Nelson Regional Sewerage Business Unit

Discharge Permit Consent Application Review

December 2016

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Nelson Regional Sewerage Business Unit

Discharge Permit Consent Application Review
December 2016

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Nelson Regional Sewerage Business Unit

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December 2016

EXECUTIVE SUMMARY

The Nelson Regional Sewerage Business Unit (NRSBU) has applied for a 20 year term resource consent to discharge untreated sewage during emergency events from four wastewater pump station (PS) sites.

Fluent Solutions have been engaged to review the NRSBU application and to consider the extent to which NRSBU infrastructure and preparedness meets best practice in NZ with regard to minimising and mitigating the effects of emergency discharges from the four pump stations.

This review found that the Nelson Regional Sewerage Business Unit (NRSBU) has generally complied with best practice measured against NZ and Australian technical guidelines and practice by other infrastructure providers in NZ. Examples of how minimum requirements have been achieved include:

- Systems in place to deal with emergencies.
- Pump Stations have been designed which are consistent with industry practice.
- Asset Strategic Plans and Instructure Plans identifies issues and future improvements.
- Undertake regular inspections and maintenance.
- Investigations programme for Inflow and Infiltration reduction by Tasman District Council (TDC) and Nelson City Council (NCC).
- Recognised the need for additional wet weather flow pumping.

The consequences of not permitting emergency discharges at the pump stations would potentially be far worse to public health where sewage discharges could occur on streets and on private property. The risk of sewage overflows on the streets and at properties is considered a higher public risk than overflow from a controlled outlet away from inhabited areas.

It is concluded that the NRBSU has reasonably complied with best practice measured against NZ and Australian technical guidelines and practice by most other infrastructure providers in NZ. NRSBU have implemented Maintenance Plans and Emergency Procedures, which are intended to mitigate the effects of an overflow incident and comply with the RMA. Ongoing I/I reduction works continue and are an important long term strategy to reduce future overflows.

Whilst the consent application has assessed the environmental effects of the emergency discharges to a reasonable degree, and showed that such effects were in reality minor, it is evident that more information needs to be placed before the public on the practical and financial constraints faced by NCC and TDC in preventing these occasional discharges. It is also important to identify the measures already implemented by the NRSBU and the two Councils to minimise, and mitigate the effects of these discharges, particularly with regard to improving public confidence in the NRSBU system.

1.0 Introduction

1.1 Background

The Nelson Regional Sewerage Business Unit (NRSBU) has applied for a 20 year term resource consent to discharge untreated sewage during emergency events from four wastewater pump station (PS) sites. The application includes discharges from Whakatu PS, Saxton Rd PS, Songer St PS and Airport PS, which are located within the NCC boundary around the Waimea inlet. Refer to Figure 1 below for plan showing the locations of the four pump stations.

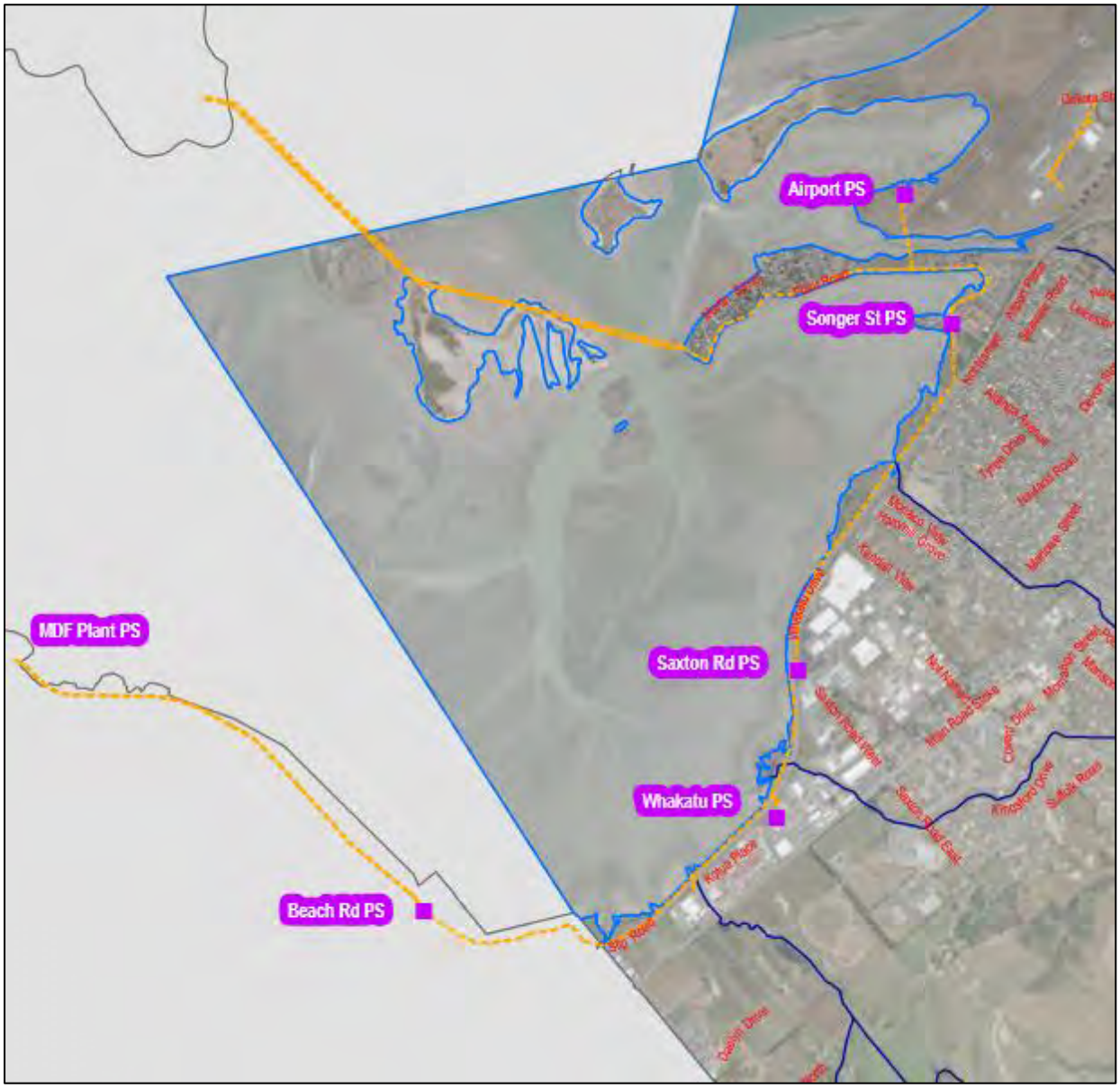


Figure 1: Location Plan showing the NRSBU Pump Stations (Source NCC)

Fluent Solutions, whose staff were designers of the 2009 – 11 Regional Scheme upgrade, have been engaged to review the NRSBU application and to consider the extent to which NRSBU infrastructure and preparedness meets best practice in NZ with regard to minimising and mitigating the effects of emergency discharges from the four pump stations.

As introductory background to this review, Table 1.1 presents the extent to which emergency discharges have occurred over the past five years.

Table 1.1: Summary of Emergency Discharge occurrences 2011 – 2015

	Pump Stations				Annual Total
	Wakatu	Saxton Road	Songer Street	Airport	
2010/11	0	6	0	0	6
2011/12	0	2	0	2	4
2012/13	0	2	0	2	4
2013/14	0	0	0	0	0
2014/15	0	2	1	0	3

Approximately 2/3 of these events were due to extreme wet weather events, the others due to operational malfunction. Some were very short duration.

1.2 Review Methodology

This report focuses on the key findings of, and recommendations arising from a review of technical guidelines and of emergency discharge practices by Local Authorities throughout NZ. The purpose of this review is focused on whether NRSBU has sufficiently undertaken all practicable steps and procedures to justify the granting of a resource consent for occasional emergency pump station discharges. This is a high level review and is not intended as a comprehensive assessment of the matter.

The approach to the review has involved:

- Review the extent to which the NRSBU Pump Stations have been designed in accordance with best practice adopted by other Local Authorities in NZ and internationally.
- Review the recent and future NRSBU Upgrades.
- Brief overview of practices by and constraints faced by Local Authorities around NZ.
- Review how other Local Authorities deal with discharge permits for emergency overflows.
- Identify how some other countries are dealing with emergency overflows.
- Review of technical guidelines related to discharge of untreated sewage.
- Identify any information that may help strengthen the NRSBU Consent Application – if applicable.
- Report on the review findings.

No assessment has been undertaken on the processes and procedures for the consent application as these appear to have been adequately addressed to satisfy the requirements of the Resource Management Act (RMA).

2.0 The Consent Application

The NRSBU consent application was Publicly Notified in October 2016. 33 of a total 35 submitters were opposed to the application, with all expressing concern about the effects of untreated sewage discharges on public health and to local tourism.

While recognising the importance of these submitters' concerns, the concerns need to be taken in context to the actual effects of the emergency discharges and the practical financial constraints involved in preventing these occasional discharges.

The consent application was supported by an Assessment of Environmental Effects (AEE) by the Cawthron Institute that assessed the potential effects of emergency discharges on the sub-tidal and inter-tidal habitats into which the discharges occur.

The Cawthron AEE "***Assessment of Environmental Effects from Accidental Wastewater Overflow On Waimea Estuary Receiving Environment, Report No. 2588***" by O Johnston, Cawthron Institute dated November 2014, presents the following key findings:

- "While it is understood that the assimilative capacity (volume and dilution) calculations used in this report are simplistic, they do provide a reasonable context with which to evaluate the potential environmental effects of accidental wastewater discharge. Therefore, long lasting adverse effects to the ecology from such an event is considered unlikely and any impact will be reduced with each subsequent tidal exchange."
- "The required contaminant dilution to reach guideline levels was low (1:48) and the available tidal dilution was still reasonably high (even after 24-hrs of overflow; 1:856)."
- "Peak flow dilution calculations do not consider dilution from rainwater (which in another study had increased the level of dilution 4-10 fold)."
- "The frequency of discharge events is low and unlikely."
- "Accidental discharges are not usually simultaneous (i.e. all sites are not discharging at once)."
- "The water residence time in the Waimea Estuary is short (0.6-11.6 days), with massive tidal exchange, in the order of 30-50 billion litres. Therefore, assuming all the sites are not discharging simultaneously, it is unlikely that any measurable concentrations of the described wastewater parameters will remain after reasonable tidal mixing (over 1-2 tidal cycles). This is with the exception of some moderately persistent edge effects, where tidal circulation is limited (e.g. the high tidal zone)."

- "Calculations in Johnston (2014) show that a range of contaminants, including nutrients, metals and suspended solids in the estuarine waters (adjacent to the discharge site) would all be within ANZECC (2000) 95% LoP (Level of Protection) with a 1:48 level of dilution, which is likely to be achievable in 1–2 tidal cycles after the discharge has ceased."
- "Using the entire NRSBU data, BOD in the wastewater should all be within ANZECC (2000) 95% LoP with a 1:48 level of dilution."

Consultation was held with the Department of Conservation, Public Health Services, Ngati Kui, Forest & Bird and Fish & Game, following which their approvals and concerns were obtained and then included with the consent application.

Whilst the consent application assessed the environmental effects of the emergency discharges to a reasonable degree, and showed that such effects were in reality minor, it is evident that more information needs to be placed before the public on the practical and financial constraints faced by NCC and TDC in preventing these occasional discharges. It is also important to identify the measures already implemented by the NRSBU and the two Councils to minimise, and mitigate the effects of these discharges, particularly with regard to improving public confidence in the NRSBU system.

3.0 Pump Station Design – NZ/Australian Practice

3.1 Technical Guidelines

Design standards or codes applying to infrastructure (including pump station) design in NZ and Australia are principally governed by two documents:

- NZS4404:2010 Land Development and Subdivision Infrastructure, and
- Water Services of Australia (WSA) Codes.

NZS4404:2010 governs most aspects of infrastructure design in NZ, but is strangely quiet in regard to pump station design and the way in which emergency discharges should be managed, or prevented.

The Water Services Association of Australia document WSA 04-2005 Sewage Pumping Station Code of Australia – 2005, does however address the matter reasonably comprehensively. While this document is intended for pump stations with flowrates up to 200l/s and pipes sizes up to a maximum 375mm in diameter, parameters which are generally less than those for the NRSBU pump stations, the WSA code is nonetheless considered appropriate to matters regarding emergency discharges.

In Section 5.6.4 "Emergency Relief System" Page 85 of WSA 04-2005-2.1, overflow provisions are considered necessary, as follows:

> *"Pumping stations shall be provided with an emergency relief system (ERS) which shall overflow from the inlet MH wherever practicable or alternatively, from the emergency storage (Refer to Standard Drawing SPS–1404). The ERS shall*

incorporate an overflow pipe, a weir point, and baffle arrangement and be designed to retain gross solids/trash, scum and gas within the sewer system. The emergency relief weir shall be so located as to provide the maximum storage time prior to overflow whilst also ensuring that the emergency relief operates before surcharge occurs elsewhere in the system. Where the weir is formed by the outlet (invert) of a rising pipe, it shall be fitted with a gas check/flap. The overflow pipe shall be designed with cover requirements as specified for normal sewers (Refer to WSA 02) and, in order of preference, shall discharge to a Water Agency nominated discharge point such as:
(1) An adjacent sewer catchment.
(2) A formed stormwater drain e.g. pipe, channel etc.
(3) An unformed drain, creek or watercourse.
(4) A harbour or river.
(5) Tidal waters."

In Section 1.3.1 "Pumping Philosophy" Page 47, the Code identifies design considerations for mitigating overflows:

"(f) The risk of overflow from a pumping station has to be managed, often when the need for the station is greatest (e.g. in a storm event when power supply failures have potential to cause overflows). Regulators have become aware of these shortcomings and increasingly demand higher standards of storage capability, stand-by power generation, remote monitoring and telemetry control. Regulators expect better contingency planning and higher levels of environmental compliance"

NRSBU pump station design and management practices meet the foregoing guidelines very well and in this regard can be considered to be reasonably meeting standards of Best Practice.

3.2 Practice in New Zealand

In NZ, there are 78 Local Authorities, comprising of Regional, City, District and Unitary Councils, who have all developed their own infrastructure design codes. In most cases these design codes are principally the same with just minor differences, many being based on the aforementioned guidelines. There is, however, no single commonly used document, providing guidelines for pump station design in NZ.

For this review then, Council infrastructure standards have been obtained from 19 randomly selected local authorities in NZ, from which six key design and management components (Table 3.1) have been studied.

Table 3.1: Key Design and Management Components to Mitigate Overflow

Key Design Component	Purpose
Standby Pump	A second pump in the event the issues arise in the first pump.
Wet Weather Flow Capacity	A pump is required to meet the wet weather flow.
Emergency Storage	Typically 8 hours Average Dry Weather Flow of storage is required, but this can also be considered too high for larger pump stations.
Emergency Power Generation	Used in the event of a power outage to keep pumps running.
Overflow Facility	Necessary to prevent back up in the reticulation system.
Emergency Plan	Procedures to control and mitigate the effects of an overflow incident.

The factors in Table 3.1 are widely adopted for pump station design in NZ and internationally. Most Local Authorities will identify that unplanned discharges are ideally avoided, but will typically specify the need for an overflow outlet. It is generally considered, that the risk of sewage overflow on the streets and at properties is considered a higher public risk than overflow from a controlled outlet away from inhabited areas.

Appendix A presents a tabulated chart showing a comparison of how the 19 selected Local Authorities address the six design and management factors above. Key conclusions from this exercise include:

- **Requirements for a Standby Pump** – all LAs have specified the need for a second duty pump, which is required to mitigate pump outage events.
- **Requirements for Wet Weather Flow** Capacity – all LAs have specified the need for wet weather flow pumping capacity to deal with increased flows in the network, typically caused by inflow and infiltration issues. In many cases, the wet weather pump is a larger pump, which is in addition to the normal duty pump. The provision of wet weather pumping capacity does not, however generally, cater for very extreme wet weather events, when emergency discharges can occur.
- **Provisions for Emergency Storage Volume** – Generally for most LAs, the requirement for emergency storage is sized to either 4 or 6 hours times the ADWF. Only one LA had specified the requirement for emergency storage to be sized for 24 hours times ADWF. No LA stated any requirement to consider any emergency storage for wet weather flows. Only one LA, specified that for larger pump stations, alternative options other than storage should be considered to deal with overflows i.e. emergency power. Storage was specified more to accommodate maintenance activities and power outage, rather than wet weather flow storage.
- **Provisions for Emergency Power Generation** – Only two LAs had identified the requirement for emergency power generation to mitigate the risk of power outages and the alternative need for emergency storage.

- **Provisions for Overflow Facility** – 6 LAs had specified the need for overflow provisions from the wet well, but this does not mean that others also made such provision.
- **Emergency Plan** – Only one LA identified the need for an emergency plan to deal with emergency overflows. Even though nearly all engineering requirements are silent on the requirement for emergency plans, in reality, all LAs would likely have a system in place to deal with emergencies.

4.0 Review of NRSBU Pumping Stations

This section now looks at how NRSBU design and management practices compare to practice around NZ. In this regard NRSBU fares well, except in regard to the volume of emergency storage provided. Here the large size of the pump stations and the magnitude of storm flows effectively mean that large reservoirs or chambers would need to be constructed to store excess flows, something that for the most part is not practically feasible given site space constraints at each pump station – not to mention the high cost of such work.

Rather, NRSBU has taken appropriate steps to minimise the occurrence of overflows through the installation of permanent standby generation facilities and the provision of standby wet weather pump capacity at Saxton, Airport and Songer Street PS. In addition I/I reduction work is ongoing in both NCC and TDC, and further Scheme upgrades are planned in the future.

To further contextualise the constraints faced at the larger Saxton, Songer and Airport pump stations in providing emergency storage, compared to smaller pump stations, it is noted that 8 hours ADWF emergency storage volume of 50 to 100m^3 might typically be required for a "small" pump station (albeit still at high cost). However for a larger pump station like Songer St, a storage volume of around 1300m^3 would be required. This is a significant sized and costly structure. That required for Saxton and Airport would be much larger again.

In summary, Table 4.1 shows how each of the four NRSBU pump stations in the consent application comply with the foregoing key design and management components. The emergency storage has been calculated based on present day flows, which would have increased since the pump station was designed.

Table 4.1: Review of NRSBU PS for the Application

Pump Station	Standby Pump	Wet weather Flow pump	Emergency Storage in hrs	Emergency Power	Overflow Provision	Emergency Plan
Saxton Road PS	Yes	Yes	2.8	Yes	Yes	Yes
Airport PS	Yes	Yes	1	Yes	Yes	Yes
Songer Street PS	Yes	Yes	0.5	Yes	Yes	Yes
Whakatu PS	Yes	**No**	Unknown	**No**	Yes	Yes

Importantly, the NRSBU has been progressively working on upgrades to the Regional Scheme to reduce emergency discharges. The planning for future upgrade work on the NRSBU Scheme is therefore another important strategy in regard to mitigating future overflow events.

Looking to the future, it is noted that from the NRSBU Long Term Strategy Review 2008, the planned upgrade works were split in to two stages. The Stage 1 upgrade allowed a deferment of further work for approximately 8-10 years, or beyond, before the Stage 2 works were required. The Stage 1 Upgrade works completed in 2011 involved the upgrade of Beach Rd PS, Saxton Rd PS, Songer Rd PS, Airport PS and construction of a duplicate main between Monaco Peninsula and Bells Island WWTP.

The Stage 1 works also included the installation of new wet weather pumps and emergency generators to address the immediate capacity issues at both Beach Road and Saxton Road PS's. A new larger capacity pump station was installed at Songer Street with two wet weather flow pumps and the provision to increase the pump capacity, including emergency power generator. An emergency generator was installed at Airport PS.

Stage 2 would involve a new pipeline around the Waimea inlet, with the option still open which could change the flow direction of the existing network, where half of the system would be reversed to flow clockwise to Bells Island WWTP.

Currently, the capacities of the main pump stations are constrained by the capacity of the pipelines into which the pump stations discharge. The Stage 2 future upgrade involves duplicating some pipelines to realise the pumping capacity of the pump stations.

