitions for the scale attribute used for measures. The scale defines the level at which data for a particular measure should be consolidated and reported. Except for measures to be reported at the Entity level, a value should be recorded for each item that makes up a collection, for example, when the scale is Network, a value for each network under the management of the Entity should be reported.

The scale indicates only the level at which the measure needs to be reported. It is recommended that entities collect data at as low a level as is possible and practical that then allows for more detailed analysis of results at a lower level.

Scale Code	Definition
Activity	Relates to activities/groups/initiatives the Entity has underway for communities to get involved in water systems management at a local level
Agency	Results aggregated to the level of an agency with which the Entity has a service level agreement with to enable Inter-agency growth and spatial planning
Catchment	The water catchment area. Used as a proxy for local community or mana whenua group, and may be at a sub-catchment level. Catchment/sub-catchment areas will need to be defined by each Entity
Consent	An individual resource consent held by the Entity
Entity	The four Water Services Entities. At this scale, the entity reports the result achieved throughout the entire region the Entity serves.
Facility	Usually a treatment facility, either a water treatment plant or a wastewater treatment plant.
Leak Management Zone	A defined zone for the management of network water leakage. Would normally equate to a water pressure zone.
Location	Specific locations identified by the Entity for a particular purpose such as Mahinga Kai
Mana Whenua Group	Each community where an Entity has a Te Mana o te Wai relationship with mana whenua that has kaitiaki, i.e. the Entity has received a Te Mana o te Wai statement and

Scale Code	Definition
	has provided a Te Mana o te Wai statement response.
Marae	Used to report on 3-waters infrastructure solutions identified to support a Marae. When a Papakāinga is co-located with a marae data should be recorded against the Marae.
Network	A discrete network for the supply of one of the three water services. A network is usually contiguous and services a defined urban area such as a city or town.
Papakāinga	Used to report on 3-waters infrastructure solutions identified to support a Papakāinga
TLA	A local body entity that can be a City, District or Regional council, or a Unitary Authority
TLA/Agency	A local body entity that can be a City, District or Regional council, or a Unitary Authority or a Government Agency
Topic	A specific topic for which the Entity publishes advisory services or information to communities
Waterway	A waterbody such as a stream, river or lake

Appendix B: Metric definitions

Metric	Definition
%	Percentage or proportion
% (of length, area)	Proportion of length or area
% of stream length	Proportion of overall stream length
% of waterways within the total catchment	Proportion of waterways within the total catchment
\$	NZ dollars
\$/200m3	Dollars per 200 cubic metres of water
\$/annum	Dollars per annum
Count	A count of discrete items within a set
Date	Calendar date
days	Number of days
Days/location	Number of days per location
FTE	Full time equivalent employee
GJ	Gigajoules
GJ/ML	Gigajoules per megalitre
Ha	Hectares
Hours	Hours
hours/year	Hours per year
Index	A non-dimensional rating score that allows for the comparison of disparate networks
km	Kilometres
km2	Square kilometres
kWh	Kilowatt Hour
L/connection/day	Litres per connection per day
L/Person/day	Litres per person per day

Metric	Definition
List	A list of discrete data items
List of activities	A list of activities
List of scenarios	A list of scenarios
m	Metres
m2	Square metres
m3	Cubic metres
m3/km mains/day	Cubic metres per kilometre of network mains per day
m3/year	Cubic metres per year
ML	Megalitres (1 million litres)
ML/day	Megalitres per day
Net Promoter Score	<p>A customer satisfaction rating system based on a survey of customers.</p> <p><i>Net promoter score</i> $= \% \text{ promoters} - \% \text{ detractors}$</p> <p>where:</p> <p>promoters are those customers that give a rating of 9 or 10</p> <p>detractors are those customers that give a rating of 0, 1, 2, 3, 4, 5 or 6.</p> <p>Customers that gave a rating of 7 or 8 are excluded.</p>
No of enquiries	Number of enquiries to the Entity call centre
Number	The result of a count of discrete items
Number/1000 props	Number per 1000 serviced properties

Metric	Definition
Number/100km/year	Number per 100 kilometres of network mains per year
Properties*days	The product of multiplying the number of properties affected by the number of days of a water restriction notice
Rating	The rating achieved through a rating poll, or the score achieved using a structure scoring framework
Rating scale	The rating achieved through a rating poll, or the score achieved using a structure scoring framework including a description of the scoring scale)
Ratio	The quantitative relation between two numbers
Report	A written report documenting a result or set of results
Score	The score achieved using a structure scoring framework
Selection	The selected entry from a discrete list of choices
tCO2-e	Tonnes of carbon dioxide equivalent greenhouse gas emissions
tCO2-e/m3	Tonnes of carbon dioxide equivalent greenhouse gas emissions per cubic metre
tDS	Total dissolved solids
tonne	Metric tonnes
Years	Age in years

Metric	Definition
Yes/No	Answer to a question requiring a simple yes or no

Appendix C: Revised approaches to key performance measurement methodology

Following a literature review of Levels of Service and Performance best practice approaches internationally and from comparative infrastructure intensive sectors within New Zealand, some changes to the approach used to measure and report on some key performance measures are being proposed.