5.0 Emergency Overflow Discharges

5.1 Practice in NZ

Preventing emergency discharges from pump stations and or sewer reticulation is something that affects all Local Authorities. Many take the position that as long as reasonable measures are taken to prevent overflows, then the rare occasions on which discharges occur are covered by the emergency provisions of the RMA. For this reason many Authorities do not have consents for emergency discharges.

Emergency wastewater overflow discharges occur by most, if not in all Local Authority regions. As an example, the following local authorities have been identified as having emergency overflows, and their position is as noted:

- Dunedin City Council – who are currently applying for discharge permit to the Otago Regional Council. On discussion with DCC they have recently applied for a new resource consent and commissioned a similar supporting report which reviews the assessment on receiving waters.
- Waitaki District Council – overflows typically occur annually, where no existing discharge permits have been identified.

- Central Otago District Council – they have no existing discharge permit, where a large overflow has recently occurred.
- Queenstown Lakes District Council – periodic overflows occur into Lake Wakatipu; no discharge permits are held.
- Watercare (Auckland) – information was obtained from the Watercare website that show that overflows occur on an annual basis. A 35 year term discharge permit was obtained in 2015, which was non-notified.
- Wellington Water – information was obtained from the Wellington Water website identifying overflows as occurring.

To further expand on this the position of Dunedin CC and Watercare are considered in more depth below. In Appendix B, further information is provided for untreated wastewater discharges by Watercare and Wellington Water.

5.1.1 Dunedin City Council Long Term Plan 2015/16 – 2024/25

The extract below was taken from the Dunedin City Council Long Term Plan 2015/16 – 2024/25, which identifies the overflows.

<u>Section 1 – Major Issues and Strategies</u>

"The Council currently has 13 foul sewer overflows that are known to discharge to the environment during rainfall events. The volume and frequency of overflow is variable with extent of the rainfall event, but in the 12 months prior to August 2014 there were a total of 58 events recorded, with volume of discharge ranging from 0.2m^3 to 4,500m^3. For reference, an Olympic-sized swimming pool holds approximately 2,500m^3. Overflows during such events are diluted by the infiltration of groundwater and inflow of stormwater. However, the overflow is still contaminated with sewage."

5.1.2 Watercare Services Limited – Asset Management Plan 2016 to 2036

The extract below was taken from the Watercare Services Limited – Asset Management Plan 2016 to 2036.

"110 overflow structures that discharge diluted wastewater to the Waitemata Harbour during heavy rainfall, 50 of which discharge more than 50 times per year."

"Watercare's Network Discharge Consent (NDC) was granted by Auckland Council in June 2014. The NDC authorises wet weather overflows, related to network capacity, of no more than two times per year on average per engineered overflow point (EOP). This effectively sets the definition of wastewater capacity across the region. Dry weather overflows, due to capacity constraints, are not authorised under the NDC and must be avoided. The NDC also authorises Watercare to exceed two overflows per year per EOP as a best practicable option (BPO). This gives Watercare, in collaboration with Auckland Council, the ability to assess individual EOP's and agree a higher overflow frequency if appropriate. The NDC includes a process to make the assessment in this regard."

5.2 Water New Zealand 2013-2014 Nation Performance Review

In the Water New Zealand 2013-2014 National Performance Review, in Section 4.1.2 Wastewater Complaints shows Table 13 *Summary statistics for wastewater complaints.* Figure 2 below shows the extracted Table 13, where a median value of 1 is indicated for Pump Station overflow or odours occur across NZ. This indicates that an overflow event occurs by more than half of the local authorities in NZ.

4.1.2 WASTEWATER COMPLAINTS

Table 13: Summary statistics for wastewater complaints

Complaint statistics	WWTP overflow or odours [WWS5a]	Sewer odours [WWS5b]	Pump station overflow or odours [WWS5c]	Sewerage system faults [WWS5d]	Sewerage system blockages [WWS5e]
Median	1	6	1	33	36
Upper quartile	0	1	0	5	15
Maximum	254	699	33	7101	841
Minimum	0	0	0	0	0
Lower quartile	3	14	4	92	76

Figure 2: Table 13 extracted from Water NZ 2012-2013 National Performance Review

Refer to Appendix C for the Water New Zealand 2013-2014 National Performance Review and a document produced between a number of local authorities about standardising how to record overflow incidents.

6.0 Overseas Practice

To conclude this review a brief look is taken at practices in some major cities around the world. This shows that significant cost can be incurred, for arguably marginal benefit.

In the 1990's, the Federal Environmental protection Agency (EPA) in United States (US) identified the urgent need to prevent the overflow of untreated sewage during significant rainfall events. The EPA enforced cities to comply with the long term control plan aimed at ensuring all discharges are treated up to 99% before it is discharged into any waterbodies. For many years, large cities in the US have implemented the construction of large diameter storage tunnels to mitigate the overflows. However, critics have argued that these tunnels are expensive, under utilised and cost millions in operation and maintenance costs for the pump stations.

With ever growing population, combined with the expansion of impermeable surfaces such as roads and driveways, all which has contributed to a challenging situation for infrastructure providers around the world. The chronic issue has led to the increase in stormwater flows entering the wastewater network during significant rainfall, resulting in overflows.

Table 6.1 below identifies some of the overflow storage tunnels implemented by large cities around the world, which are designed to mitigate overflows.

Table 6.1: Emergency Overflow Storage Tunnels

Country	City	Tunnel Diameter (maximum depth if known)	Tunnel Length	Construction	Approximate Cost
United Kingdom	London	7.2m (70m)	25km	Completion expected 2023	£4.2 billion
United Kingdom	Belfast	4m (30m)	10km	Completed 2015	£160 million
United States	Indiana	0.6 – 2.7m	10km	Completion expected 2023	US$150m
United States	Indianapolis	5m	14km	Construction commenced 2016	US$400 million

The population in these large cities is obviously significantly greater than in Nelson, but the major constraint is typically the same, which is available land. Tunnels provide the option to go underground, but at significant cost. This does not imply that tunnels are an option for NRSBU to mitigate overflows, but the alternative options can be limited.

In the US, the realisation of the significant costs involved to construct deep large tunnels, has led to investigating green alternatives. Green space considers vegetation, soil to dispose of rainwater. However, the effectiveness has yet to be proven and involves the need to create open spaces. The complexity of purchasing existing commercial and public spaces in cities for green space can prove more difficult and take more time.

7.0 Review and Conclusion

The challenges faced by Local Authorities can vary and be very different. Wastewater systems have evolved over time, where in old towns and cities, the system has been inherited and naturally extended. For some Local Authorities, they are fortunate to have alternative emergency options to overflow discharge on to available land, which equally are not void of the issues to the receiving environment.

Local authorities have to balance the cost of infrastructure to the population served, against the effects of discharges to the environment. In NZ the expenditure of significant capital for infrastructure that is rarely utilised, is usually avoided. Affordability by the communities affected by occasional emergency discharges is a universal issue throughout NZ. In this regard NRSBU can be seen as striking an appropriate balance relating to staged upgrading of the Regional Scheme, to manage expenditure and the associated impact to rate payers.

It is concluded that the NRBSU has reasonably complied with best practice measured against NZ and Australian technical guidelines and practice by most other infrastructure

providers in NZ. NRSBU have implemented Maintenance Plans and Emergency Procedures, which are intended to mitigate the effects of an overflow incident and comply with the RMA. Ongoing I/I reduction works continue and are an important long term strategy to reduce future overflows.

Whilst the consent application has assessed the environmental effects of the emergency discharges to a reasonable degree, and showed that such effects were in reality minor, it is evident that more information needs to be placed before the public on the practical and financial constraints faced by NCC and TDC in preventing these occasional discharges. It is also important to identify the measures already implemented by the NRSBU and the two Councils to minimise, and mitigate the effects of these discharges, particularly with regard to improving public confidence in the NRSBU system.

APPENDIX A

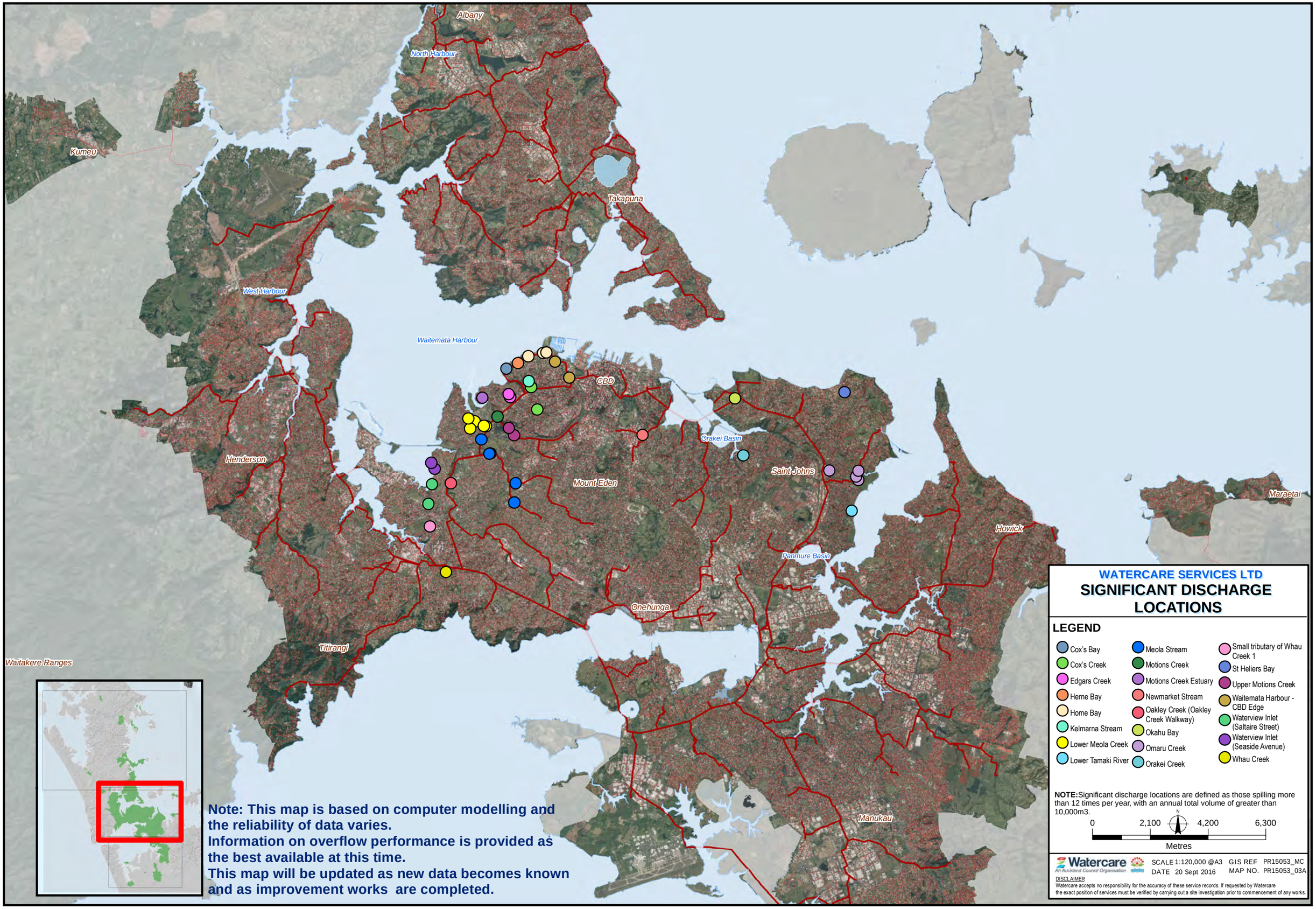
Comparison of Pump Station Design Factors by local authorities in NZ

Review of Infrastructure Design Standards from 19 Local Authorities (LA) and Council Controlled Organisation (CCO) in NZ

	Engineering Standard Reference	Standby Pump	Wet Weather Pump	Storage	Emergency Power	Overflow Outlet	Overflow occurrence
South Island							
Central Otago District Council	Central Otago District Council Addendum to NZS 4404:2004 July 2008	☐	☐	☒	☐	☐	☒
Christchurch City Council	Sewage Pumping Station Design Specification 2005	☐	☐	☒	☐	☒	☒
Dunedin City Council	Dunedin Code of Subdivision and Development 2010	☐	☐	☐	☐	☐	☒
Nelson City Council	Nelson City Council Land Development Manual 2010	☒	☐	☒	☒	☐	☒
Queenstown Lakes District Council	Land Development and Subdivision Code of Practice 2015	☐	☐	☐	☐	☐	☐
Southland District Council	Subdivision, Land Use and Development Bylaws 2012	☒	☐	☒	☐	☒	☒
Tasman District Council	Tasman District Council Engineering Standards and Policies 2013	☐	☐	☐	☐	☐	☒
Waimakariri District Council	Engineering Code of Practice 2009	☒	☐	☒	☒	☐	☐
North Island							
Far North District Council	Engineering Standards & Guidelines 2004 - revised March 2009	☒	☐	☒	☐	☐	☐
Hamilton City Council	Infrastructure Technical Specification Section 5 2015	☐	☐	☒	☐	☐	☐
Napier City Council	Code of Practice for Subdivision and Land Development 2015	☒	☒	☒	☐	☐	☐
New Plymouth District Council	NPDC and STDC Land Development and Subdivision Infrastructure Standard - Local Amendment	☒	☒	☒	☐	☒	☐
Palmerston North City Council	Engineering Standards for Land Developments 2007	☐	☐	☐	☐	☐	☐
South Taranaki District Council	NPDC and STDC Land Development and Subdivision Infrastructure Standard - Local Amendment	☒	☒	☒	☐	☒	☐
Waipa District Council	Waipa District Development and Subdivision Manual 2012	☒	☒	☒	☐	☒	☐
Watercare	Water and Wastewater Code of Practice for Land development and subdivision	☐	☒	☒	☐	☐	Over 50 times a year
Whangarei District Council	Standard Operating Procedure for Environmental Engineering Standards 2010	☒	☐	☒	☐	☒	☐
Wellington Water	2012 Code of Practice Part D Wastewater and Stormwater	☒	☒	☒	☐	☒	☒
Western Bay of Plenty	2009 Development Code	☐	☐	☐	☐	☐	☐

APPENDIX B

Information regarding Discharge of Untreated Wastewater obtained from Watercare and Wellington Water


Albany
North Harbour
Kumeu
Takapuna
West Harbour
Waitemata Harbour
CBD
Orakei Basin
Henderson
Saint Johns
Mount Eden
Maraetai
Howick
Panmure Basin
Onehunga
Titirangi
Waitakere Ranges
Manukau
WATERCARE SERVICES LTD
SIGNIFICANT DISCHARGE LOCATIONS
LEGEND
Cox's Bay
Cox's Creek
Edgars Creek
Herne Bay
Home Bay
Kelmarna Stream
Lower Meola Creek
Lower Tamaki River
Meola Stream
Motions Creek
Motions Creek Estuary
Newmarket Stream
Oakley Creek (Oakley Creek Walkway)
Okahu Bay
Omaru Creek
Orakei Creek
Small tributary of Whau Creek 1
St Heliers Bay
Upper Motions Creek
Waitemata Harbour - CBD Edge
Waterview Inlet (Saltaire Street)
Waterview Inlet (Seaside Avenue)
Whau Creek
NOTE: Significant discharge locations are defined as those spilling more than 12 times per year, with an annual total volume of greater than 10,000m3.
0
2,100
4,200
6,300
Metres
Watercare
An Auckland Council Organisation
SCALE 1:120,000 @A3
DATE 20 Sept 2016
GIS REF PR15053_MC
MAP NO. PR15053_03A
DISCLAIMER
Watercare accepts no responsibility for the accuracy of these service records. If requested by Watercare the exact position of services must be verified by carrying out a site investigation prior to commencement of any works.
Note: This map is based on computer modelling and the reliability of data varies.
Information on overflow performance is provided as the best available at this time.
This map will be updated as new data becomes known and as improvement works are completed.

Last updated:
7:16p.m., 23 November 2016

Earthquake updates

There are currently fewer car parks available in the city centre, so try to carpool , use public transport, or bike or walk into the city.

Stay safe and don't go into cordoned-off areas. For updates on closures and changes to Council services, see City outages and closures, read our latest news release, and check Facebook and Twitter. If you have questions about evacuations, building access or other earthquake related issues, read our FAQs - Information after the November 2016 earthquake.

Make sure you are prepared for an emergency by updating your survival items and getaway kit . Rainwater tanks are currently out of stock at our Service Centre and we are not accepting any pre-order requests at the moment. Here are other suppliers .

For the most current information on the recent earthquakes, visit WREMO . For information specific to your suburb, see the Civil Defence Emergency Map .

About sewage discharges into the ocean

Information about what the Council is doing to monitor and protect the ocean from sewage discharges.

Sewage discharges into the ocean from the Moa Point plant occur approximately 1.8km from shore. It only happens during heavy rainfalls when sometimes the amount of sewage coming to the plant exceeds the capacity for the secondary stage of the treatment process.

Discharge Map (45KB PDF)

Environmental effects

In 2003, Wellington City Council commissioned the Cawthron Institute to investigate the potential environmental effects of these occasional mixed discharges. The study concluded that these discharges posed minimal risk to public health, shellfish gathering and recreational activities.

In general, Regional Public Health has the following recommendations:

- Do not swim near urban areas for 48 hours after heavy rains, due to the potential health effects of contaminated urban stormwater.
- Do not gather shellfish for consumption at any time from coastal locations near urban areas.

Resource consents

On 11 May 2009, Wellington City Council received consent under the Resource Management Act for these occasional discharges.

Consent only applies when the quantity of wastewater arriving at the Moa Point Treatment Plant exceeds 3,000 litres per second (that is, the plant's capacity for the secondary stage of treatment).

The consent expires on 11 May 2034 when the overall resource consent for discharges from the ocean outfall pipe will expire. At that time, all aspects of the ocean outfall pipe discharges will be reviewed and a new consent sought.

Reporting and monitoring

Under the terms of the consent, the Council must monitor and record the details of any mixed discharge from the Moa Point plant and make these available to the public.

As well as making the information available online, the Council also posts notification signs - one at the Dorrie Leslie boat ramp, four along Lyall Bay beach and one at Tarakena Bay. These signs explain the location and nature of the discharge and the potential risk to public health from bathing or collecting shellfish in the vicinity. These signs remain in place for at least 48 hours after the discharge ends.

Coastal water quality improvements

The Council spends over $20 million annually on improving water quality in the inner harbour and along the south coast. In the past few years the Council has:

- extended the network which delivers sewage to Moa Point treatment plant
- reduced sewage overflows
- closed the sewage outfall near Owhiro Bay.

Future plans

The Council is investigating options to further improve the city's sewerage system and dispose of sewage in an economical, environmentally friendly way. These options include:

- increasing the treatment capacity of the Moa Point Treatment Plant
- increasing storage within the sewerage system to reduce peak flows
- carrying out more targeted inflow and infiltration studies.

Related links

- Beaches and Coast
- Cawthron
- Coasts and Estuaries - Greater Wellington Regional Council
- Summary of Investigations for Moa Point Interim Consent Application (69KB PDF)

APPENDIX C

Water New Zealand Nation Performance Review
And
Submission Analysis – Sewerage and the Treatment
and the Disposal of Sewage

National Performance Review

2013-14

www.waternz.org.nz

water NEW ZEALAND

The New Zealand Water & Wastes Association Waiora Aotearoa

FURTHER INFORMATION ON THIS REPORT IS AVAILABLE FROM:

Water New Zealand
PO Box 1316, Wellington
Phone: (04) 495 0899
Website: www.waternz.org.nz

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Contents

List of Figures

List of Tables

Foreword

The 3 Waters assets which Councils in New Zealand manage have a replacement value which exceeds $45 billion. It is important for the economic performance and health of the whole country that they do this job as well as they can.

It is with pleasure that I present the results of the 2013/14 3 Waters National Performance Review. This Water New Zealand survey report is designed to assist Councils in the management of these 3 Waters assets by benchmarking their performance against that of other councils in New Zealand. For the first time we have also benchmarked their performance against international benchmarks.

The document benchmarks the performance of the 31 Councils who participated. It also reports for the first time the collated results of Council performance against the new Department of Internal Affairs Non-Financial Reporting Measure Rules.

The report was prepared for Water New Zealand by staff member Lesley Smith with assistance from Nick Walmsley. Miles Wyatt from Aecom audited the figures provided by Councils.

Every year we strive to make improvements in this report. If Councils or readers believe there are areas where improvements can be made then we'd like to hear from you.

John Pfahlert
Chief Executive Officer, Water New Zealand

Executive Summary

Water New Zealand's National Performance Review (NPR) is an annual review of water, wastewater and stormwater services. The NPR collates performance metrics on assets, financial management, customer service levels and a range of social and environmental criteria.

The objectives of the report are to provide comparative performance information on water, wastewater and stormwater service delivery to assist:

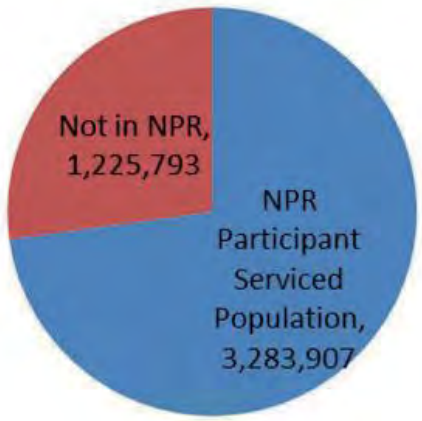
- Service managers identify opportunities for improvement, fast track developments through the learning of others and celebrate areas of good performance.
- Decision makers access information on the status and trends of the 3 waters provision.

Participation in the NPR is voluntary and demonstrates a proactive approach to progressive performance improvement. 31 participants providing services to over 70% of New Zealand's population have provided data to the 2013-14 NPR. Participation has steadily increased since the reports inception in 2007-08 when eight councils participated in a pilot.

Participants include a mix of Regional Councils, Territorial Local Authorities and Council Controlled Organisations, hereafter referred to as NPR participants. In 2013-14 NPR participant costs totalled over two billion dollars. Collectively NPR participants manage a combined asset base of over 21 billion dollars consisting of:

- Water assets of $8,292,000,000
- Wastewater assets of $9,806,000,000
- Stormwater assets of $3,178,000,000

Figure 1: New Zealand population covered by the 2013-14 NPR



Ongoing investment in these assets is significant. Collectively expenditure on operations and capital was $561,960,000 and $917,500,000 respectively. Over 1 billion dollars in revenue was generated to help finance these services. The magnitude of these investments underscores the importance of having efficiently managed assets.

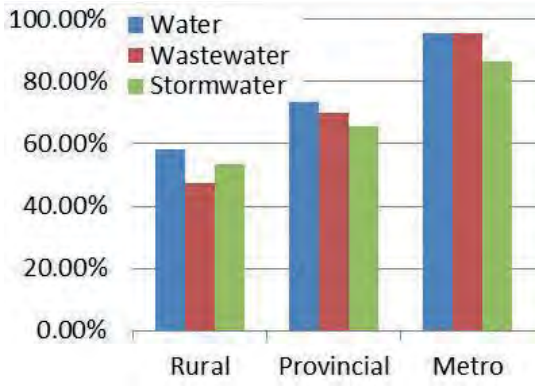
To this end the NPR provides a comparative analysis of how providers perform in relation to each other and comparable international benchmarks. A summary of key observations is outlined here.

VARIATIONS ACROSS METROPOLITAN AND RURAL SECTORS ARE LARGE.

The number of residential properties provided with water, wastewater potable services by NPR participants in the rural sector is around half of their metropolitan counterparts.

Revenue variations are also large. Watercare had 2013-14 revenue of $400,093,300, roughly 400 times higher than Wairoa's total revenue of $1,070,423. Metropolitan sector participants had median annual revenue that was over four times higher than their rural counterparts.

Figure 2: Average service coverage

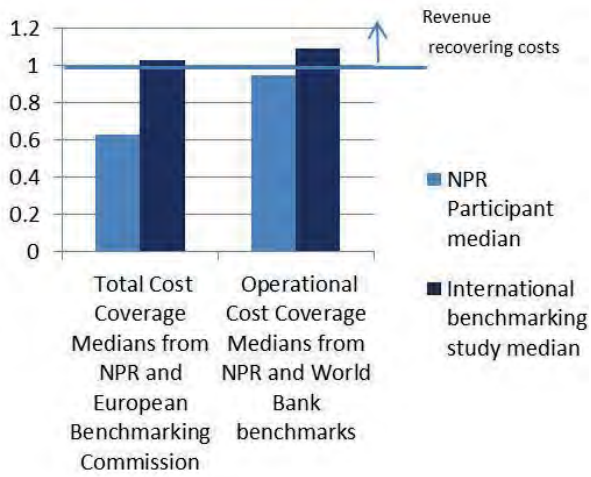


REVENUE DOES NOT APPEAR TO COVER COST FOR MOST PARTICIPANTS.

The economic sustainability of NPR participants ranks low against international benchmarks when compared using cost coverage ratios, a metric that relates revenue to expenditure. In basic terms an economically sustainable entity will have revenues that cover total costs by a ratio of 1 or more.

NPR participants had a median total cost coverage ratio of 0.64, significantly lower than the median total cost coverage ratio of European Benchmarking Participants of 1.03 (Co-operation, 2013). Operational cost coverage was also lower than international benchmarks, with a median of 0.95 amongst NPR participants compared with a median of 1.09 for over 1000 utilities participating in a benchmarking exercise run by The World Bank (Danilenko, 2014).

Figure 3: Median cost coverage of NPR and international benchmark participants



Cost coverage ratios reflect actual expenditure by utilities. The economic sustainability of participants would appear lower if budgeted expenditure was used, as on average NPR participants expenditure in 2013-14 was only 68% of that budgeted.

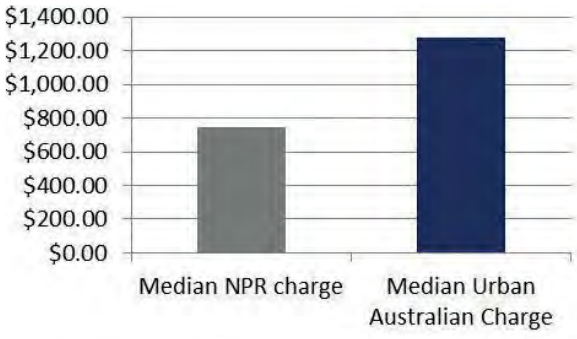
Stormwater systems generally have lower revenue to cost ratios than water and wastewater systems. Four participants do not generate any revenue directly associated with their stormwater systems. For four others developer contributions constituted the majority of their 2013-14 revenue stream.

MEDIAN RESIDENTIAL WATER AND WASTEWATER CHARGES AMONGST NPR PARTICIPANTS ARE NEARLY HALF THOSE IN URBAN AUSTRALIA.

In 2013-14 the median NPR participant charge was $742 for 200m^3 of water and wastewater services. This was just over half the $1,280.79 median charge for residential water and wastewater in urban Australia in 2012-13 (National Water Commission, 2014).

Median water and wastewater charges include participants who reported no charges associated with water or wastewater service delivery. Two authorities reported no targeted water charge, and three had no charges for wastewater. Targeted charges were even less common for stormwater with nearly half (14 of 29) NPR participants having no targeted stormwater charge.

Figure 4: Median residential water and wastewater charges for a connection using 200m^3

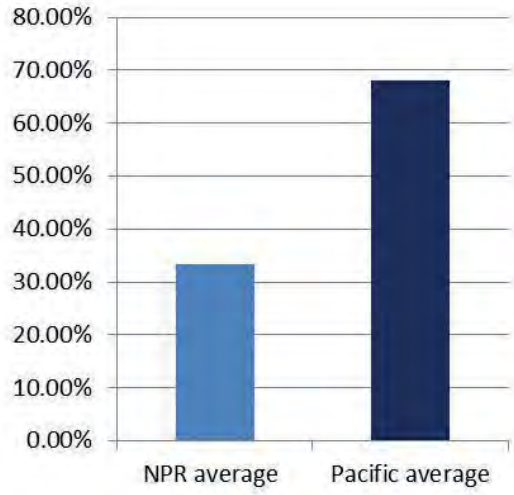


METERING IS COMMON PRACTICE IN NON-RESIDENTIAL PROPERTIES HOWEVER IS NOT YET WIDE SPREAD AMONGST RESIDENTIAL PROPERTIES.

On average 94% of non-residential properties were metered, but only 29% of residential properties, with average metering coverage of 33% across all participants. This is lower than Pacific Island participants in a Pacific Water and Waste Association benchmarking exercise who had average metering coverage of 68% (Thiadens, 2013).

Despite low metering coverage 13 NPR participants reported using some form of residential usage based water charging. For twelve participants this included a combination of fixed and user based charges, and for Watercare charging for water was 100% usage based. Two participants also reported using tiered water charging regimes that penalised high water usage.

Figure 5: Average number of metering connections



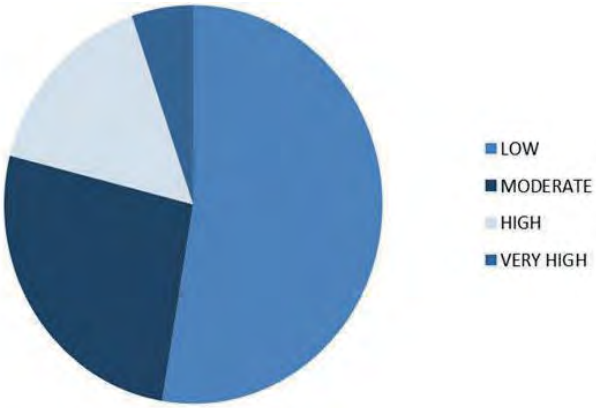
WATER LOSS UNDERSTANDING AND VOLUMES HAVE ROOM FOR IMPROVEMENT.

Water loss efficiency assessments are not universally employed. Current annual real loss (measured in litres/connection/day) is the water loss efficiency metric most widely reported, however over a third of participants had no data for this metric. Total water loss has been more commonly recorded with over 90% of participants having data.

Where water loss efficiency assessments have been undertaken these generally indicated room to improve water loss. Of the 19 participants who had assessed water loss efficiency using the Infrastructure Leakage Index, four had "high" or "very high" water losses.

Median current annual real losses of NPR participants were 161 litres/service connection/day. This value was twice as high as participants in an urban Australian benchmarking study who had median annual real losses of 79 litres/service connection/day (National Water Commission, 2014).

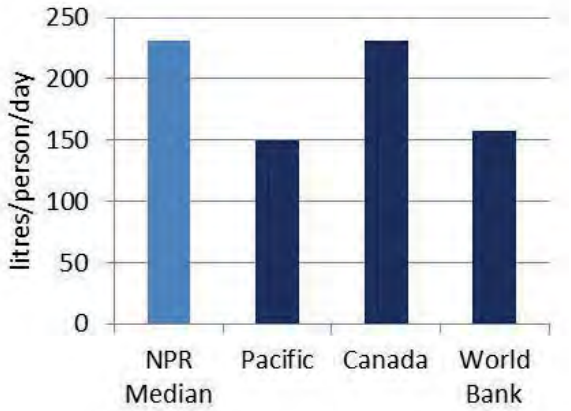
Figure 6: Participants water loss efficiency rankings using the Infrastructure Leakage Index



RESIDENTIAL WATER USE IS HIGH RELATIVE TO MOST INTERNATIONAL BENCHMARKS.

231 litres/population/day was the median residential water use of NPR participant customers. This is higher than median residential water use volumes reported in Pacific Island (Thiadens, 2013), and World Bank benchmarking exercises (The International Benchmarking Network for Water and Sanitation Utilities (IBNET), 2015) and on par with Canadian benchmarking (AECOM, 2013).

Figure 7: Median residential water consumption

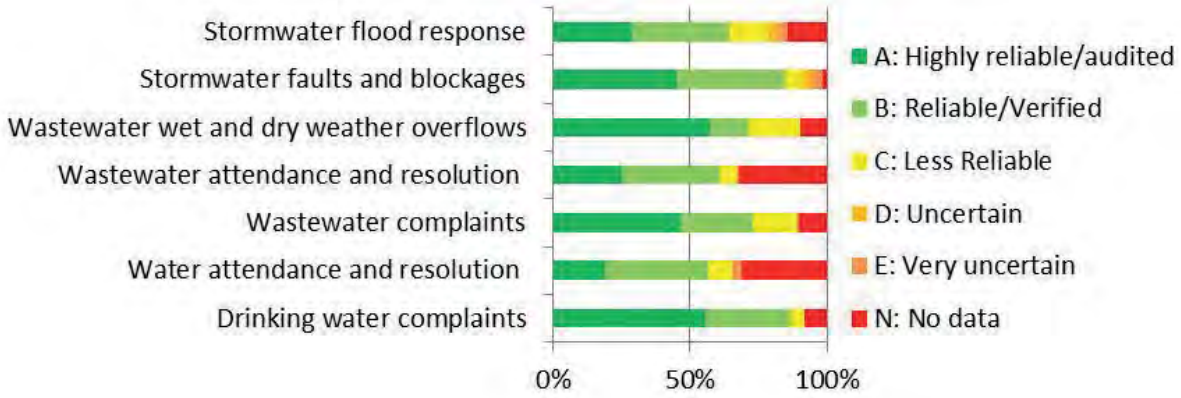


CUSTOMER SERVICE LEVEL INFORMATION IS NOT ALWAYS AVAILABLE OR CONSISTENTLY RECORDED.

Non-Financial Performance Measure Regulations 2013 (Department of Internal Affairs, 2014) have introduced performance measures. This will require local authorities to complete reporting across a range of customer service related indicators for the first time in 2015/16 annual reports. A number of authorities reported no data on these metrics.

Attendance and resolution times had the least data available, with over one quarter of participants having no data. Recording of response times and interruption data was less wide spread in rural sector participants.

Figure 8: Confidence Grading of Non-Financial Performance Measures



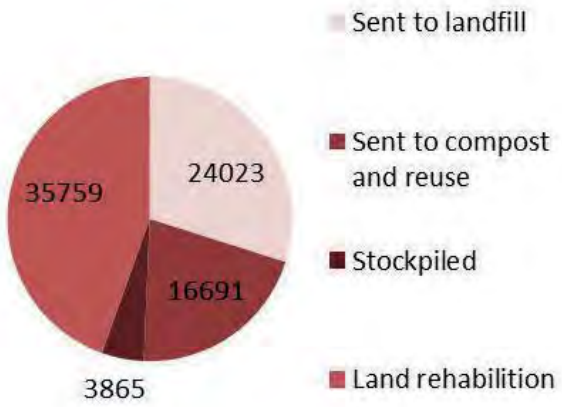
Complaints per head of population were higher for NPR participants than similar Canadian and European benchmarks. This may result from complaint definitions, which for a number of NPR participants included service requests.

WASTEWATER SLUDGES ARE BEING BENEFICIALLY REUSED BUT THERE IS ROOM FOR FURTHER IMPROVEMENT.

Beneficial uses of wastewater sludges included agricultural products and land rehabilitation.

Approximately one third of reported wastewater volumes went to landfill, and the remainder were stockpiled in sludge lagoons or on site at wastewater treatment plants.

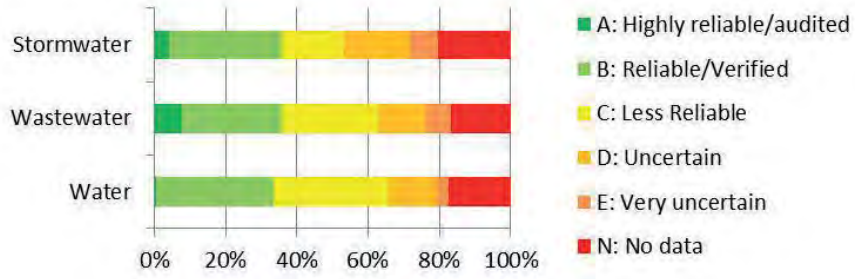
Figure 9: Wastewater sludge disposal routes by volume (tonnes of dry sludge per year)



CONFIDENCE IN PIPELINE CONDITION IS GENERALLY LOW.

Confidence in over half of pipeline condition grading data was categorised between "less reliable" and "no data confidence" categories.

Figure 10: Confidence Grading's of Asset Condition Data



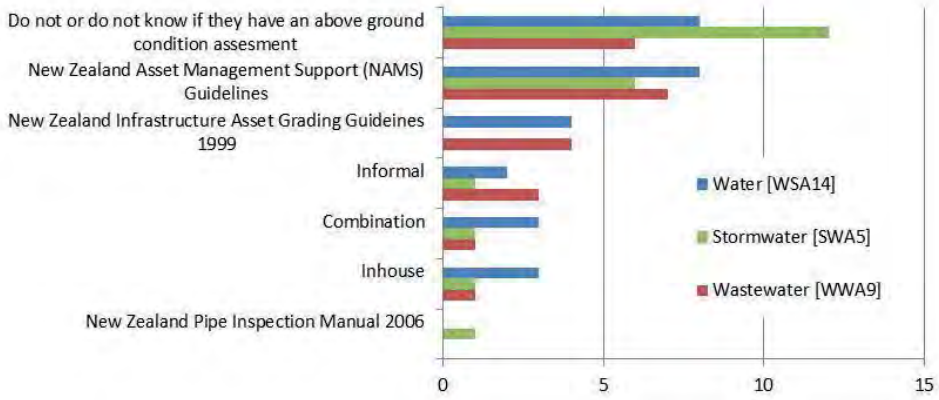
Data confidence was higher for average water pipe age. The median age of water pipes amongst NPR participants was similar to European benchmarking participants (Co-operation, 2013), with median ages of 34 and 36 years respectively.

ASSET ASSESSMENT METHODOLOGIES VARY ACROSS PARTICIPANTS.

A variety of above ground asset assessment methodologies were used by participants. New Zealand Asset Management Support (NAMS) guidelines were the most commonly applied and used for 45% of above ground assessments.

The use of CCTV to assess storm-water and wastewater assets also varied. Some participants had assessed up to 90% of their network, while four authorities had completed no CCTV assessments.

Figure 11: Protocols used for above ground condition assessments



1. Introduction

1.1 NPR Report participants

Water New Zealand is a national, independent not for profit membership organisation representing water professionals and organisations. Water New Zealand members responsible for the supply of water, wastewater and stormwater services have been invited to participate in the NPR by providing data and contributing to costs associated with the report's production.

The regions in which participants operate all have unique climates, geography and income, all of which influence the performance of delivery of water, wastewater and stormwater services (collectively referred to as the 3 waters). To facilitate comparison across regions of similar populations NPR participants have been categorised into the following sectors:

- Metropolitan: populations exceeding 90,000
- Provincial: populations between 20,000 and 90,000
- Rural: populations under 20,000

For a full list of 2013-14 NPR participants and their classifications see Appendix I. The number of participants and distinguishing characteristics of each sector is shown in Table 1.

Table 1: Characteristics of different council classifications used in the NPR

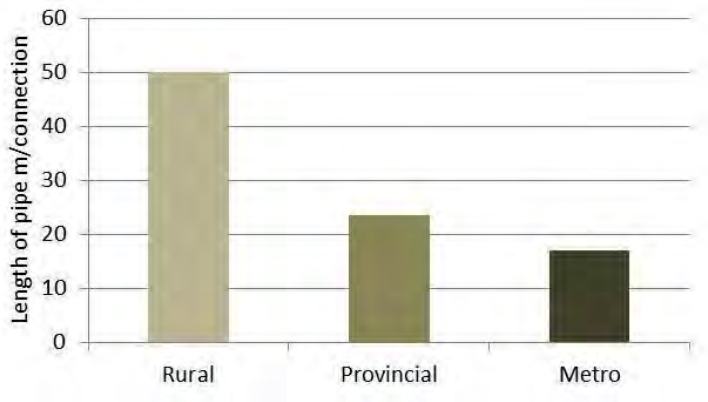
Participation	Total	Rural	Provincial	Metro
Number of NPR participants	31	11	12	8
Total Population served by each sector (CB2)	3,283,907	125,656	651,443	2,506,808
Properties (CB7)	1,373,292	71,838	305,032	996,422
Total length of pipe (km) across the three waters (WSA1+WWA1+SWA1)	64,321	6,294	15,266	42,760
Population density (Properties/Ha) (CB1/CB7)	0.08	0.01	0.08	0.89

Population based sector categories have been adopted from definitions developed by Local Government New Zealand in their 3 waters project (Castalia Strategic Advisors, 2014). Other determinants of performance exist, but are not as easy to quantify. For example, when examining the challenges of funding water and roads the Auditor General separates regions into three groups; prosperous and growing places, prosperous or growing places and poor or declining places (Office of the Auditor General, 2014).