The reasons for this vary but include:

- Changes to approach that result in more meaningful metrics that can be used when comparing results from networks that are disparate based on size, complexity, geography, ambient climate, population density, or any other factor that differentiates the operating environment.
- Adopting proven best practice from other sectors that to date have not been utilised in Levels of Service and Performance measurement and reporting for three waters.

Water Loss

Government has signalled that addressing water loss from supply networks will be a primary issue to be addressed by the four Water Service Entities.

Current approaches to the reporting of water loss have been questioned as to their appropriateness for realistic comparison between disparate water supply networks.

The percentage of real water loss from the networked reticulation systems varies significantly year on year based on changes in demand, is often affected by changes in rainfall and other matters outside the local authorities' control, and the pressure the system is operated at.

Two performance measures regarded as best practice are;

- Current annual real losses (CARL) (reported as litres of water lost/connection/day) when used to compare water loss changes across time in the same network,

$$CARL = \frac{Real\ Losses \times 1000}{Nc \times 365}$$

and,

- Infrastructure Leakage Index (ILI) - a dimensionless measure that classifies water loss levels as very high, high, moderate, or low, to compare loss levels across different networks, based on what is technically (and practically) achievable. ILI

the ratio of Unavoidable Average Real Losses (UARL), to CARL, and is derived as follows:

$$ILI = \frac{CARL}{UARL}$$

where

$$UARL = \left(18 \times \frac{Lm}{Nc} + 0.8 \right) \times \frac{P}{10}$$

Lm = Length of mains(km)

0.8 = water loss in litres per connection per metre of pressure from mains connection to property boundary

Nc = Number of Service Connections

P = Operating pressure of the network (kPa)

when expressed as litres of water lost/connection/day

The determination of ILI is primarily for the purpose of making meaningful comparison of the effective management of water loss between networks, and is in addition to the reporting of the volumetric measures within the water balance calculations.

ILI is also an indicator of the economic viability of investment in water leakage reduction. **Table 2** below shows how the value of ILI relates to the requirement for investment in water loss reduction.

Table 2: International Leakage Performance Categories

ILI Band	International Leakage Performance Category description
A: ILI < 2	Further loss reduction may be uneconomic unless there are shortages; careful analysis needed to identify cost-effective improvement
B: 2 < ILI < 4	Potential for marked improvements; consider pressure management, better active leakage control, better network maintenance
C: 4 < ILI < 8	Poor leakage record; tolerable only if water plentiful & cheap; even then, analyse level & nature of leakage, intensify reduction efforts

D: ILI > 8	Very inefficient use of resources; leakage reduction programs imperative and high priority
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It is important that network reliability and the reporting of service interruptions is expressed as the actual impact customers can expect to experience, not just as a count per route length of network or per 1000 customers, which are arbitrary measures. This then allows for a better understanding of how the performance or failure of the network, including planned interruptions, affects the customer. It also allows for targeted maintenance to those areas where the actual measured level of impact on customers is greatest. An example where incorrect capture and analysis of information can lead to misleading result is where each interruption is only counted as one, irrespective of the scale of the disruption. Using this approach, the disruption to an entire pressure zone would have the same importance as the loss of service to a cul-de-sac. Using an alternative approach the total count of interruptions would still be a by-product of capturing more detailed information about the number of customers affected by a service interruption.

The best example of network reliability monitoring and reporting is that from Electricity Distribution in NZ, where the overall customer experience in terms of service interruption frequency and duration is expressed in the SAIFI and SAIDI indices.

SAIDI is defined as follows:

System Average Interruption Duration Index (SAIDI) gives the average overall duration per year the supply to a customer is interrupted. It is calculated by means of the following formula:

$$SAIDI = \frac{\sum(r_i N_i)}{N_T}$$

where the summation is taken over all supply interruptions; r_i is the restoration time for each incident; N_i is the number of customers affected by each interruption; N_T is the total number of customers in the system for which the index is calculated, and expressed in minutes lost per customer per year. This number is cumulative and indicates the amount of time an average customer can expect to be without service during the year, which can be as the result of a number of interruptions.

SAIFI is defined as follows:

System Average Interruption Frequency Index (SAIFI) corresponds to the average number of times per year the supply of a customer is interrupted. It is calculated by means of the following formula:

$$SAIFI = \frac{\sum(N_i)}{N_T}$$

Network Reliability

and stated as the number of interruptions per customer per year.

Depending upon the granularity of the information recorded for network supply interruptions, the information can be analysed to show how specific parts of the network are performing compared to other parts or the network overall. This then allows the network operator to target maintenance expenditure in the places where tangible improvement in network reliability can be expected.

This approach can be used to measure both the effect on customers of unplanned interruptions, as well as planned system interruptions for maintenance. Recording of the cause of network supply interruptions is also usually used to highlight specific deficiencies in network asset condition and performance, e.g. highlight areas of the network prone to pipe breaks.

Geotagging of the location of network interruptions to networks also allows for the analysis of reliability information for a particular network or part of a network.

A significant impact of moving to the use of SAIDI and SAIFI as network reliability indicators is the increased data collection requirement compared to the current methodology. Effective measurement of SAIFI and SAIDI will require the WSE to determine and maintain records of customer connections to the network, and how those connections relate to isolation points on the network. For individual network interruptions, it will be a requirement to determine the actual number of customer effected by the interruption.

SAIFI and SAIDI measures are used within the Electricity Distribution sector as a key component of price-quality determination and target setting.