Population density varies significantly across the three sector groupings and has a notable influence on a number of metrics. Differences in pipe length per connection and revenue illustrate the magnitude of these differences.

On average rural sector participants are required to service nearly three times the length of pipe to supply a single connection as their metropolitan counterparts.

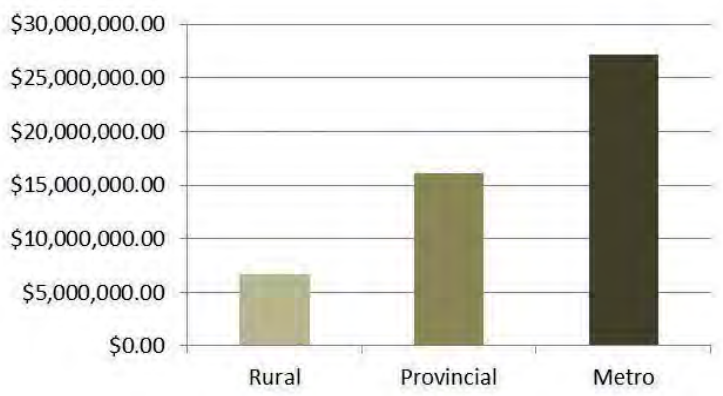
Figure 12: Length of pipe (m) per connection for NPR sector groups



Equation 1: (WSA1+WWA1+SWA1)/CB7

The median revenue of rural sector participants was less than a quarter of their metropolitan counterparts.

Figure 13: Median 3 waters revenue for NPR sector groups



Equation 2: Median (WSf+WWF4+SWF3)

The challenges of servicing relatively longer pipe lengths with relatively lower revenue provide context when assessing relative performance across metropolitan and rural sectors.

1.2 International comparisons

International benchmarks have been included in the 2013-14 NPR. Reporting data has been drawn from the most recent publically available benchmarking studies authored in English. Each of these benchmarks uses difference performance indicators. Where indicators from these studies can be aligned with NPR indicators they have been included in the report.

Table 2: International benchmarking studies referenced in the 2013-14 NPR

Benchmarking Initiative	Reporting year	Participating utilities
Canadian National Water and Wastewater Benchmarking Initiative (AECOM, 2013)	2011 calendar year	43 Canadian utilities
Pacific Water and Wastes Association Utilities Benchmarking (Thiadens, 2013)	2011-12 financial year	24 water utilities in the Pacific region
European Benchmarking Co-operation (Co-operation, 2013)	2013	40 participants from 18 countries across Europe and three utilities from Japan, Singapore and the USA
National Water Commission, National Performance Report: Urban utilities (National Water Commission, 2014)	2012-13 financial year	81 utilities supplying urban water services across all Australian states and territories
The International Benchmarking Network for Water and Sanitation Utilities Blue Book 2014 (The International Benchmarking Network for Water and Sanitation Utilities (IBNET), 2015)	2011 calendar year	4400 utilities from 135 countries

1.3 Alignment with other performance reporting initiatives

Two business improvement initiatives have recently been introduced to improve the information base of 3 waters assets in New Zealand; Local Government New Zealand's (LGNZ) – National Information Framework (Castalia Strategic Advisors, 2014) and the Department of Internal affairs (DIA) Non-Financial performance measure rules 2013 (Department of Internal Affairs, 2014).

While the scope and the intent of these initiatives varies from the NPR a number of performance indicators are the same. Water New Zealand has been actively engaging with both LGNZ and DIA to align performance measurement definitions across each of these initiatives. To reduce the reporting burden on authorities we will continue this collaboration with LGA and DIA to streamline future reporting requirements.

THE LGNZ 3 WATERS FRAMEWORK

LGNZ 3 Waters Project - National Information Framework constructed a set of performance indicators, used as the basis for a report exploring the issues facing delivery of New Zealand's water wastewater and stormwater services. The associated report provides a comprehensive overview of investment, governance and capability challenges facing the sector. The NPR does not provide commentary on these issues; interested readers are encouraged to read the associated LGNZ report (Castalia Strategic Advisors, 2014).

THE DIA NON-FINANCIAL PERFORMANCE MEASURE RULES

The 2013/14 NPR is aligned with requirements of the DIA Non-Financial Performance Measure Rules (The Rules). A list of DIA reporting measures and the corresponding NPR performance metrics are outlined in Appendix II.

The Rules came into force on 30th July 2014. Local authorities are required to incorporate performance measures outlined in these rules in the development of their 2015-2025 long-term plans. DIA performance measures will be reported for the first time in the 2015/2016 annual reports.

Participants are encouraged to utilise NPR data collection templates to fulfil mandatory DIA requirements (Department of Internal Affairs, 2014). DIA and other relevant authorities are encouraged to use the NPR to assess performance against these metrics.

1.4 How to utilise benchmarks for continuous improvement

Benchmarking is a proven instrument for improving performance through identification and adaptation of leading practices. Benchmarking for continuous improvement is a cyclical process that consists of two consecutive steps: performance assessment and performance improvement.

The NPR provides participants with a performance assessment. Participants are encouraged to capitalise on the time and cost committed to data provision by utilising the NPR to implement performance improvements. Areas of relative high and low performance have been supplied to participants as an additional accompaniment to this report. Participants are encouraged to use this as follows:

IMPROVE ON LOW PERFORMING AREAS

Consider areas of low performance. Is the level of service acceptable to the community? Are there likely to be opportunities to improve? Where a performance gap is identified contact high performing utilities. They may have information on how their good performance was achieved that could be adapted to new situations. Water New Zealand is able to facilitate contact between participants wishing to share information on performance improvement opportunities.

CELEBRATE HIGH PERFORMING AREAS

In areas of high performance participants are encouraged to celebrate and share best practice information with their peers. Water New Zealand encourages participants to:

- Celebrate areas of high performance with customers, through annual reports or corporate newsletters etc.
- Showcase areas where best practice has been achieved by presenting case studies through the Water New Zealand Journal and Annual Conference.
- Use performance information to inform service level agreements with stakeholders.

1.5 Interpreting information in the National Performance Report

1.5.1 CONFIDENCE LEVEL OF COUNCIL DATA

NPR accuracy is limited by participant's data availability and their ability to consistently interpret indicators. Councils have rated the confidence level of each of the indicators reported in the NPR which has been included in the report to indicate where the accuracy of information is likely to be low.

Not all participants have data available for every indicator. Where data has not been made available participants have not been included. Where multiple participants do not have data on an indicator, or data confidence is low, the following colour coding has been used to illustrate the proportion of responses in each data confidence category.

Figure 14: Colour coding of data confidence levels

Table 3: Data confidence ratings used by NPR participants

Rating	Description	Processes	Asset Data
A	Highly reliable/ Audited	Strictly formal process for collecting and analysing data. Process is documented and always followed by all staff. Process is recognised by industry as best method of assessment.	Very high level of data confidence. Data is believed to be 95-100% complete and + or - 5% accurate. Regular data audits verify high level of accuracy in data received.
B	Reliable/ Verified	Strong process to collect data. May not be fully documented but usually undertaken by most staff.	Good level of data confidence. Data is believed to be 80-95% complete and + or - 10% to 15% accurate. Some minor data extrapolation or assumptions has been applied. Occasional data audits verify reasonable level of confidence.
C	Less Reliable	Process to collect data established. May not be fully documented but usually undertaken by most staff.	Average level of data confidence. Data is believed to be 50-80% complete and + or - 15 to 20% accurate. Some data extrapolation has been applied based on supported assumptions. Occasional data audits verify reasonable level of confidence.
D	Uncertain	Semi formal process usually followed. Poor documentation. Process to collect data followed about half the time.	Not sure of data confidence, or data confidence is good for some data, but most of dataset is based on extrapolation of incomplete data set with unsupported assumptions.
E	Very uncertain	Ad hoc procedures to collect data. Minimal or no process documentation. Process followed occasionally.	Very low data confidence. Data based on very large unsupported assumptions, cursory inspection and analysis. Data may have been developed by extrapolation from small, unverified data sets.
N	No data	No process exists to collect data.	No data available. *Please note* that 'no data available' is different to collecting a legitimate data value of zero (0), where the data confidence could potentially be very high.

1.5.2 VERIFICATION AUDIT

To provide meaningful benchmarks it is essential that data is comparable across utilities. To this end auditors are appointed to review the data quality of participant responses and identify inconsistencies in reporting.

AECOM have completed the 2013-14 audits. They have conducted desk top reviews of all data supplied to check:

- Interpretation and compliance with the definitions/guidance documentation
- Methodologies and calculations used in arriving at the data provided
- Validity of background assumptions, if any, that have been made
- Identification of discrepancies with previous years returns and across participating organisations

In addition AECOM also conducted on site audits with 20% of participants. On site audits have included a cross section of first time and returning participants from rural, provincial and metropolitan sectors. The audits provide participants an opportunity to review data collection methodologies with an asset manager with experience in benchmarking. They also assist in validating that guideline definitions have been consistently applied across participants.

1.5.3 INTERPRETING NEW ZEALAND PERFORMANCE USING NPR DATA

At the time of publication 3 waters delivery in New Zealand is spread across 66 entities; 12 city councils, 54 district councils, Auckland Council, Watercare (Auckland Council controlled water and sewer provider) and Wellington Water.

Wellington Water resulted from a merger in September 2014 of the 3 waters services of Greater Wellington Regional Council, Capacity Infrastructure services, Wellington City Council, Hutt City Council, Porirua City Council and Upper Hutt City Council. These bodies were operating as separate service entities at the time of NPR production and accordingly are listed separately in the report.

Watercare provides water and wastewater services to the Auckland region. They are a council organisation, wholly owned by the Auckland Council. Auckland Council maintains direct operations of the Auckland regions storm water network. Data in the report uses the identifier "Auckland" to refer to stormwater services provided by Auckland Council and "Watercare" to water and wastewater services provided by the councils water and wastewater organisation.

31 of New Zealand's 66 3 waters service provider entities have participated in the 2013-14 NPR. Accordingly the NPR cannot be considered representative of the performance of all of New Zealand 3 waters services. The availability of financial and human resources and the commitment to continual improvement required for NPR participation may correlate with good performance. Accordingly trends in the NPR may reflect higher performance than exist across the sector overall.

1.5.4 ACCESSING INFORMATION PROVIDED IN THE NPR

Information in the NPR has been drawn from a set of 160 indicators shown in APPENDIX III: NPR requested data fields. The indicators reported on are listed in legend, table entries and equations throughout the report to provide participants with a reference for any further analysis required.

Definition guidelines for each NPR indicator are available on the Water New Zealand website (Water New Zealand, 2015). Data sets used in the reports production are available to participants on request to Water New Zealand.

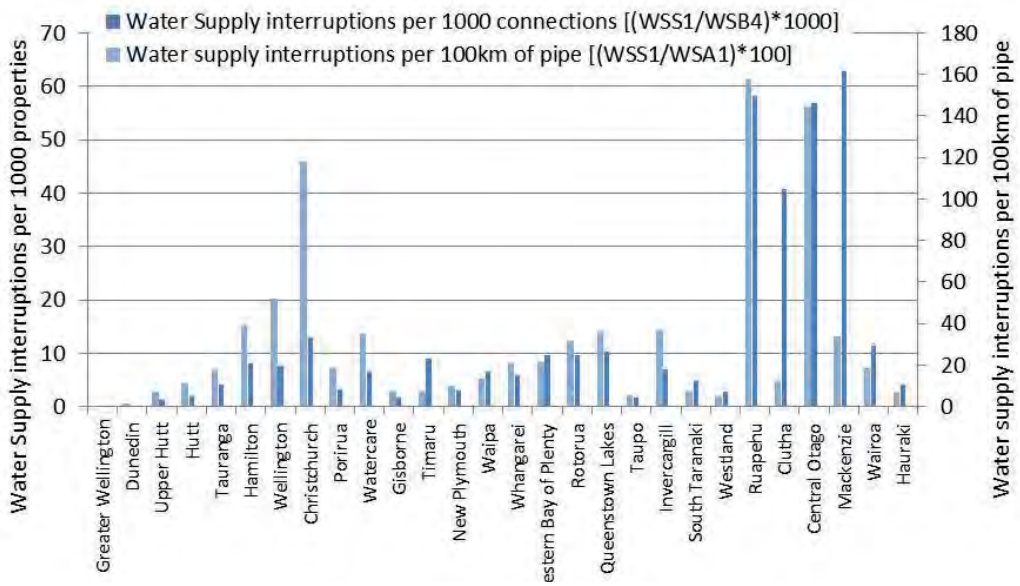
1.5.5 INTERPRETING DATA PROVIDED IN THE NPR

CHOICE OF NORMATIVE FACTORS

To enable relative performance assessments data has been normalised using a combination of population, connection and asset data. Where international or DIA performance metrics exist, normative criteria have been chosen to align with these. In other situations normalising factors have been selected based on best practice guidance documentation published by the International Water Association (Alegre, 2007).

Choice of normative factors can have a large influence on apparent performance. For example different conclusions will be drawn about participants' relative water supply interruption performance if length of pipe is used as a normalising factor rather than number of connections.

Figure 15: Unplanned water supply interruptions normalised by 1000 connections and 100km of pipe



USE OF AVERAGES

Unless otherwise stated in the report the term average is used to refer to the arithmetic mean. Median values have been applied where large outliers distort averages. Given the limited nature of responses to the NPR report these values should not be used to infer conclusions about all of New Zealand's 3 water providers.

INTERPRETING POPULATION STATISTICS

In previous years NPR participants self-reported population statistics. Responses were drawn from either census data or local council models. To overcome inconsistencies in the source of population data a standardised population calculation was introduced into the 2013-14 NPR.

Council supplied information on residential properties served, and census derived data on the usually resident population per occupied dwelling has been used to determine population served using the formula:

Population served [WSB1,WWB1,SWB5]
=Total Water Serviced Properties Residential [WSB2,WWB2,SWB5]
×Usually resident population per occupied dwelling

Limitations with this approach is that it may not account for the additional population in attached dwellings (notably residential apartments and retirement complexes) served by a single connection if average occupied dwelling statistics are not exactly aligned to participants service area. This can result in under reporting of serviced population in areas where the number of multiple dwelling units are unaccounted for in average population statistics.

2. Asset Information

This section provides an overview of assets contained in the NPR that covers; service coverage, condition of the piping network, condition assessment methodologies and asset capacity.

KEY OBSERVATIONS:

The number of residential properties provided with potable water and wastewater services by NPR participants in the rural sector is around half of their metropolitan counterparts. Average water services coverage was 56% for rural sector participants and 96% for metropolitan. Average service coverage for wastewater was 45% across rural sector participants and 96% for metropolitan.

Confidence in asset condition grading is low. Over half of asset condition grading data was categorised between "less reliable" and "no data confidence".

Average age of NPR participant water pipes is similar to that of European benchmarking participants. The median NPR participants had an average asset age of 34 years. The median pipe age across European benchmarking participants was 36 years.

New Zealand Asset Management Support (NAMS) Guidelines are the most commonly applied protocol for assessing above ground assets. NAMS methodologies were used in 45% of reported above ground asset assessments.

Table 4: Asset quantities in the NPR report by sector group

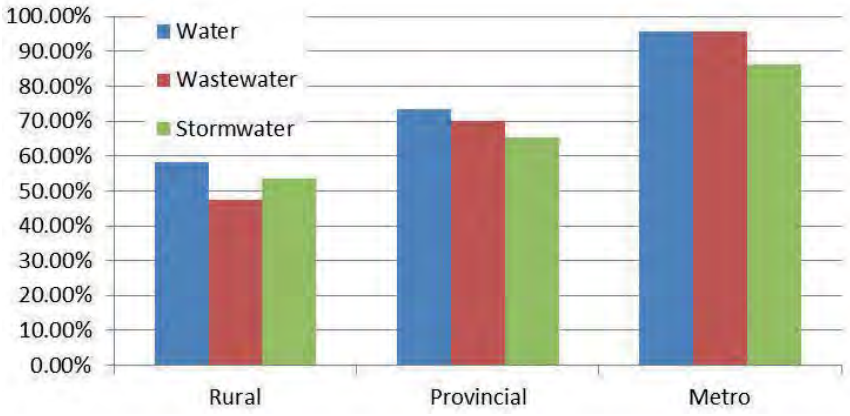
Asset	Total	Rural	Provincial	Metro
Total length (km) of water supply network (WSA1)	29,894	4,386	8,631	16,877
Total Water Treatment Plants (WSA4)	207	58	101	48
Total Water Pump Stations (WSA5)	650	105	204	341
Total Water Supply Reservoirs (WSA6)	967	211	316	440
Total length (km) of wastewater network (WWA1)	19,626	894	4,120	14,612
Total Wastewater treatment plants (WWA5)	141	0	69	40
Total Wastewater Pump stations (WWA4)	2,046	2	726	1,170
Total length (km) of stormwater network (SWA1)	14,800	1,014	2,514	11,272

2.1 Service Coverage

Service coverage measures the percentage of residential properties provided with three waters services within a jurisdiction. Unsurprisingly rural and provincial sector participants have significantly lower coverage rates than their metropolitan counterparts.

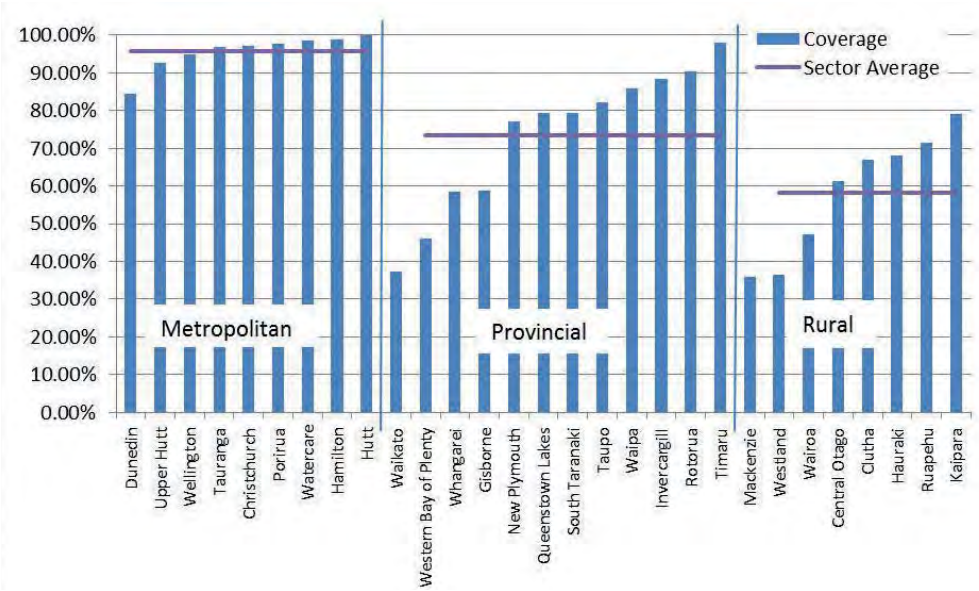
Timaru District Council residential water coverage data covers urban schemes only.

Figure 16: Average residential service coverage for each of the three waters



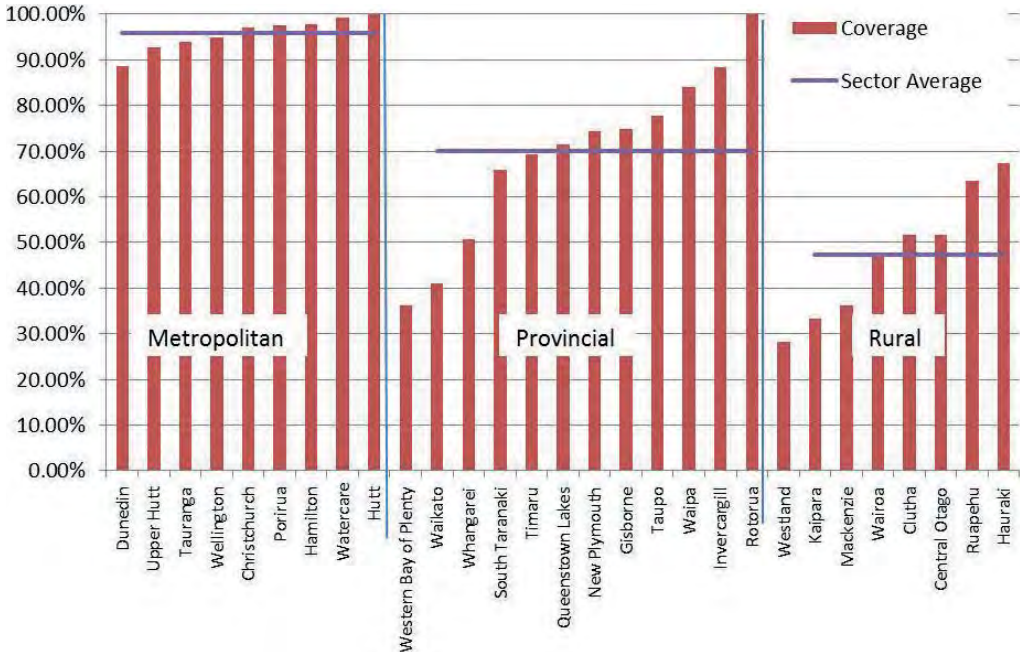
Equation 3: Water coverage = WSB2/(CB3+CB4), Wastewater coverage = WWB2/(CB3+CB4), Stormwater coverage = SWB1/(CB3+CB4)]

Figure 17: Residential water coverage



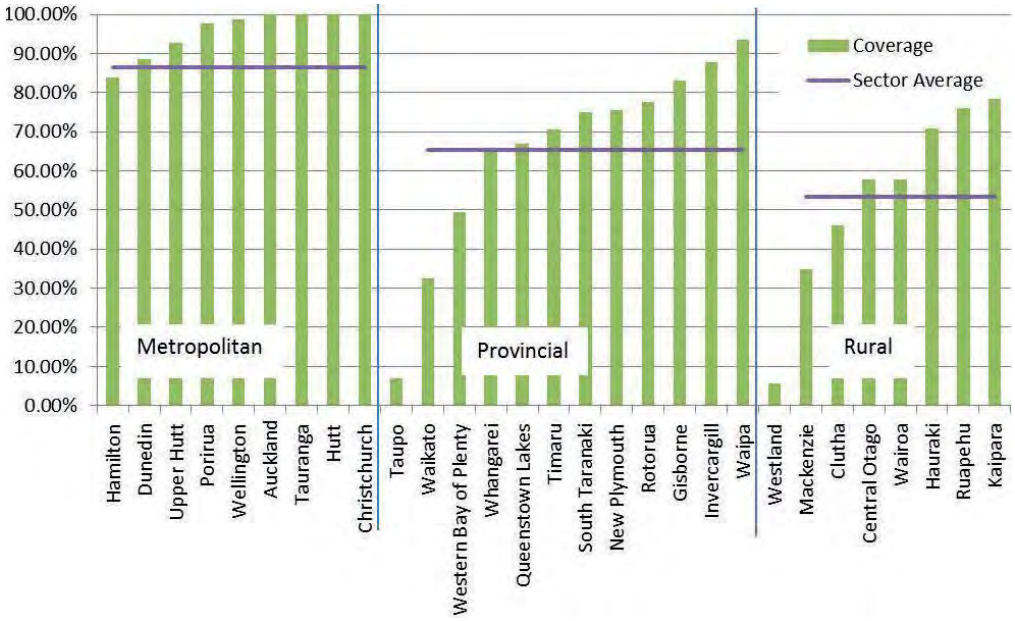
Equation 4: Water coverage = WSB2/(CB3+CB4)

Figure 18: Residential wastewater coverage



Equation 5: Residential wastewater coverage = WWB2/(CB3+CB4)

Figure 19: Residential stormwater coverage



Equation 6: Residential stormwater coverage = SWB1/(CB3+CB4)

2.2 Asset Condition

2.2.1 PIPE CONDITION

Condition grading provides an indication of pipes overall condition and underpins decisions on pipe renewals and expenditure. Condition grading classifications are defined in the Infrastructure Asset Grading Guidelines 1999 (Jenkins, 1999), with Grade 1 Assets classified as "very good" graduating to Grade 5 classified as "very poor".

While the proportion of assets classified as being in "poor" or "very poor" condition is low, data confidence in condition gradings is also low. Less than half the participants reported condition grading data was reliable or very reliable, with less confidence amongst rural sector participants.

Figure 20: Condition grading and data confidence for water mains

Figure 21: Condition grading and data confidence for wastewater mains

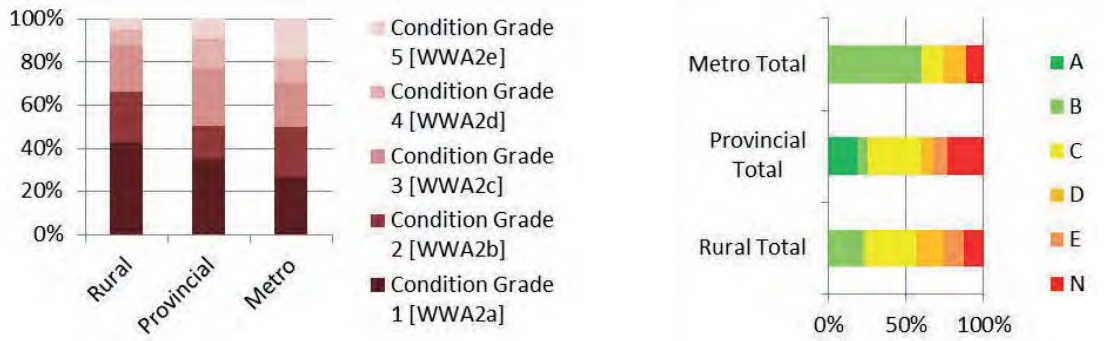
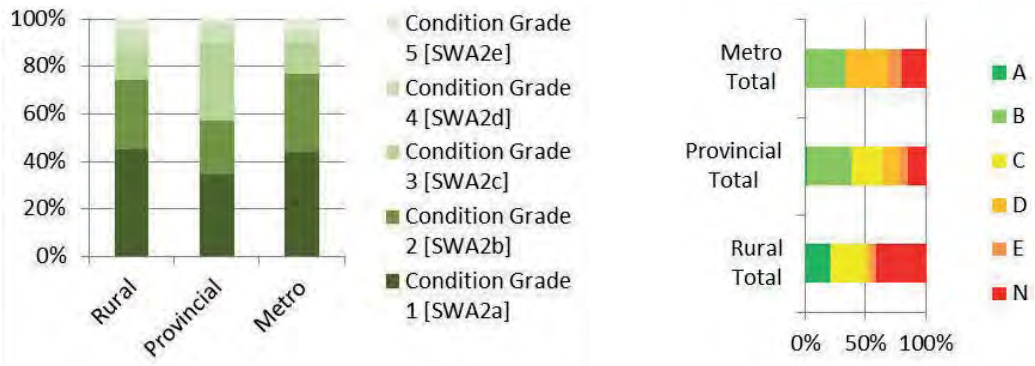


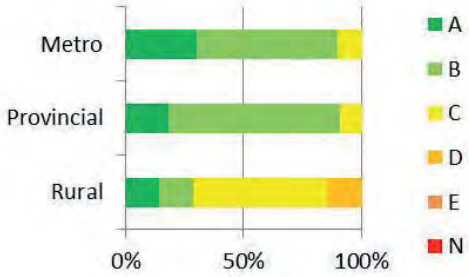
Figure 22: Condition grading and data confidence for stormwater mains



2.2.2 AGE OF WATER PIPELINES

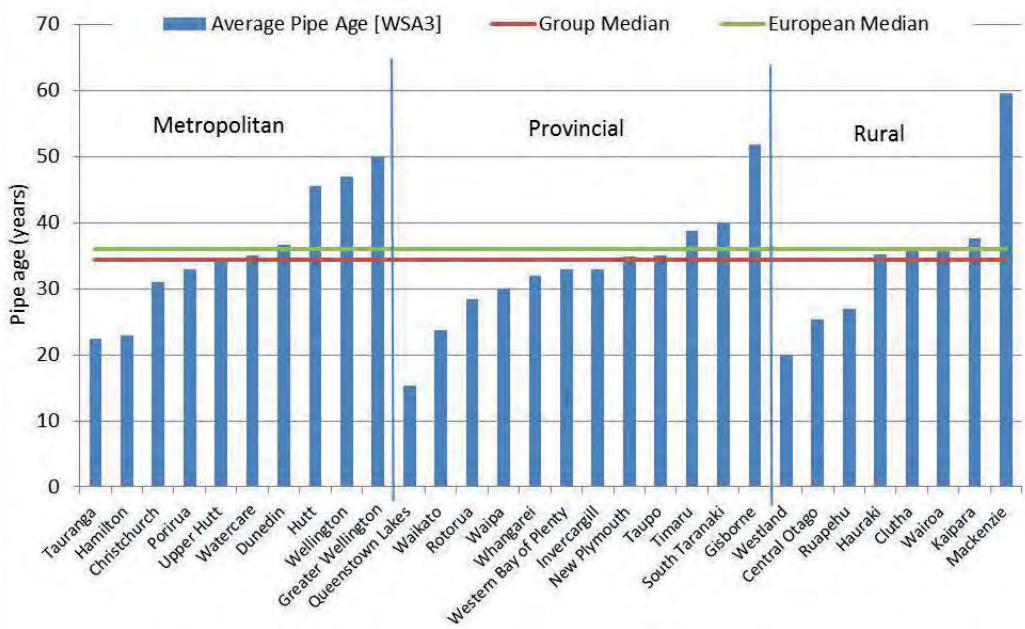
The weighted average age of pipelines provides a rough indicator of pipe condition, however it does not account for other important influences such as materials, soil and water pressure, which are accounted for in condition grading. Data confidence in water asset age was higher than condition grading with all participants having some record of water pipe age.

Figure 23: Water pipe age data confidence



Average water pipe age of European Benchmarking Co-operation participants had a median of 36 years (Co-operation, 2013), slightly higher than amongst participants in the 2013 NPR who had a median average water pipeline age of 34.4 years. The NPR did not collect information on the age of wastewater and stormwater pipes.

Figure 24: Water pipe age for NPR report participants compared with Europeans



2.3 Condition Assessment Methodologies

2.2.3 CLOSED CIRCUIT TELEVISION (CCTV) ASSESSMENTS

CCTV is commonly used to assess wastewater and stormwater pipe condition. The New Zealand Pipe Inspection Manual provides an overview of the role of CCTV inspections in managing wastewater and stormwater assets (ProjectMax Ltd, 2006).

Table 5: Percentage of wastewater and stormwater networks with CCTV assessments overall and in 2013-14

CCTV Assessments	Wastewater	Stormwater
For those who use CCTV the median percentage of pipes assessed [WWA3, SWA7]	17.65%	10.00%
For those who use CCTV the median percentage of pipework assessed this year [WWA3a, SWA8]	3.00%	2.61%
The most pipework that was CCTV assessed for any network [WWA3, SWA7]	90.00%	90.00%
The most pipework that was CCTV assessed this year [WWA3a, SWA8]	15.00%	8.50%
Number of authorities who do not have data on CCTV assessments [WWA3. SWA7]	4	4

A high proportion of participants either did not, or did not know if they had used CCTV inspection to inspect pipes. For those who do use CCTV there is a large spread in its usage, both for annual assessments and for the percentage of the network assessed overall.

CCTV assessments of wastewater assets are more wide spread than for stormwater. Use of CCTV does not correlate with users spread across rural, provincial and metropolitan sectors.

Figure 25: Proportion of network assessed using CCTV for wastewater and stormwater networks

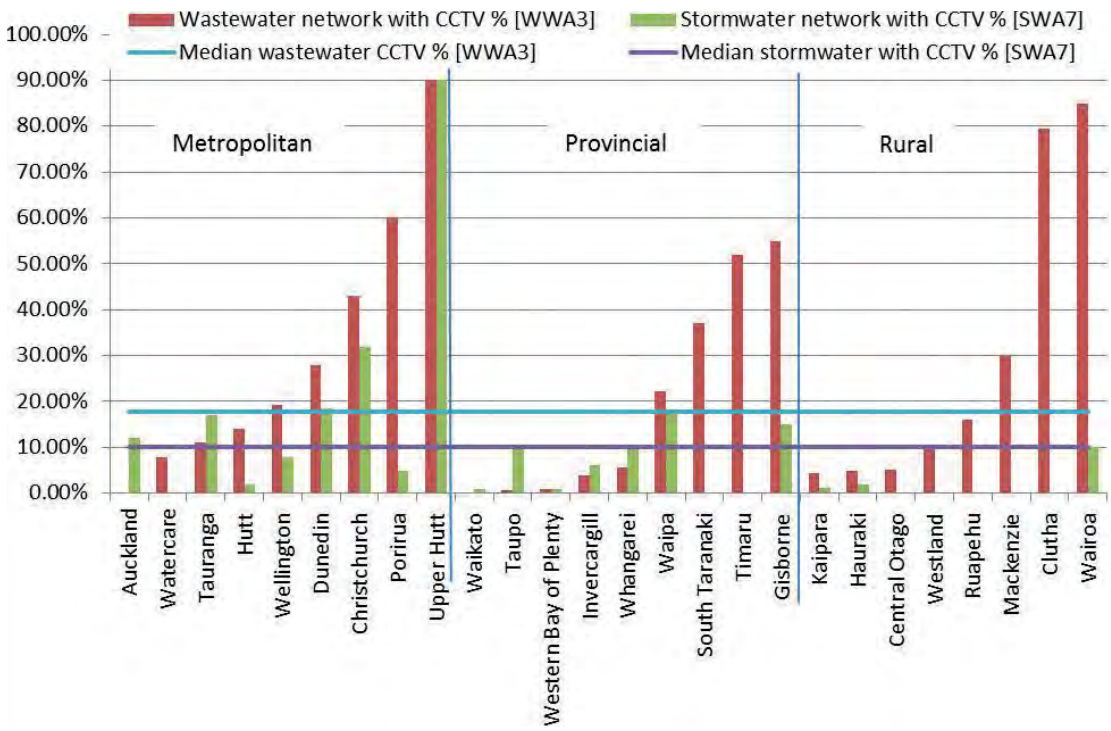
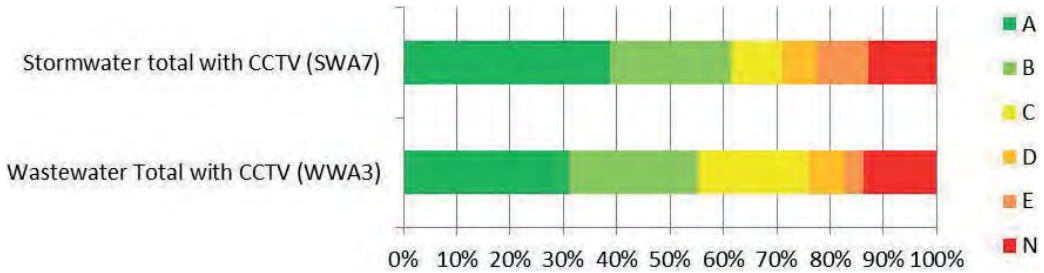


Figure 26: Confidence level of percentage wastewater and stormwater networks assessed using CCTV

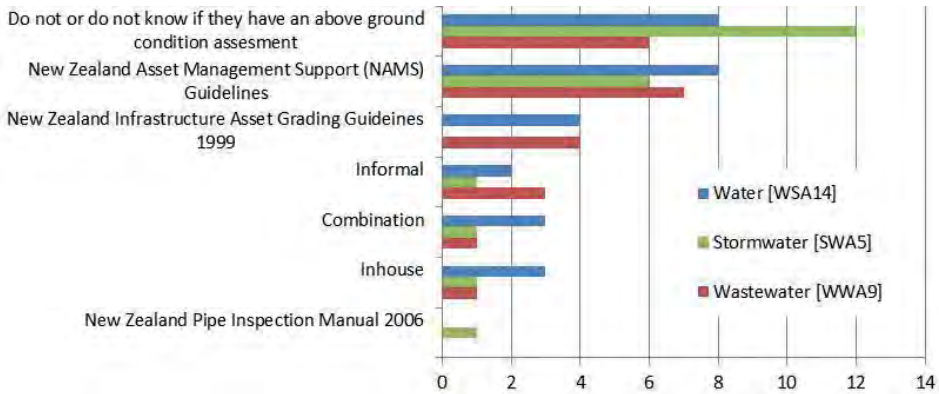


2.2.4 ABOVE GROUND ASSET CONDITION ASSESSMENT APPROACHES

A variety of approaches are used for assessing the condition of above ground wastewater and stormwater assets. The most commonly employed guidelines are the New Zealand Asset Management Support Guidelines (NAMS Group (NZ), 2011). Other asset condition approaches used by Watercare (who employ a combined approach) include:

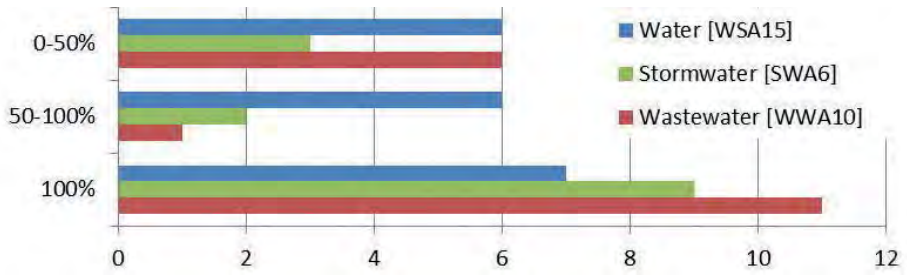
- Reliability-Centred Maintenance based on International Standards:
  - SAEJA1011 – Evaluation Criteria for RCM Processes
  - SAEJA1012 - A Guide to the RCM Standard
  - IEC 60300-3-11 – Application Guide Reliability Centred Maintenance
- Visual Assessment of Utility Assets 2008 (Opus International Consultants, 2008)
- Failure Modes Effect Criticality Analysis (FMECA) based on International Standard SAEJ1739 – Potential Failure Mode and Effects Analysis
- Weibull Analysis
- Apollo Route Course Analysis (RCA)
- Supervisory Control and Data Acquisition (SCADA) system data analysis
- Distributed Control Systems (DCS) system data analysis

Figure 27: Method used for undertaking condition assessments of above ground water wastewater and stormwater infrastructure



For those with a condition assessment, it was most common to assess all above ground assets in each three year asset management cycle.

Figure 28: Percentage of assets assessed on 3 year asset management cycles for water wastewater and stormwater

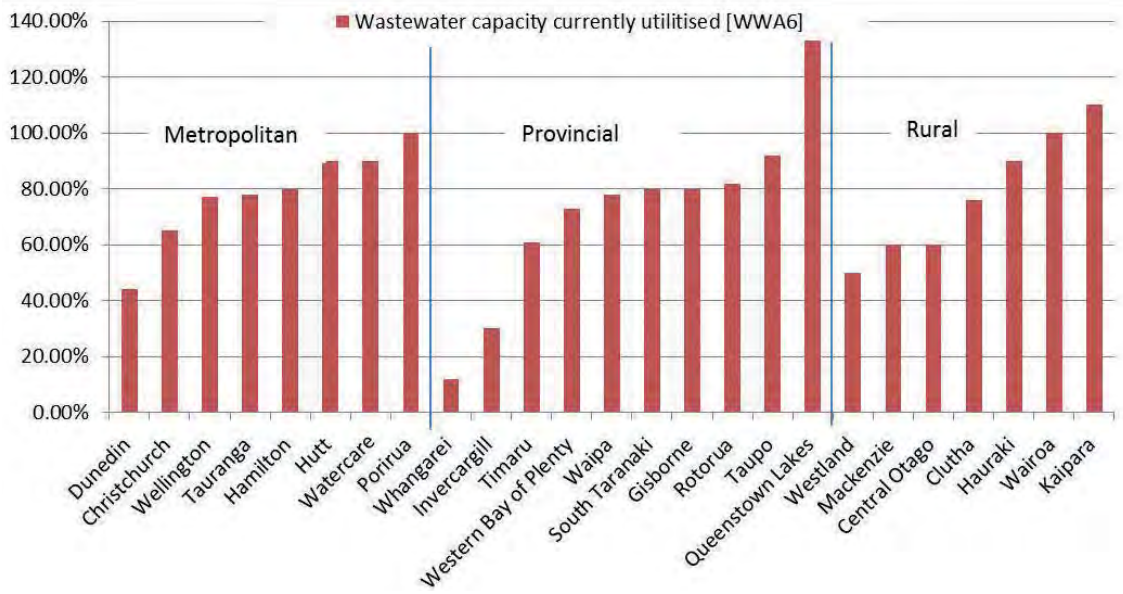


2.4 Asset Capacity

2.3.1 WASTEWATER TREATMENT PLANT CAPACITY

A rough guide to wastewater treatment plant capacity has been indicated by the estimated combined annual flow capacity currently utilised. The principal limitation with this indicator is that it does not account for peak flows which may require additional plant capacity. Peak flows may be significantly higher than average flows where large infiltration into sewers occurs during heavy rainfall or there are seasonal variations in population.