Performance measurement that considers Tikanga Māori and Te Ao Māori

The introduction of the co-governance model with Mana Whenua for the Three Waters Entities, and giving effect to Te Mana o Te Wai, will require different ways of considering performance measurement. There will be a need to consider Tikanga Māori (values and practices) and Te Ao Māori (world view) in the design of levels of service and performance measurement that ensures those aspects of the water system of special interest to Māori are measured and reported in a form that is relatable.

Holistic Monitoring

Holistic monitoring approaches are used to measure and report on the health of waterbodies that move outside of the measurement of scientific observations. This approach is based on what is being observed in nature, and directly seeking the input of those interacting with the waterbody. Using this approach provides mana whenua a role in the monitoring of water health, and ensures the attributes of water systems of particular interest to mana whenua are included in the framework.

An excellent example of holistic monitoring is Tangaroa Tohu Mana - Tangaroa Tohu Mauri, a partnership between mana whenua hapū and Napier Port to monitor the health of the marine environment in and around the Ahuriri/Napier area.

Source: Tangaroa Tohu Mana, Tangaroa Tohu Mauri - <https://marineculturalhealth.co.nz>

While some measures can be applied universally across all Entities and in relation to all Iwi/Hapu other will need to be designed and agreed with individual Iwi as part of responding to Te Mana o Te Wai statements and the local context.

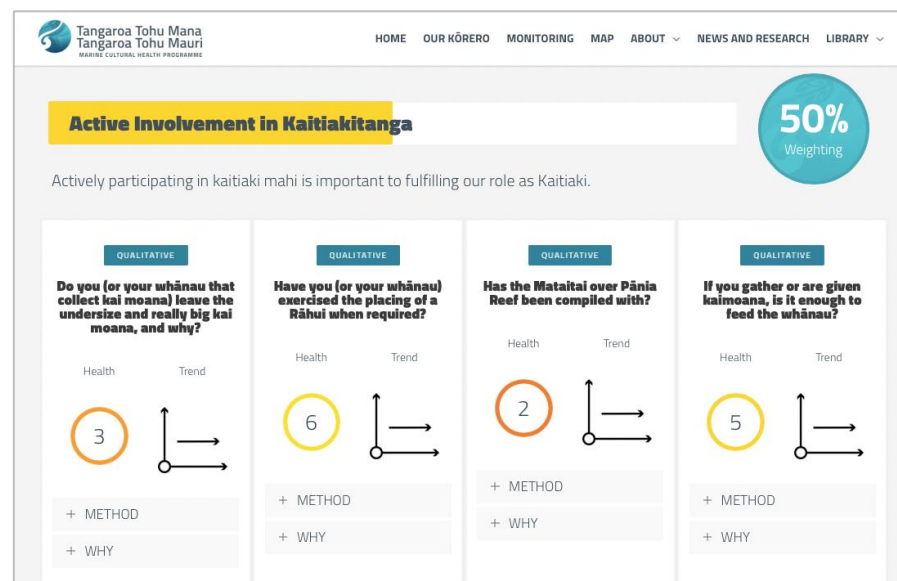


Figure 31: Example of holistic approach to environmental monitoring

Measuring inclusion of Māori in co-governance and decision making

A key aspect of performance measurement for three waters entities in future is in measuring their fulfilment of outcomes for Māori, honouring the rights and interests of Te Tiriti o Waitangi and giving effect to Te Mana o Te Wai. A series of performance measures that reflect this have to be developed. This ranges from compliance with legislative requirements such as responding to Te Mana o Te Wai statements and the requirement for boards to have expertise in relation to the principles of Te Tiriti o Waitangi, to ensuring Iwi/hapu are able to effectively participate in the system for delivering three waters.

Asset Management Maturity

A key function of the Water Services Entities is the effective management of the infrastructure assets owned and operated by the entity and used to provide water services. As such, it is important that Entities demonstrate a high level of Asset Management Maturity, meaning the asset management practices utilised by the Entity in managing their infrastructure portfolio are best practice.

Asset management maturity differs from Levels of Service performance reporting in that it assesses the management and operational approaches the Entity uses to deliver its services, rather than the actual levels of service delivered. While many of the Levels of Service and Performance measures proposed within the framework provide some indication that the Entity is managing its assets effectively, it is recommended that the asset management maturity of Entities is regularly assessed by an independent assessor and against a reputable maturity assessment framework.

Undertaking a regular asset management maturity assessment of Entities will:

- Provide the means to benchmark the asset management practices of Entities against each other, and potentially their peers internationally
- Highlight those areas where Entities need to improve, and provide for the development of a pathway to improvement
- Highlight best practice approaches and technological advances in asset management
- Provide an opportunity for Entities to learn from other organisations

Undertaking a comprehensive asset management maturity review is a large undertaking, and so it is envisaged that this would only be conducted every three or four years, potentially aligned with a quiet period within the Entities 3 year planning cycle. It is envisaged that the high level results of the review would be published with the annual performance reporting to the economic regulator. In intervening years, a high level self-assessment of key asset management maturity areas could be undertaken and reported by the entity, along with the significant initiatives the Entity has to address any shortcomings.



Levels of Service Tables

Tiers 1, 2 and 3 performance measures are summarised in the following tables which show the link to the obligations, focus areas and activity (i.e. water supply, wastewater, stormwater or 3 waters).