Figure 29: Utilised capacity of existing wastewater treatment plants



Both Queenstown and Kaipara reported that wastewater treatment plants are currently operating beyond their designed capacity.

2.3.2 TREATED WATER STORAGE/RESERVOIR CAPACITY

Treated water storage reservoirs provide a buffer available to the water supply. In addition to urban water supply these storage reservoirs are also used for firefighting. Bulk raw water storage facilities provide additional supply buffers that are not included in these figures.

The New Zealand Fire Service Firefighting Water Supplies Code of Practice (Standards Council and the New Zealand Fire Service, 2008) provides direction on what constitutes a sufficient supply of water for firefighting. It recommends that urban water supply systems be designed to provide 60% of annual peak demand in addition to the fire flow.

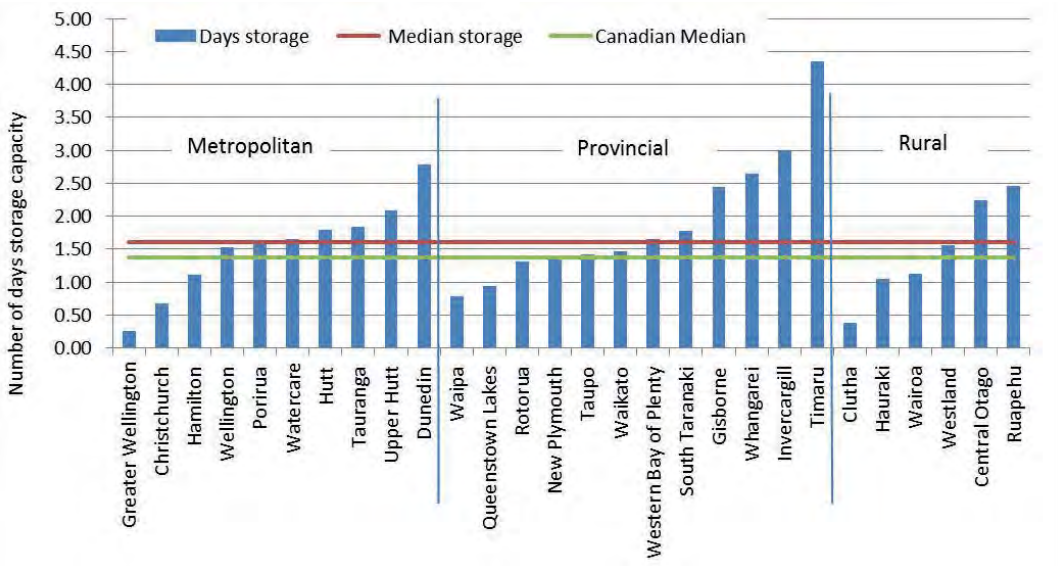
Days of water storage capacity in treated reservoirs has been calculated as:

$$\text{Days of water storage} = \frac{\text{(Total Water Normally stored in Reservoirs [WSA7])}}{\text{(Water Supplied to own system [WSB5])} \times 365}$$

Canadian benchmarking participants treated water storage capacity was 1.38 days (AECOM, 2013) lower than the 1.61 day median storage capacity of NPR participants.

Timaru District Council data in Figures 30 and 31 covers urban schemes only.

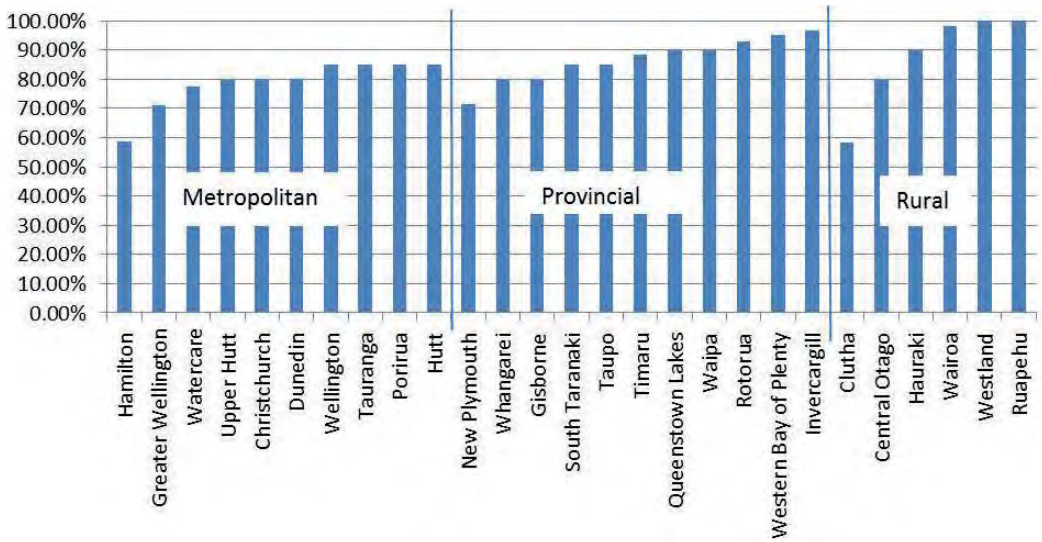
Figure 30: Days of treated water reservoir capacity normally available



Additional capacity that is not always utilised exists in reservoirs. Normal storage levels have been calculated using the following formula:

$$\text{Storage levels} = \frac{\text{(Total Water Normally stored in Reservoirs [WSA7])}}{\text{(Total capacity of Reservoirs [WSA8])}}$$

Figure 31: Storage levels for water treated at time of reporting



3. Financial Management

This section of the report includes information on customer billing, areas of expenditure, and sources of revenue. Renewals financing, funding and comparative operational and maintenance costs have been addressed in the LGNZ 3 Waters Project. Readers wanting information on these subjects are referred to the 3 waters Issues Report (Castalia Strategic Advisors, 2014).

KEY OBSERVATIONS:

Expenditure in 3 waters is significant. In 2013-14 NPR participants costs totalled $2.16 billion.

Revenue variations across participants is large. Wairoa had total revenue of $1,071,424 whereas Watercare had $400,093,300. Metropolitan sector participants have median annual revenue of over four times their rural counterparts.

Participant expenditure lagged budgeted expenditure. On average NPR participants expenditure in 2012-13 was 69% of that budgeted.

Revenue is not covering cost for most participants. Revenue as a ratio of cost is used by international water and wastewater benchmarks to assess economic sustainability. NPR participants had a median total cost coverage ratio of 0.63. The median total cost coverage ratio of Europeans benchmarking participants was 1.03. Median operational cost coverage was 0.95 for NPR participants and 1.09 for World Bank participants.

A number of stormwater systems do not have any directly associated revenue. This was the case for five participants who reported not having data on stormwater revenue.

A number of NPR participants have some form of residential charging based on usage. 12 respondents used a combination of fixed and user based charges, one used only user based charges and 14 used only fixed charges. Waikato and Hauraki have tiered water usage charges that encourage lower water use.

There is a large variation in targeted customer charges across NPR participants. Total fixed charges varied from $1,604.50 for customers in Kaipara to $0 in Hamilton who reported having no targeted charge for 3 water services. An additional thirteen authorities reported having no direct charge for stormwater and three had no direct charge for wastewater.

Median water and wastewater charges in urban Australia are nearly double those of NPR participants. $1,280.79 was the median charge in urban Australia in 2012-13 for 200m^3 of water and wastewater services. In 2013-14 the median NPR participant charge was $742.00 for an equivalent usage volume.

Total revenue varies significantly year on year. Large revenue fluctuations may relate to actual variations due to changes in developer contributions which indicate that financial reporting is not yet consistent across participants.

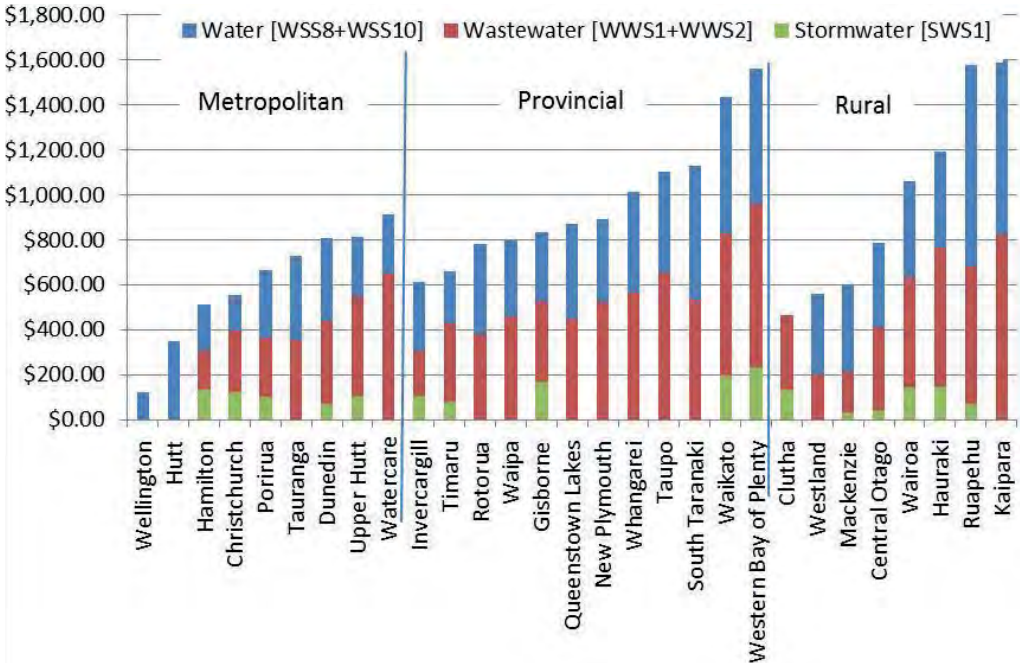
Timaru District Council data is for urban schemes only in much of this section including Figures 30, 31, 32, 35, 39, 40, 41,44, 45, 46, 49, 52 and 53.

3.1 Customer bills

A standardised usage volume of 200m³ has been used to provide a comparative indication of customers' water, wastewater and stormwater charges across NPR participants. Charges associated with additional services such as new connections, backflow, trade waste consents etc. are not included in comparisons.

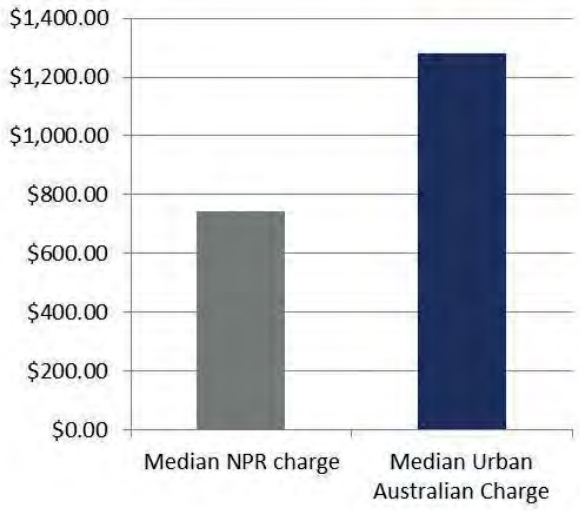
A number of participants did not list any charges associated with 3 waters provision.

Figure 32: Annual charge for 3 water services for connections using stormwater and 200m³ of water and wastewater



Water and wastewater charges for residents using 200m³ are included in the Australian National Performance report for urban utilities (National Water Commission, 2014). These figures provide a rough comparison of the price of New Zealand 3 waters charges, however they are not exactly comparable as the NPR median includes rural areas.

Figure 33: Median residential water and wastewater charges for a connection using 200m³



** Equation 7: Water charge for 200m³ [WSS8+WSS9*200] + wastewater charge for 200m³ [WWS1+WSS2*200] compared with Australia, using a currency conversion rate of $1.07AUD: $1NZD based on exchange rates at the time of the reports development*

Variations in the average charges resulting from tiered water charging and different charging regimes within regions are listed here. Where no variations from district wide fixed and single tariff user charges are listed these have been marked as N/A.

Table 6: Variations in water, wastewater and stormwater charges

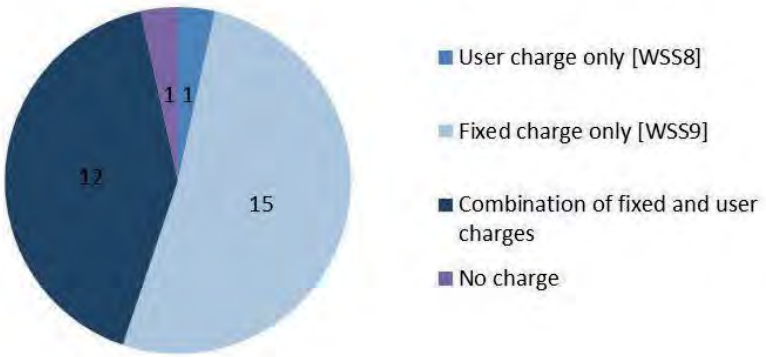
Participant	Water	Wastewater	Stormwater
Auckland Council	Service Provision contracted to Watercare.	Service Provision contracted to Watercare.	No targeted stormwater charge reported
Hutt City Council	N/A	No targeted wastewater charge reported	N/A
Upper Hutt City Council	N/A	N/A	Stormwater charge based on average capital value
Wellington City Council	N/A	No targeted wastewater charge reported	No targeted stormwater charge reported
Christchurch City Council	Charge is a percentage of general rates, based on average capital value		
Dunedin City Council	N/A	N/A	Stormwater charge is included as part of a general drainage rate
Hamilton City Council	Charge is a percentage of general rates, based on average capital value		
Tauranga City Council	Charges vary depending on meter size. Price has been supplied for a 20mm meter, the most common connection type	N/A	No targeted stormwater charge reported
New Plymouth District Council	N/A	N/A	No targeted stormwater charge reported
Queenstown Lakes District Council	Charges include a targeted rate and capital value charge that varies across 8 districts.	Different charge regimes across 8 different areas	No targeted stormwater charge reported
Rotorua District Council	Has a fixed charge of $213.90 for unmetered properties. Charges metered consumers a minimum of $53.48/quarter.	N/A	N/A
South Taranaki District Council	Charges supplied are for connections 32mm and less	N/A	N/A
Taupo District Council	Different charges for over twenty different schemes.	N/A	N/A
Timaru District Council	Timaru has a uniform charge for seven urban schemes but different charge rates across five urban schemes.	N/A	Stormwater included in a targeted community works and services rate that includes other services. Charges vary for each community.

Participant	Water	Wastewater	Stormwater
Waikato District Council	Fixed and usage rates vary by district. Tuakau, Pokeno, Onewhero and Port Waikato usage rates also vary by volume: $2.63/m^3 <200m^3 $3.26/m^3>200m^3 in six-months	Different charge regimes across 5 different areas	N/A
Western Bay of Plenty District Council	N/A	N/A	Different rate for growth community, and small settlements. Average applied based on weighting by population.
Waipa District Council	N/A	N/A	No targeted stormwater charge reported
Clutha District Council	No targeted water charge reported	N/A	N/A
Central Otago District Council	Different fixed charges for each of eight different water supply districts. Usage charges of $0.58, with the exception of Ranfurly, Naesby and Roxburgh at $0.86	Different charge regimes across 8 different wastewater networks.	N/A
Hauraki District Council	Tiered usage charges based on usage volumes. Rates are as follows: $1.62/m^3 <200m^3 $1.36/m^3 200-400m^3 1.23/m^3 >400m^3 An additional fixed charge applies per meter.	N/A	N/A
Kaipara District Council	Different fixed and user charges for five different water supply districts. One district with only fixed charges.	N/A	No targeted stormwater charge reported
Mackenzie District Council	Different fixed charges for three towns	Different fixed charges for three towns	
Ruapehu District Council	Different charges across the district	N/A	Has a targeted charge and received some funding through general rates
Watercare	User pays charge for service under contract with Auckland Council	User pays charge for service under contract with Auckland Council	Services provided by Auckland Council
Westland District Council	N/A	N/A	No targeted stormwater charge reported
Wairoa District Council	N/A	N/A	Different stormwater charges for Mahia and Wairoa

3.1.1 WATER BILLS

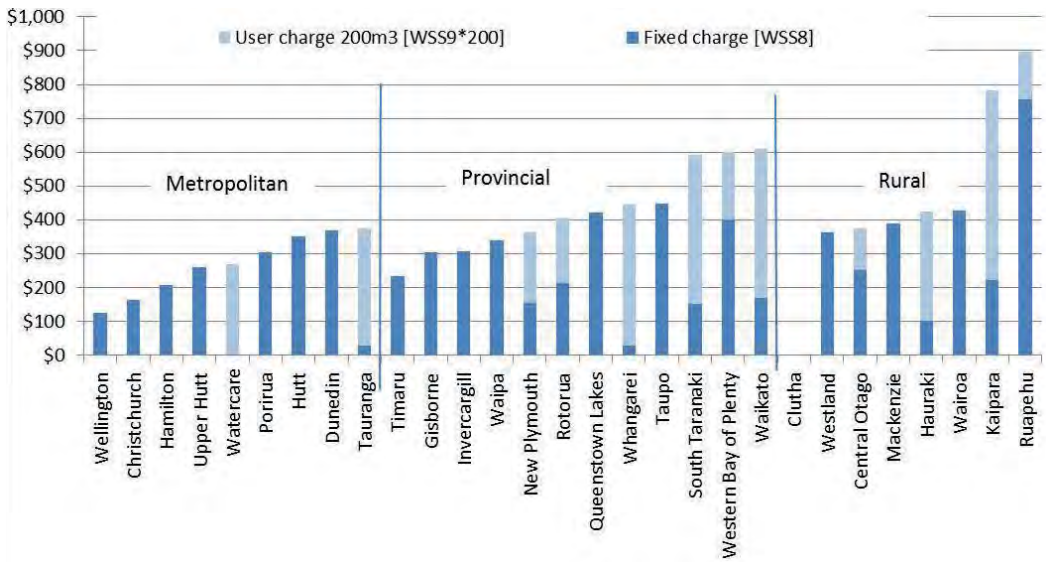
The majority of NPR respondents employ fixed charging regimes. This is in contrast to Australian urban utilities, all of whom used a combination of fixed and user based water charges (National Water Commission, 2014).

Figure 34: Number of fixed and user based water charges



User based charging is an important component of customer demand management. The proportion of a customer bill that is a user based charge will vary depending on usage. To enable a comparison across different jurisdictions the NPR uses annual charges based on 200m³ usage as an indicator.

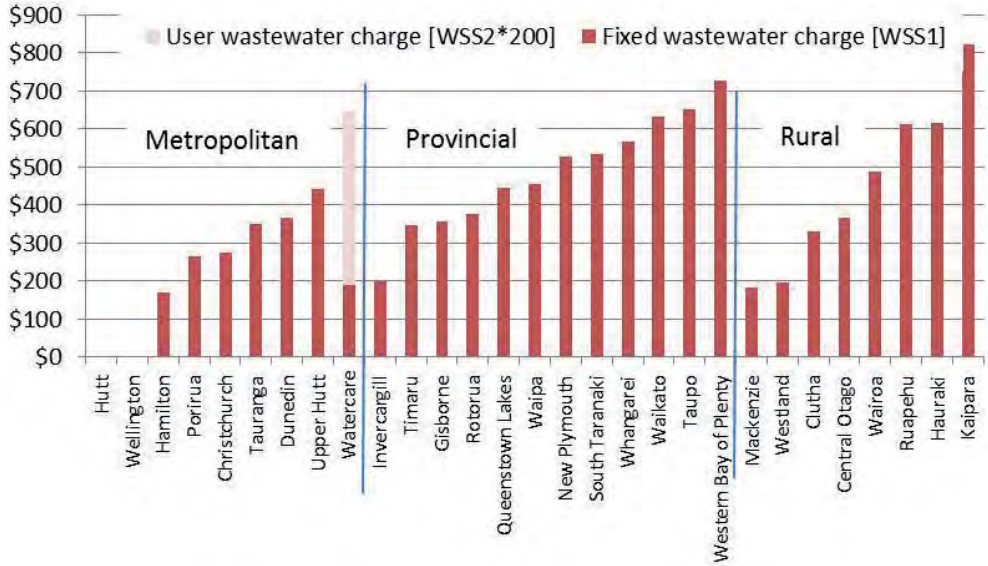
Figure 35: Water charges for a connection using 200m³ of water a year



3.1.2 WASTEWATER CHARGES

All participants reported charging a fixed charge, apart from Watercare, who reported having both fixed and wastewater unit charges of $2.28/m³.

Figure 36: Wastewater charges for a connection discharging 200m³ of wastewater a year



3.1.3 STORMWATER CHARGES

Figure 37: Proportion of NPR participants with a stormwater charge

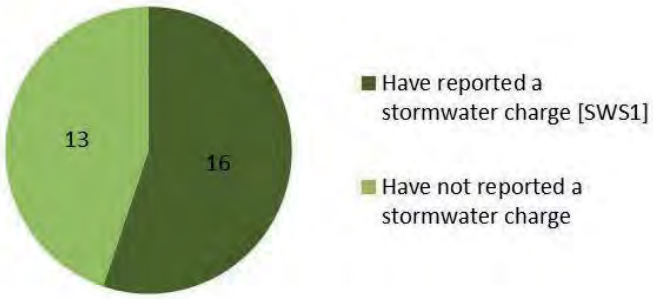
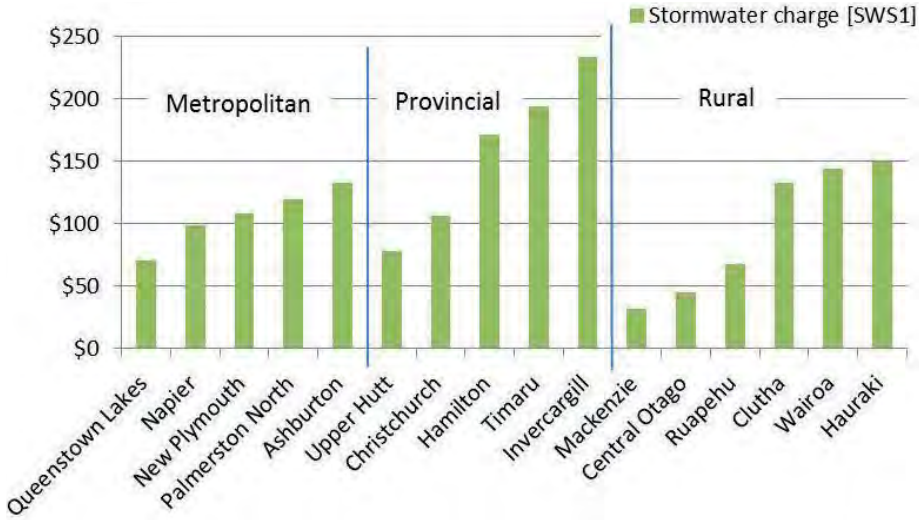


Figure 38: Stormwater charges per connection



3.2 Revenue

Rural sector participants generate slightly more revenue per connection than metropolitan counterparts, however total revenue is significantly higher amongst the metropolitan sector who have a median revenue of over four times their rural counterparts.

Table 7: Median revenue by sector category

Medium	Rural	Provincial	Metro	Total
3 waters revenue	$6,683,275.00	$16,134,512.00	$27,153,528.00	$12,933,000.00
Water [WSF4]	$3,336,536.99	$7,683,319.00	$16,250,524.28	$5,919,020.00
Wastewater [WWF4]	$2,084,370.83	$7,471,275.38	$7,423,705.27	$5,343,010.00
Stormwater [SWF3]	$387,000.00	$1,768,717.50	$2,561,405.25	$677,140.79

Figure 39: Revenue per property

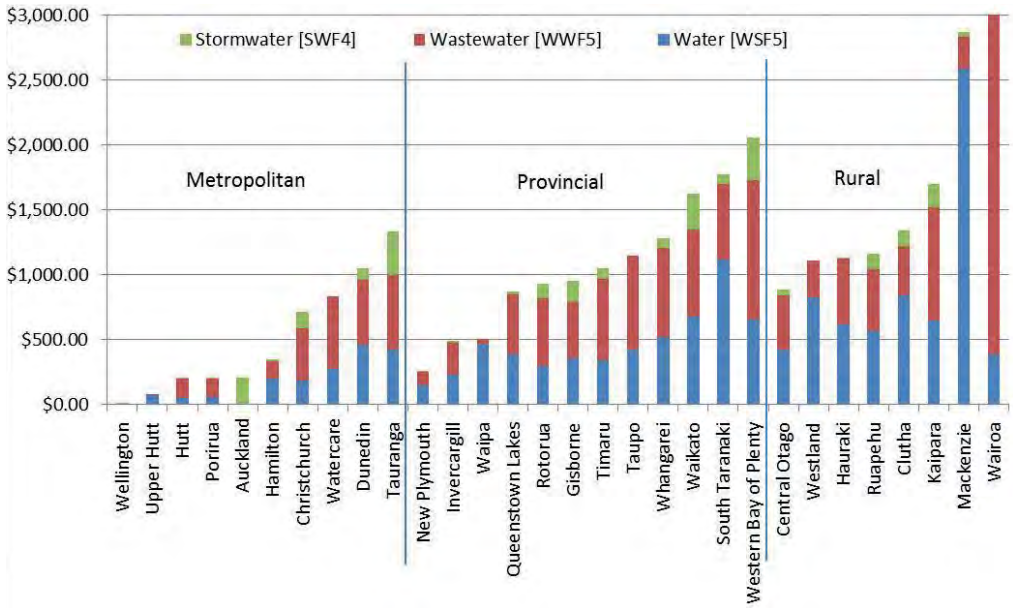
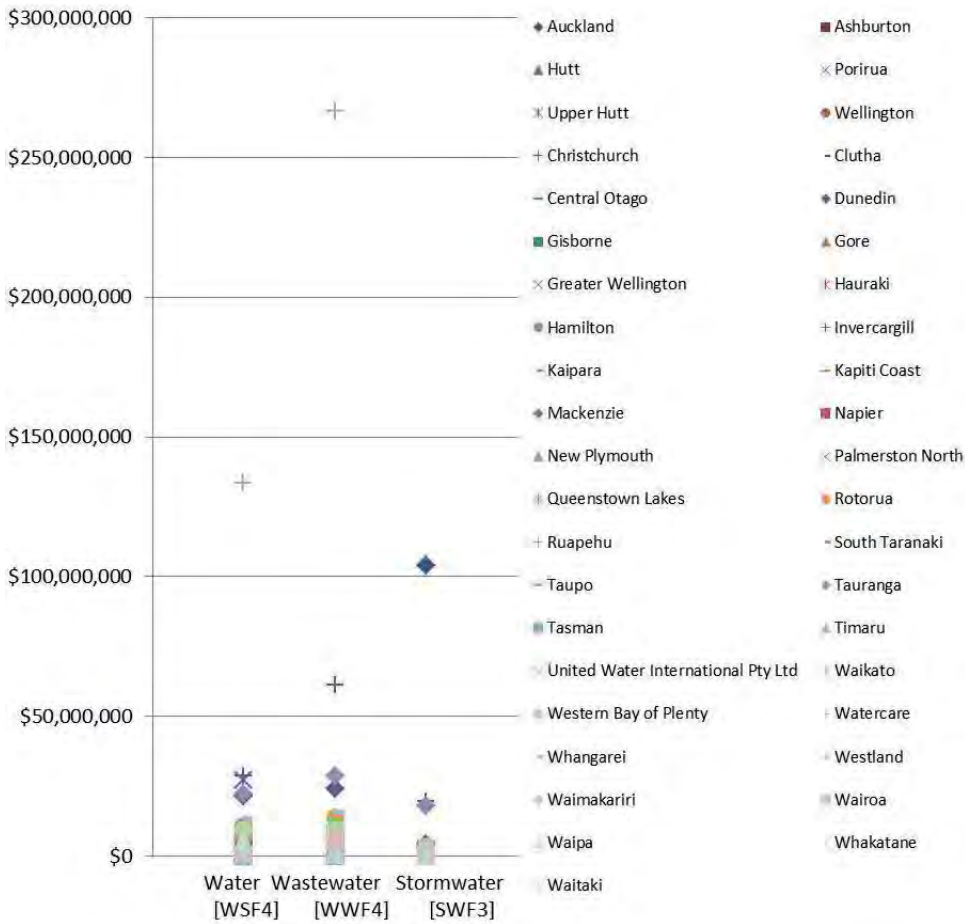


Figure 40: Total revenue for water wastewater and stormwater services



3.2.1 SOURCES OF REVENUE

The majority of revenue for water and wastewater systems is operational revenue, however developer contributions form a large proportion of revenue of the 2013-14 income for some stormwater systems. Revenue sources shown in this section are obtained from fixed and user charges, special levies, asset sales, specific activities such as grants, or interest on income.

Upper Hutt, Taupo, Westland and Waipa did not report any revenue associated with the provision of stormwater. Revenue is also low a portion of costs. This indicates that there may be other revenue sources being used by participants to fund three water infrastructure that have not been captured in reporting.

Figure 41: Sources of revenue for water infrastructure

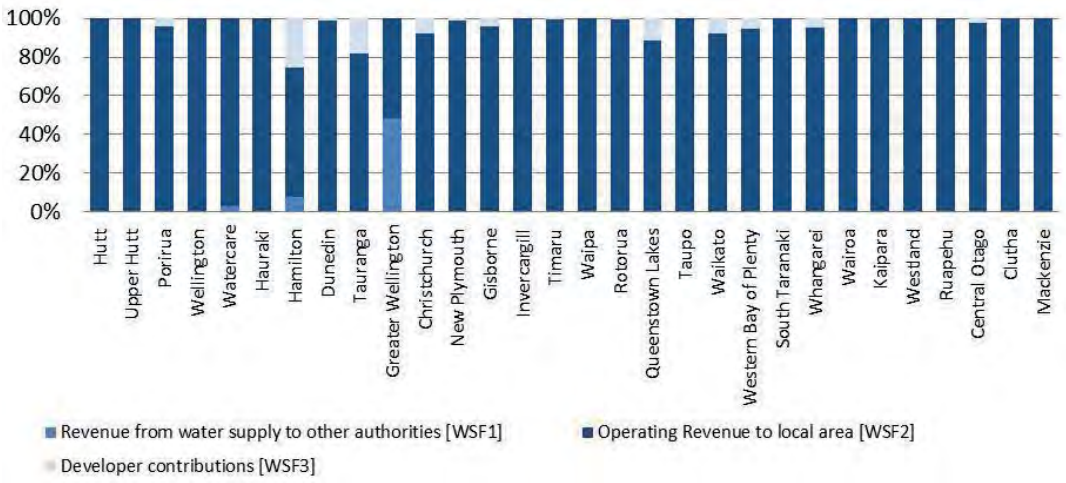


Figure 42: Sources of revenue for wastewater infrastructure

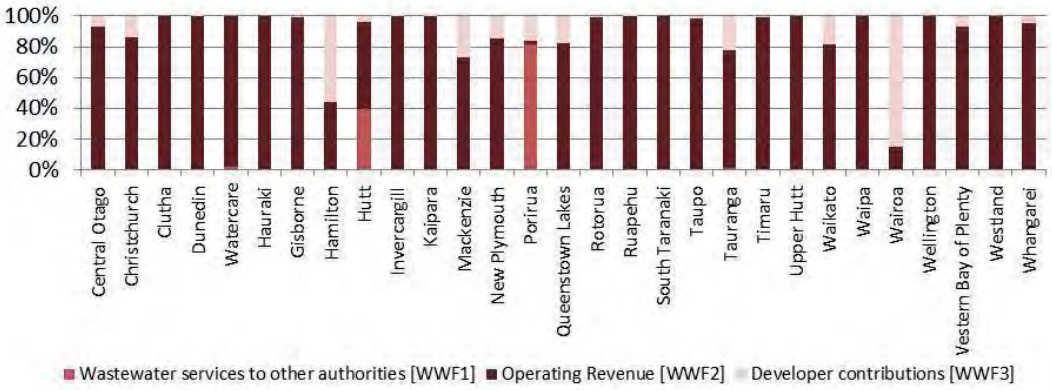
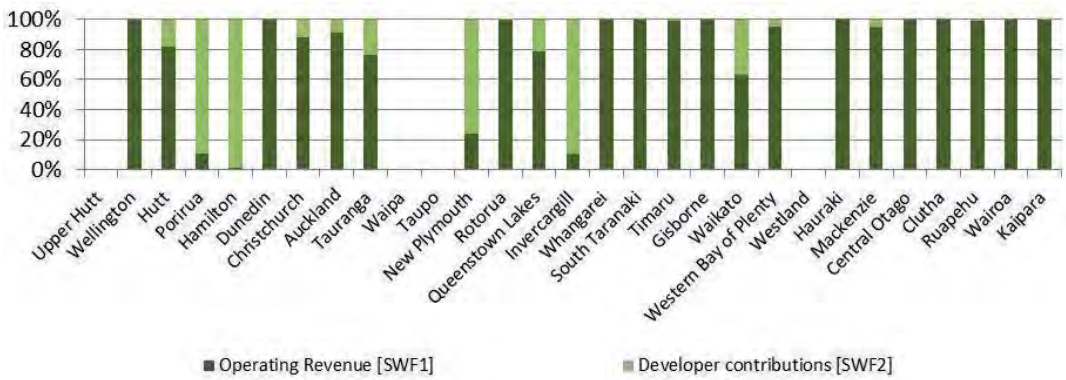


Figure 43: Sources of revenue for stormwater infrastructure



3.3 Expenditure

Expenditure on 3 waters services is significant. $2.16 billion dollars was the collective costs of service delivery for 2013-14 participants, which includes over $500 million of asset depreciation costs.

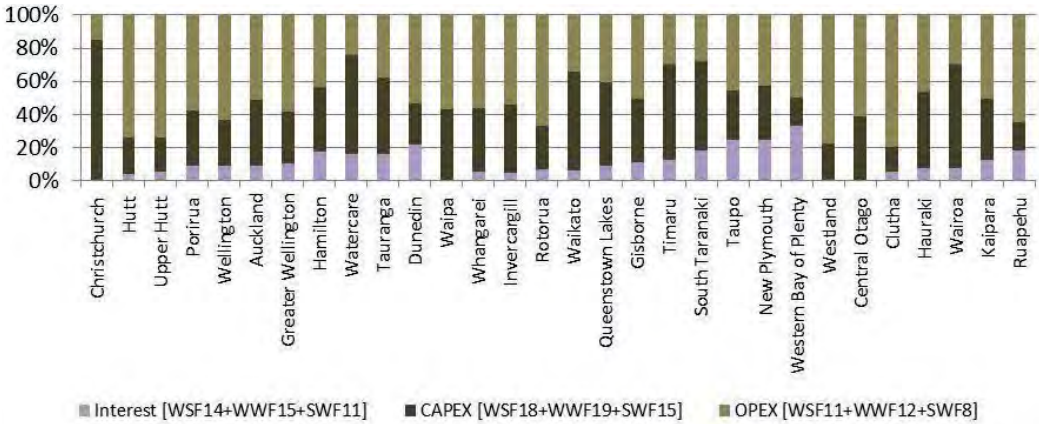
Table 8: Total expenditure of NPR participants

Cost Category	Total cost of all NPR participants
Depreciation (WSF13+WWF14+SWF10)	$505,893,195.61
Interest (WSF14+WWF15+SWF11)	$175,759,459.58
CAPEX (WSF18+WWF19+SWF15)	$917,531,825.00
OPEX (WSF11+WWF12+SWF8)	$561,960,741.38
Total Costs	$2,161,145,221.57

To understand where money is being spent the relative levels of interest, capital (CAPEX), operational (OPEX) expenditure are shown. Further detail is provided on the relative cost components of operational and capital expenditure.

Water and wastewater depreciation as a proportion of overall water and wastewater network replacement value has recently been addressed in the LGNZ 3 Waters Project – National Information. Interested readers are referred to the associated project report (Castalia Strategic Advisors, 2014).

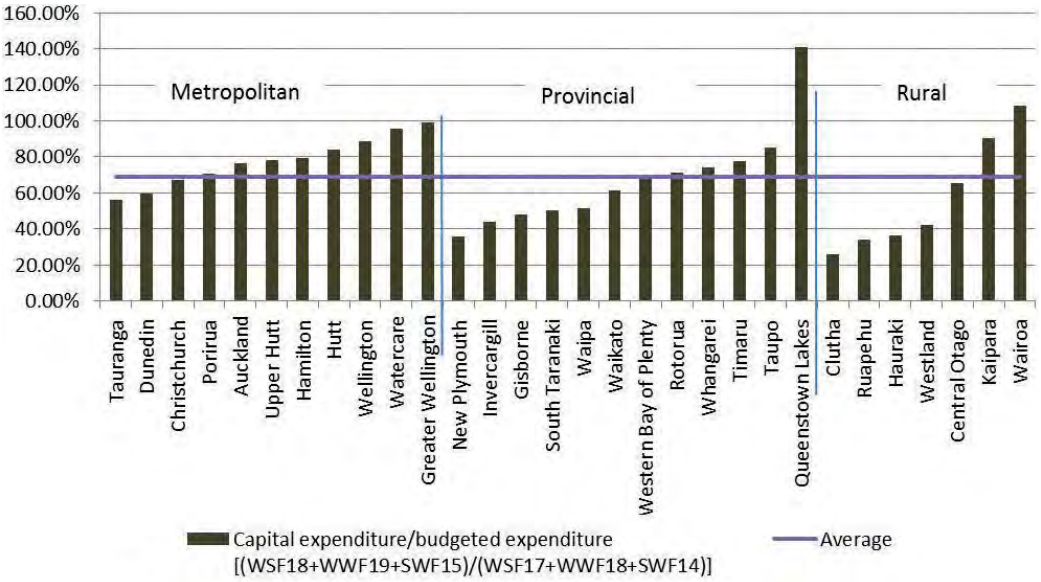
Figure 44: Proportion of 3 waters expenditure by major cost category



3.3.1 CAPITAL EXPENDITURE

The ratio of budgeted to actual expenditure provides an indication of the accuracy of financial forecasts. On average 68% of programmed expenditure was delivered by NPR participants in 2013-14. Variance in expenditure can occur for a number of reasons. Investigating the cause of these variances may reveal opportunities for improvement of future budgets.

Figure 45: Actual capital expenditure as a ratio of budgeted capital expenditure across the three waters



NPR participants have indicated whether capital expenditure is related to growth, renewals of aging assets or to meet level of service expectations. In many instances expenditure reported as related to asset renewals may also serve to improve levels of service.