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 1	1.01	A. Health and Wellbeing of Water	Healthy Water Ecosystems	% of connected population receiving consented three water services rated Good or better (based on the Regional Council Overall Annual Compliance Consent Rating)	3 waters	ML - added Regional Council information	Regional Council (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 1	1.02	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Have consent conditions been met for rate of take and volume of abstraction? (report at a Network-level)	Water supply	D-EH12	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 1	1.03	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Infrastructure Leakage Index (ILI) (report at a Network-level)	Water supply	D-RE3	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 1	1.04	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Total number of consent enforcement actions (abatement, infringement, enforcement and convictions)	Water supply	ML - added in	Regional Council (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 1	1.05	A. Health and Wellbeing of Water	Healthy Water Ecosystems	The number of dry weather sewerage overflows from sewerage systems, expressed per 1000 sewerage connections to that sewerage system	Wastewater	PM1-retained (WICS 3.30)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 1	1.06	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Total number of consent enforcement actions (abatement, infringement, enforcement and convictions)	Wastewater	ML - added in	Regional Council (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 1	1.07	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Total number of consent enforcement actions (abatement, infringement, enforcement and convictions)	Stormwater	ML - added in	Regional Council (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 1	1.08	B. Health needs of people	Water for Health, Wellbeing and Recreation	Compliance days per year achieving Drinking Water Quality Assurance Rules	Water supply	ML - new added in as missing	Taumata Arowai (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 1	1.09	B. Health needs of people	Water for Health, Wellbeing and Recreation	Compliance days per year drinking water that complies with the Water Services (Drinking Water Standards for New Zealand) Regulations 2022	Water supply	ML - new added in as missing	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report	Current
Tier 1	1.10	B. Health needs of people	Water for Health, Wellbeing and Recreation	Compliance days per year of schemes achieving the Code of Practice for Fluoridation of Drinking-water Supplies in New Zealand, where Entity has been directed by the Director-General Health to fluoridate community water supplies	Water supply	ML - new added in as missing	Ministry of Health	AMPs, SOI, Annual Report	Current
Tier 1	1.11	B. Health needs of people	Effective Infrastructure and Service Delivery	Number of urban service connections that experience an unplanned interruption for longer than eight hours (report at a District-level)	Water supply	D-R8	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 1	1.12	B. Health needs of people	Water for Health, Wellbeing and Recreation	Number of wastewater overflows on private properties attributable to service provider.	Wastewater	W-EH26	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 1	1.13	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	For each flooding event due to a storm, the number of habitable floors affected (Expressed per 1000 properties connected to the stormwater system)	Stormwater	PM1-retained (WICS 4.17)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, Funding and Pricing Plan, Annual Report	Current
Tier 1	1.14	A. Health and Wellbeing of Water	Te Wai Ora	<i>Mātauranga based metric for demonstrating Te Mana o te Wai principles into 3-waters services [requires development of a suitable methodology]</i>	3 waters	<i>ML - added in from Taumata Arowai feedback</i>	<i>Water Services Act (Regulation)</i>	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current needs development
Tier 1	1.15	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Entities have assessed the risks that climate change poses for all 3 waters services outcome areas, including but not limited to; - Water Quality - Fire fighting supply - Flooding - Coastal inundation - Increased sedimentation	3 waters	JAL NH019	MBIE Climate Related Information Disclosures (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current needs development
Tier 1	1.16	C. Wellbeing of communities	Effective Infrastructure and Service Delivery	<i>Entities risk maturity/appetite articulated across all asset and service delivery areas [requires development of a suitable methodology]</i>	3 waters	<i>ML - new added in as missing</i>	<i>Industry practice</i>	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current needs development
Tier 1	1.17	C. Wellbeing of communities	Empowered Communities	<i>Community and Stakeholder participation and decision making measure [requires development of a suitable methodology]</i>	3 waters	<i>ML - new added in as missing</i>	<i>"Consumer Engagement Stocktake" Water Services Act (Regulation)</i>	SOI, Annual Report	Current needs development
Tier 1	1.18	A. Health and Wellbeing of Water	Water for Health, Wellbeing and Recreation	Deviation from the leakage target	Water supply	WICS 1.20	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Future potential
Tier 1	1.19	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Water environmental pollution incidents (category 1 and 2)	Water supply	WICS 1.15	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Future potential
Tier 1	1.20	A. Health and Wellbeing of Water	Healthy Water Ecosystems	<i>% of wastewater discharges that meet the water quality parameters set out in their discharge resource consents</i>	Wastewater	<i>ML - added in from Taumata Arowai feedback</i>	<i>Regional Council (Regulation)</i>	AMPs, SOI, Funding and Pricing Plan, Annual Report	Future potential
Tier 1	1.21	B. Health needs of people	Effective Infrastructure and Service Delivery	<i>Customer Overall Performance Assessment index [requires development of a suitable methodology]</i>	3 waters	WICS x	<i>Potential economic regulator (begin data acquisition for information disclosure)</i>	AMPs, SOI, Funding and Pricing Plan, Annual Report	Future potential
Tier 1	1.22	B. Health needs of people	Integrated Growth and Demand Planning	<i>Sufficient capacity in each scheme in the next 10 years to meet the projected population growth [requires development of a suitable methodology]</i>	3 waters	<i>ML - added in from Taumata Arowai feedback</i>	<i>National Policy Statement for Urban Development</i>	AMPs, SOI, Funding and Pricing Plan, Annual Report	Future potential
Tier 1	1.23	B. Health needs of people	Water for Health, Wellbeing and Recreation	<i>Entity is working towards providing safe drinking water above the minimum requirements [requires development of a suitable methodology]</i>	Water supply	<i>ML - added in from Taumata Arowai feedback</i>	<i>Taumata Arowai (Regulation)</i>	AMPs, SOI, Funding and Pricing Plan, Annual Report	Future potential

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 2	2.01	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Current Annual Real Losses (CARL) (report at a Network-level)	Water supply	D-RE2	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 2	2.02	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Estimated total drinking water network water loss (report at a Network-level)	Water supply	D-RE1	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 2	2.03	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Median residential water consumption (L/day/connection) (report at a Network-level)	Water supply	D-RE4	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 2	2.04	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Number of residential connections with water meters (report at a District-level)	Water supply	D-RE6	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 2	2.05	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Number of hours where the treatment plant processes are fully bypassed	Wastewater	W-EH31	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 2	2.06	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Number of overflows caused by plant failure or equipment damage	Wastewater	W-EH22	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 2	2.07	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Number overflows caused by blockages	Wastewater	W-EH21	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 2	2.08	B. Health needs of people	Water for Health, Wellbeing and Recreation	% of water supply schemes that meet the Water Services Act 2022 requirements regarding Water Safety Plans	Water supply	<i>ML - added in from Taumata Arowai feedback</i>	<i>Taumata Arowai (Regulation)</i>	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 2	2.09	B. Health needs of people	Water for Health, Wellbeing and Recreation	Compliance days per year drinking water that complies with the Drinking Water Aesthetic Values	Water supply	<i>ML - new added in as missing</i>	<i>Taumata Arowai (Regulation)</i>	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 2	2.10	B. Health needs of people	Water for Health, Wellbeing and Recreation	Number of boil water notices	Water supply	WICS 2.41	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 2	2.11	B. Health needs of people	Effective Infrastructure and Service Delivery	Number of unplanned interruptions (report at a District-level)	Water supply	D-R7	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 2	2.12	B. Health needs of people	Water for Health, Wellbeing and Recreation	Proportion of Marae with registered supplies	Water supply	JAL WH012	Water Services Act (Regulation)	AMPs	Current
Tier 2	2.13	B. Health needs of people	Water for Health, Wellbeing and Recreation	The total number of complaints received by the Entity about any of the following: drinking water clarity, drinking water taste, drinking water odour, drinking water pressure or flow, continuity of supply, and the Entity's response to any of these issues expressed per 1000 connections to the networked reticulation system	Water supply	PM4 - retained (WICS 5.38)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 2	2.14	B. Health needs of people	Water for Health, Wellbeing and Recreation	The total number of complaints received by the Entity about any of the following: sewage odour, sewerage system faults, sewerage system blockages, and the Entity's response to issues with its sewerage system, expressed per 1000 connections to the sewerage system	Wastewater	PM4 - retained (WICS 5.40)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 2	2.15	B. Health needs of people	Water for Health, Wellbeing and Recreation	The number of complaints received by the Entity about the performance of its stormwater system, expressed per 1,000 properties connected to the stormwater system	Stormwater	PM4 - retained (WICS 5.42)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 2	2.16	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Water restriction days - Proportion of affected properties (report at a District-level)	Water supply	D-R20	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 2	2.17	A. Health and Wellbeing of Water	Te Wai Ora	Te Mana o te Wai monitoring and assessment is fully integrated into 3-waters monitoring	3 waters	JAL TW025	Water Services Act (Regulation)	AMPs	Current needs development
Tier 2	2.18	B. Health needs of people	Integrated Growth and Demand Planning	<i>Develop suitable technical plans to support sufficient infrastructure to meet projected population growth [requires development of a suitable methodology]</i>	3 waters	ML - added in	<i>National Policy Statement for Urban Development</i>	AMPs	Current needs development
Tier 2	2.19	C. Wellbeing of communities	Empowered Communities	Compliance with legislative requirements to engage: - Te Mana of te Wai statements - Model constitution - Established customer forum - Undertake annual consumer engagement stocktake - Engage on AMP, FPP, and Inf Strategy	3 waters	JAL EC058	Water Services Act (Regulation)	Annual Report	Current needs development
Tier 2	2.20	B. Health needs of people	Effective Infrastructure and Service Delivery	Network Reliability Index – Water Supply (Proportion of good to poor assets) [Requires development of a suitable multi-dimensional reliability index methodology]	Water supply	JAL EI060	Industry practice asset management	AMPs	Future potential
Tier 2	2.21	B. Health needs of people	Effective Infrastructure and Service Delivery	Network Reliability Index – Wastewater (Proportion of good to poor assets) [Requires development of a suitable multi-dimensional reliability index methodology]	Wastewater	JAL EI061	Industry practice asset management	AMPs	Future potential
Tier 2	2.22	B. Health needs of people	Water for Health, Wellbeing and Recreation	Average Residential Wastewater Charge Based on 200 m3/yr	Wastewater	JAL WH027	Potential economic regulator (begin data acquisition for information disclosure)	Funding and Pricing Plan, SOI, Annual Report	Future potential
Tier 2	2.23	B. Health needs of people	Water for Health, Wellbeing and Recreation	The proportion of time that a reference set of beaches are suitable for contact recreation during the summer swimming season (1 November to 30 April)	Stormwater	WICS 4.32	Potential economic regulator (begin data acquisition for information disclosure)	Funding and Pricing Plan, SOI, Annual Report	Future potential

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 2	2.24	B. Health needs of people	Effective Infrastructure and Service Delivery	Network Reliability Index – Stormwater (Proportion of good to poor assets) [Requires development of a suitable multi-dimensional reliability index methodology]	Stormwater	JAL EI062	Industry practice asset management	AMPs	Future potential
Tier 2	2.25	B. Health needs of people	Water for Health, Wellbeing and Recreation	Average Annual Residential Stormwater Charge	Stormwater	JAL WH028	Potential economic regulator (begin data acquisition for information disclosure)	Funding and Pricing Plan, SOI, Annual Report	Future potential
Tier 2	2.26	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Security of supply index (planned level of service)	Water supply	WICS 1.13	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, Funding and Pricing Plan, Annual Report	Future potential
Tier 2	2.27	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Percentage of identified at risk properties with flood exposure information published	Stormwater	JAL NH011	Industry practice	AMPs, Funding and Pricing Plan, Annual Report	Future potential
Tier 2	2.28	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Percentage of identified at risk properties with flood exposure information published	Stormwater	JAL NH011	Industry practice	AMPs, Funding and Pricing Plan, Annual Report	Future potential

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 3	3.01	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Consented rate of take for each abstraction point (report at a Network-level)	Water supply	D-EH13	Taumata Arowai (Regulation)	Registration data submitted to Taumata Arowai	Current
Tier 3	3.02	A. Health and Wellbeing of Water	Healthy Water Ecosystems	If consent conditions have not been met for one or more of the above categories	Water supply	D-EH16	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 3	3.03	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Maximum annual consented volume (report at a Network-level)	Water supply	D-EH15	Taumata Arowai (Regulation)	Registration data submitted to Taumata Arowai	Current
Tier 3	3.04	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Maximum daily consented volume (report at a Network-level)	Water supply	D-EH14	Taumata Arowai (Regulation)	Registration data submitted to Taumata Arowai	Current
Tier 3	3.05	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Number of non-residential connections with water meters (report at a District-level)	Water supply	D-RE7	Taumata Arowai (Regulation)	AMPs, Registration data submitted to Taumata Arowai	Current
Tier 3	3.06	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from sewerage systems measured by the number of abatement notices	Wastewater	PM2 - retained (WICS 3.22)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.07	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from sewerage systems measured by the number of convictions	Wastewater	PM2 - retained (WICS 3.25)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.08	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from sewerage systems measured by the number of enforcement orders	Wastewater	PM2 - retained (WICS 3.24)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.09	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from sewerage systems measured by the number of infringement notices	Wastewater	PM2 - retained (WICS 3.23)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.10	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from Small Waters onsite wastewater system measured by the number of abatement notices	Wastewater	PM2 - amended (WICS 3.26)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.11	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from Small Waters onsite wastewater system measured by the number of convictions	Wastewater	PM2 - amended (WICS 3.29)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.12	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from Small Waters onsite wastewater system measured by the number of enforcement orders	Wastewater	PM2 - amended (WICS 3.28)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.13	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from Small Waters onsite wastewater system measured by the number of infringement notices	Wastewater	PM2 - amended (WICS 3.27)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 3	3.14	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Consent status	Wastewater	W-EH12	Taumata Arowai (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 3	3.15	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Number of companies breaching trade waste consents	Wastewater	W-EH40	Taumata Arowai (Regulation)	AMPs, Registration data submitted to Taumata Arowai	Current
Tier 3	3.16	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Number of times that wastewater overflows were caused by capacity being exceeded in the wastewater network	Wastewater	W-EH23	Taumata Arowai (Regulation)	AMPs, Registration data submitted to Taumata Arowai	Current
Tier 3	3.17	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Number of wastewater overflows caused by capacity exceedance in combined stormwater and wastewater networks	Wastewater	W-EH24	Taumata Arowai (Regulation)	AMPs, Registration data submitted to Taumata Arowai	Current
Tier 3	3.18	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Treatment plant peak wet to average dry weather flow ratio	Wastewater	W-EH36	Taumata Arowai (Regulation)	AMPs, Registration data submitted to Taumata Arowai	Current
Tier 3	3.19	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from the stormwater system, measured by the number of: abatement notices	Stormwater	PM2-retained (WICS 4.26)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.20	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from the stormwater system, measured by the number of: convictions	Stormwater	PM2-retained (WICS 4.29)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.21	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from the stormwater system, measured by the number of: enforcement orders	Stormwater	PM2-retained (WICS 4.28)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.22	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Compliance with the resource consents for discharge from the stormwater system, measured by the number of: infringement notices	Stormwater	PM2-retained (WICS 4.27)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.23	B. Health needs of people	Effective Infrastructure and Service Delivery	Proportion of asset records that have a data confidence grade of Uncertain, Very uncertain or Unknown (NAMS IIMM Manual)	3 waters	JAL EI004	Industry practice asset management	AMPs	Current
Tier 3	3.24	B. Health needs of people	Effective Infrastructure and Service Delivery	Median hours to attend a non-urgent fault (report at a District-level)	Water supply	D-R2	Taumata Arowai (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 3	3.25	B. Health needs of people	Effective Infrastructure and Service Delivery	Median hours to attend an urgent fault (report at a District-level)	Water supply	D-R1	Taumata Arowai (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 3	3.26	B. Health needs of people	Effective Infrastructure and Service Delivery	Median hours to resolve a non-urgent fault (report at a District-level)	Water supply	D-R4	Taumata Arowai (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 3	3.27	B. Health needs of people	Effective Infrastructure and Service Delivery	Median hours to resolve an urgent fault (report at a District-level)	Water supply	D-R3	Taumata Arowai (Regulation)	AMPs, Annual Report, Taumata Arowai registration data	Current
Tier 3	3.28	B. Health needs of people	Effective Infrastructure and Service Delivery	Number of properties below reference level of pressure (report at a District-level)	Water supply	D-R18	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.29	B. Health needs of people	Effective Infrastructure and Service Delivery	Planned interruptions (report at a District-level)	Water supply	D-R5	Taumata Arowai (Regulation)	AMPs, SOI, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 3	3.30	B. Health needs of people	Effective Infrastructure and Service Delivery	Median time (hours) to attend to a fault	Wastewater	W-R1	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.31	B. Health needs of people	Effective Infrastructure and Service Delivery	Median time (hours) to resolve a fault	Wastewater	W-R2	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.32	B. Health needs of people	Effective Infrastructure and Service Delivery	% of response time during storms to close stormwater manholes within three hours	Stormwater	WICS 4.31	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.33	C. Wellbeing of communities	Effective Infrastructure and Service Delivery	% of above-ground assets in poor or very poor condition (report at a District-level)	Water supply	D-R14	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.34	C. Wellbeing of communities	Effective Infrastructure and Service Delivery	% of pipelines in poor or very poor condition (report at a District-level)	Water supply	D-R10	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.35	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Do you have a strategic plan to address future changes in water supply demand?	Water supply	D-RL8	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.36	C. Wellbeing of communities	Empowered Communities	Fire hydrants tested in the previous five years?	Water supply	D-R22	Taumata Arowai (Regulation)	AMPs, Registration data submitted to Taumata Arowai	Current
Tier 3	3.37	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Grid electricity use (report at a District-level)	Water supply	D-RE12	Taumata Arowai (Regulation)	AMPs, Registration data submitted to Taumata Arowai	Current
Tier 3	3.38	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Have you undertaken an assessment to identify critical drinking water assets? (report at a District-level)	Water supply	D-RL1	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.39	C. Wellbeing of communities	Effective Infrastructure and Service Delivery	% of above-ground assets in poor or very poor condition	Wastewater	W-R19	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 3	3.40	C. Wellbeing of communities	Effective Infrastructure and Service Delivery	% of wastewater pipelines in poor or very poor condition	Wastewater	W-R15	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.41	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Disposal of wastewater sludge in year to other routes	Wastewater	W-RE14	Taumata Arowai (Regulation)	AMPs, Funding and Pricing Plan, Annual Report, Taumata Arowai registration data	Current
Tier 3	3.42	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Electricity use (kWh)	Wastewater	W-RE1	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.43	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Have you undertaken an assessment to identify critical wastewater assets	Wastewater	W-RL1	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.44	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Wastewater effluent disposal emissions	Wastewater	W-RE5	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.45	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Wastewater sludge disposal emissions	Wastewater	W-RE7	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.46	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Wastewater sludge treatment emissions	Wastewater	W-RE6	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.47	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Wastewater treatment wetland emissions	Wastewater	W-RE4	Taumata Arowai (Regulation)	AMPs, Taumata Arowai registration data	Current
Tier 3	3.48	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Number of proactive offers made to high flood risk customers of access flood advisory services	Stormwater	JAL NH017	Industry practice	AMPs	Current
Tier 3	3.49	C. Wellbeing of communities	Effective Infrastructure and Service Delivery	The median response time to attend a flooding event, measured from the time that the Entity receives notification to the time that service personnel reach the site	Stormwater	PM3-retained (WICS 4.18)	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, SOI, Funding and Pricing Plan, Annual Report	Current
Tier 3	3.50	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Time to respond - People exposed to flood risk access flood advisory services through a request for service	Stormwater	JAL NH016	Industry practice	AMPs	Current
Tier 3	3.51	C. Wellbeing of communities	Empowered Communities	Customers and communities feel informed about environmental education and protection of assets (private i.e. drains) and (entities i.e. wet wipes) - Customer sentiment survey	3 waters	JAL EC056	"Consumer Engagement Stocktake" Water Services Act (Regulation)	AMPs	Current needs development
Tier 3	3.52	C. Wellbeing of communities	Empowered Communities	Legislative requirements to publish information: - Statement of Strategic and Performance expectations - SOI, AMP, FPP, Inf Strategy, Annual Report - Te Mana o te Wai statements and Te Mana o te Wai statements of response	3 waters	JAL EC071	Water Services Act (Regulation)	AMPs Funding and Pricing Plan, Annual Report	Current needs development
Tier 3	3.53	C. Wellbeing of communities	Integrated Growth and Demand Planning	Proportion of Developer applications returned for further information	3 waters	JAL EC066	Water Services Act (Regulation) Part 10	Annual Report	Current needs development
Tier 3	3.54	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Number of road closures affected per 1000 stormwater urban properties (serviced or contributing funding)	Stormwater	JAL NH027	Industry practice	AMPs, Funding and Pricing Plan, Annual Report	Current needs development

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 3	3.55	A. Health and Wellbeing of Water	Te Wai Ora	Water Literacy (Item 2.1 in CRC Water sensitive cities rating scale)	3 waters	JAL TW001	National Policy Statement for Freshwater Management	AMPs	Future potential
Tier 3	3.56	A. Health and Wellbeing of Water	Te Wai Ora	Connection to Water (Item 2.2 in CRC Water sensitive cities rating scale)	3 waters	JAL TW002	National Policy Statement for Freshwater Management	AMPs	Future potential
Tier 3	3.57	A. Health and Wellbeing of Water	Te Wai Ora	Shared ownership, management and responsibility of water assets (Item 2.3 in CRC Water sensitive cities rating scale)	3 waters	JAL TW003	National Policy Statement for Freshwater Management	AMPs	Future potential
Tier 3	3.58	A. Health and Wellbeing of Water	Healthy Water Ecosystems	% contaminant source discharged to waterways (whole of catchment)(modelling)	Stormwater	JAL HW003	National Policy Statement for Freshwater Management	AMPs	Future potential
Tier 3	3.59	A. Health and Wellbeing of Water	Healthy Water Ecosystems	Waterway erosion index does not exceed the target, requirement to create stream health index system [Requires development of a suitable multi-dimensional reliability index methodology]	Stormwater	JAL HW006	National Policy Statement for Freshwater Management	AMPs	Future potential
Tier 3	3.60	B. Health needs of people	Effective Infrastructure and Service Delivery	Infrastructure Backlog Ratio is within the acceptable benchmark [requires development of a suitable methodology]	3 waters	ML - new added in as missing	Industry practice asset management	AMPs	Future potential
Tier 3	3.61	B. Health needs of people	Water for Health, Wellbeing and Recreation	Target headroom (minimum buffer between supply and demand)	Water supply	JAL WH061	Industry practice asset management	AMPs	Future potential
Tier 3	3.62	B. Health needs of people	Water for Health, Wellbeing and Recreation	Average Residential Water Charge Based on 200 m3/yr	Water supply	JAL WH025	Potential economic regulator (begin data acquisition for information disclosure)	Funding and Pricing Plan, SOI, Annual Report	Future potential
Tier 3	3.63	B. Health needs of people	Water for Health, Wellbeing and Recreation	Average hours on a minimum wage to pay water bill	Water supply	JAL WH026	Potential economic regulator (begin data acquisition for information disclosure)	Funding and Pricing Plan, SOI, Annual Report	Future potential
Tier 3	3.64	B. Health needs of people	Effective Infrastructure and Service Delivery	% of operational and capital investment programmes driven by Inflow and Infiltration control	Wastewater	ML - added industry practice	Industry practice asset management	AMPs	Future potential
Tier 3	3.65	B. Health needs of people	Healthy Water Ecosystems	% unsatisfactory sludge disposal	Wastewater	WICS 3.17	Potential economic regulator (begin data acquisition for information disclosure)	AMPs, Annual Report	Future potential
Tier 3	3.66	B. Health needs of people	Effective Infrastructure and Service Delivery	% of Grade 5 critical assets will be repaired or renewed within 5 years	Stormwater	WICS 4.42	Potential economic regulator (begin data acquisition for information disclosure)	AMPs	Future potential
Tier 3	3.67	B. Health needs of people	Effective Infrastructure and Service Delivery	% of Grade 4 critical assets will be repaired or renewed within 10 years	Stormwater	WICS 4.41	Potential economic regulator (begin data acquisition for information disclosure)	AMPs	Future potential
Tier 3	3.68	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	% of critical pipelines in poor or very poor condition (report at a District-level)	Water supply	ML added in	Industry practice asset management	AMPs	Future potential
Tier 3	3.69	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	% of critical above-ground assets in poor or very poor condition (report at a District-level)	Water supply	ML added in	Industry practice asset management	AMPs	Future potential
Tier 3	3.70	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Wastewater treatment emissions	Wastewater	ML added in	Industry practice	AMPs, Annual Report	Future potential

Tier	Measure ID	Te Mana o te Wai Obligations	Focus Areas	Performance measures	Activity	Measure ref no	Performance measure system specifier (Regulated or Industry Practice)	Reported in Document(s)	Measure status
Tier 3	3.71	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	% of critical pipelines in poor or very poor condition (report at a District-level)	Wastewater	ML added in	Industry practice asset management	AMPs	Future potential
Tier 3	3.72	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	% of critical above-ground assets in poor or very poor condition (report at a District-level)	Wastewater	ML added in	Industry practice asset management	AMPs	Future potential
Tier 3	3.73	C. Wellbeing of communities	Resilience to Climate Change and Natural Hazards	Proportion of properties in the following categories: (vs. Total Population) - Population within flood plains - Population at risk of flooding in various frequency scenarios [100y (1% AEP), 200y (0.5% AEP)] - Flood safety - Population where flood would cause risk to life	Stormwater	JAL NH006	Industry practice	AMPs, Funding and Pricing Plan, Annual Report	Future potential