Table 9: Purpose of NPR participants capital expenditure

Purpose of CAPEX	Water (WSF18)	Wastewater (WWF19)	Stormwater (SWF15)	All
Growth	$96,085,517	$78,985,971	$27,741,747	$202,813,235
Levels of service	$91,355,341	$87,058,474	$38,783,660	$217,197,475
Renewals	$94,631,605	$369,016,283	$33,873,226	$497,521,114
Total	**$282,072,463**	**$535,060,728**	**$100,398,633**	**$917,531,824**

Figure 46: Purpose of capital expenditure on water

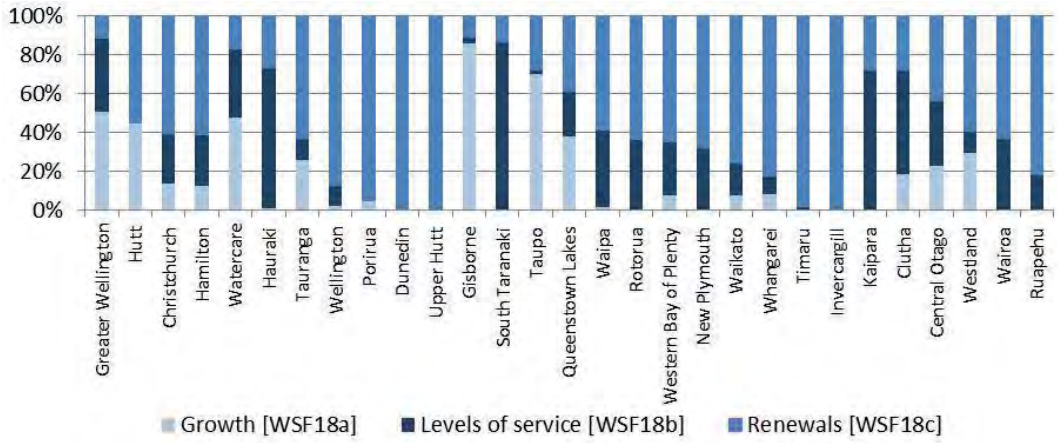


Figure 47: Purpose of capital expenditure on wastewater

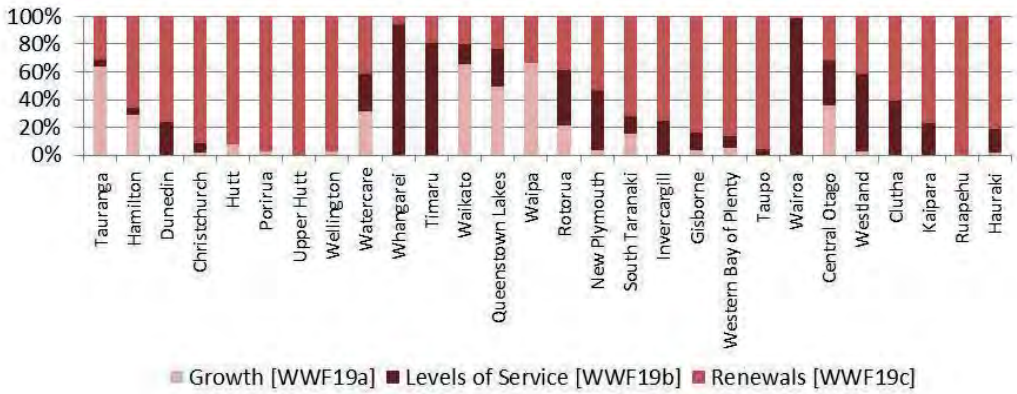
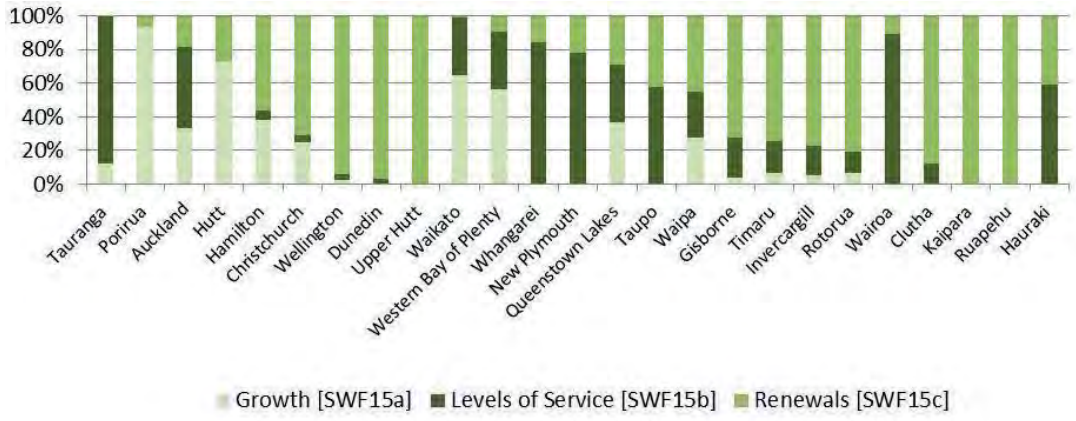


Figure 48: Purpose of capital expenditure on stormwater



3.3.2 OPERATING EXPENDITURE

Operational costs indicate how much is spent to maintain existing 3 waters assets. Operational expenditure is strongly correlated with the size of the population served, with metropolitan sector participants spending larger amounts operating 3 water assets than their rural counterparts.

Table 10: Median operational expenditure by NPR sector category

Median	Rural Median	Provincial Median	Metro Median
Water (WSF12)	$1,461,225.95	$4,742,956.00	$9,982,700.00
Wastewater (WWF13)	$847,186.00	$3,664,236.00	$10,305,702.00
Stormwater (SWF9)	$144,784.50	$814,797.00	$3,709,575.00
All 3 waters	**$2,510,076.70**	**$9,156,427.50**	**$22,723,005.00**

Figure 49: Purpose of operational expenditure on water

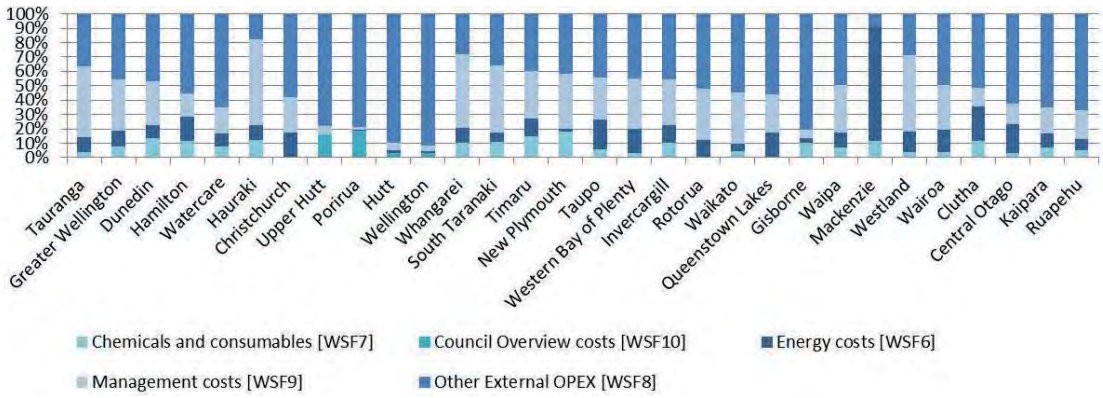


Figure 50: Purpose of operational expenditure on wastewater

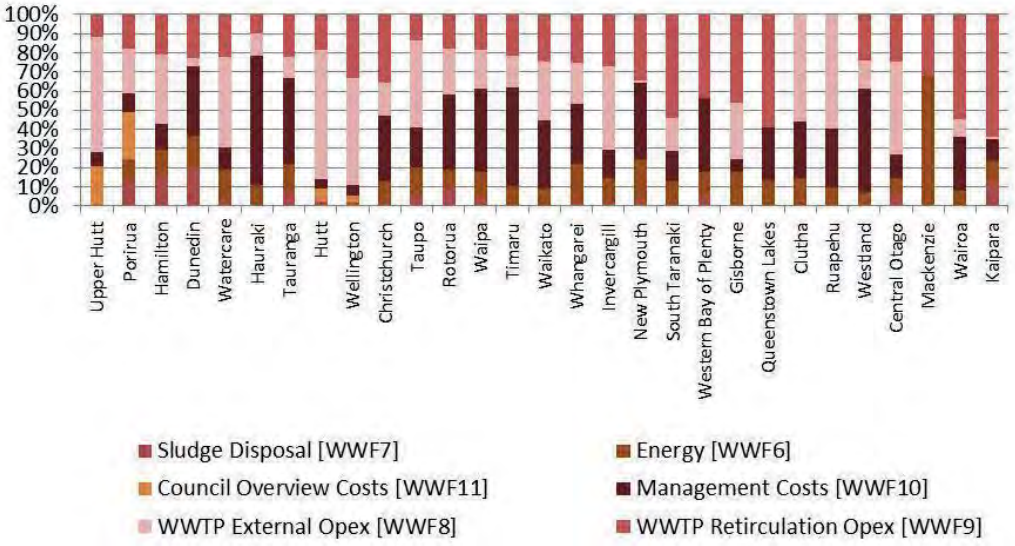
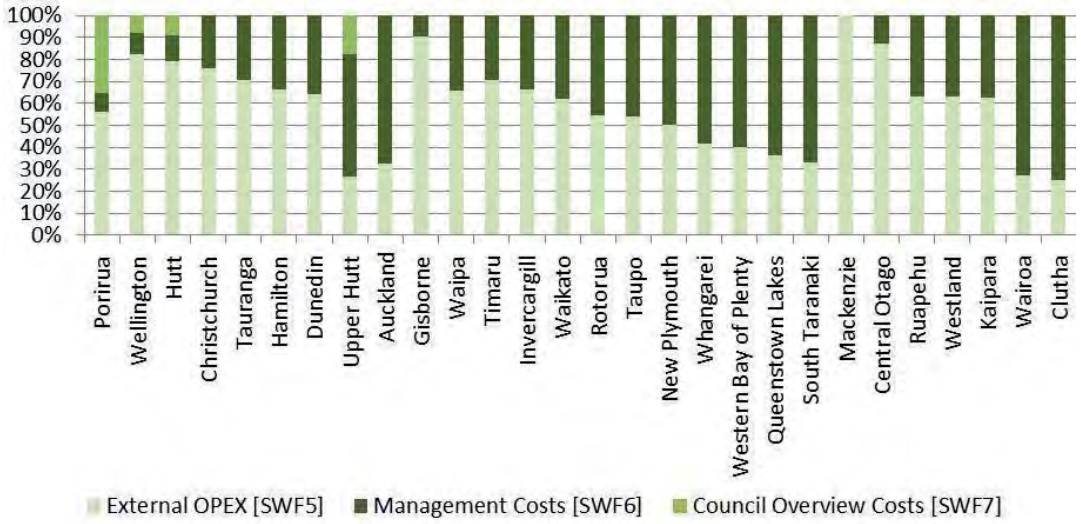


Figure 51: Purpose of operational expenditure on stormwater



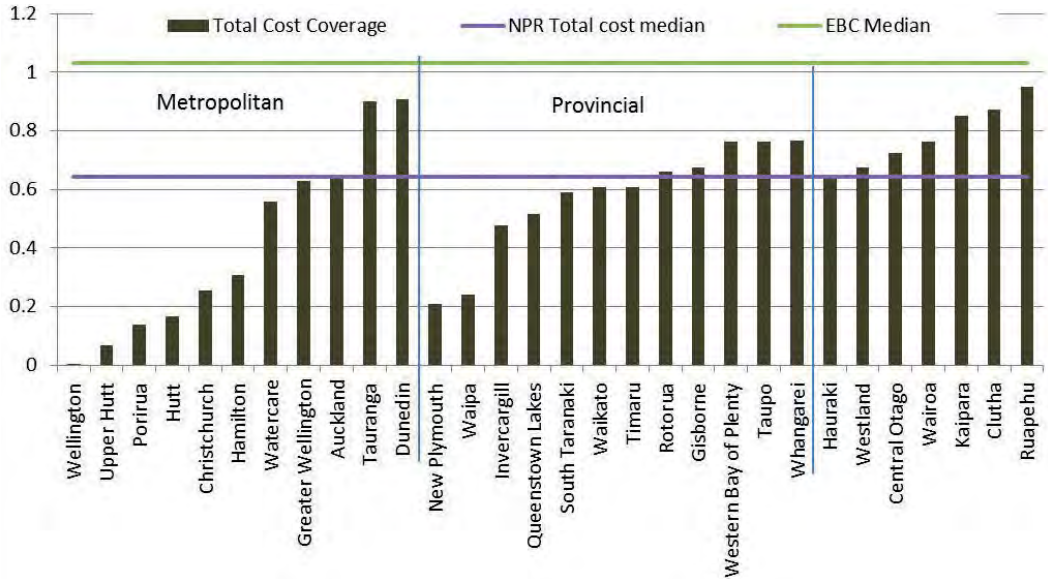
3.4 Cost Coverage

The economic sustainability of 3 waters delivery can be indicated by cost coverage ratios, a metric that compares revenue to expenditure. In basic terms, an economically sustainable entity will have revenues that cover total costs by a ratio of 1 or more.

This metric is used by the European Benchmarking Commission. A little more than half of the European participants in their 2013 benchmark met these criteria, with a median total cost coverage ratio of 1.03 (Co-operation, 2013). This compares with the median total cost recovery ratio of 0.64 amongst NPR participants. Total cost coverage for NPR participants has been calculated using the following formula:

$$\text{Total Cost Coverage:} \quad \frac{\text{(Total Revenue [WSF4+WWF4+SWF3])}}{\text{(Interest [WSF14+WWSF15+SWF11]+Depreciation [WSF13+WWF14+SWF10]+ OPEX [WSF11+WWF12+SWF8]+ Actual CAPEX [WSF18+WWF19+SWF15])}}$$

Figure 52: Total cost coverage for 3 waters infrastructure

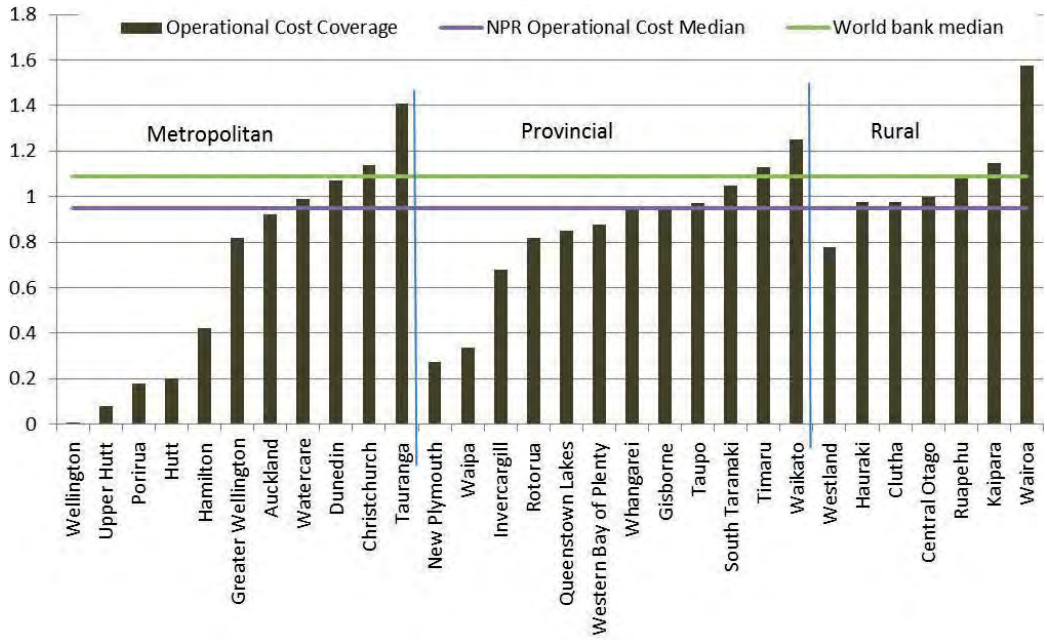


Cost coverage ratios are also employed by the World Bank using operational metrics. The World Bank metric includes depreciation costs, but not capital costs and so does not account for a utilities ability to finance building or renew assets. The metric aids a more accurate year on year comparison of economic sustainability as it is not influenced by spikes in capital expenditure.

In 2010 the median operational cost coverage ratio for World Bank benchmarking participants was 1.09 (Danilenko, 2014). NPR participants had a median operational cost coverage ratio of 0.94.

$$\text{Operational Cost Coverage} = \frac{\text{Total Revenue [WSF4+WWF4+SWF3]}}{\text{(Interest [WSF14+WWSF15+SWF11]+Depreciation [WSF13+WWF14+SWF10]+OPEX [WSF11+WWF12+SWF8])}}$$

Figure 53: Operational cost coverage of 3 waters infrastructure



Results from the Wellington Region may not truly reflect the economic sustainability of operations, as revenue streams from the bulk water supplier the Greater Wellington Regional Council support activities of city councils- Wellington, Porirua, Hutt and Upper Hutt.

Mackenzie District Council has been excluded from graphs as they are a large outlier, with a reported operational cost recovery ratio of 35, and a total cost coverage ratio of 13.

4. Customer Service Levels

This section provides an overview of assets contained in the NPR that covers; service coverage, condition of the piping network, condition assessment methodologies and asset capacity.

KEY OBSERVATIONS:

Recording of customer service levels data required for DIA reporting is not wide spread. Across all DIA indicators there were authorities who reported not having data available. Response times had the lowest recording rates, with over one quarter of participants not having data available. Data recording of response times and interruptions were less wide spread in rural sector participants.

Complaints definitions often include service requests. This may result in complaints data that appears higher than other available international data. The median number of complaints per head of population was higher for NPR participants than similar median values for Canadian and European benchmarks.

4.1 Customer complaints

The adoption of a consistent complaints definition is needed for DIA non-financial reporting (Department of Internal Affairs, 2014). The National Performance Review Guidance documents (Water New Zealand, 2014) define a customer complaint as:

A written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the water utility, its employees or contractors. It includes complaints received by the water utility in person, by mail, fax, phone, email or text messaging. Complaints from separate customers arising from the same cause count as separate complaints.

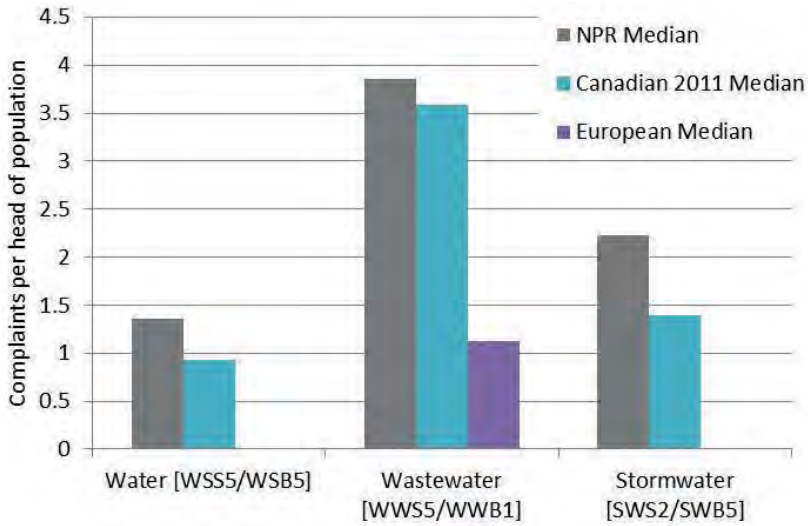
Detailed guidelines on complaints recording has been developed by the United Kingdom Local Government Ombudsman (Local Government Ombudsman, 2009). The guidelines provide advice to assist authorities establish an internal definition that distinguishes between complaints, service requests and service users disagreement with local or national policies.

Customer complaints are a commonly used metric to assess service quality. International benchmarks most commonly record complaints per 1000 head of population.

Table 11: International benchmark complaint indicators

Benchmark	Definition	Median per 1000 connections
European Benchmarking Co-operation (Co-operation, 2013)	Recorded across categories; blockages, rodents, flooding, pollution, customer account, and other	1.13
Canadian National Water and Wastewater Benchmarking Initiative (AECOM, 2013)	Water quality customer complaints	0.5
	Water pressure complaints	0.43
Canadian National Water and Wastewater Benchmarking Initiative (AECOM, 2013)	Wastewater related complaints	3.55
	Odour complaints	0.33
Canadian National Water and Wastewater Benchmarking Initiative (AECOM, 2013)	Stormwater related customer complaints	1.4

Figure 54: Customer complaints of NPR participants versus international medians for water wastewater and stormwater



Additional detail on the nature of complaints has been reported against categories outlined in DIA Non-Financial Performance Measure Rules (Department of Internal Affairs, 2014). A number of participants do not currently have data on these measures. The proportion of respondents in each data confidence category has been included to illustrate data availability. Where data confidence rating of "N" Is supplied this indicates there is no data available.

The low confidence in complaints data means results in this section should be interpreted with caution. While a low complaints frequency may indicate a high performing system, it could equally suggest that complaints tracking systems require further development.

4.1.1 WATER COMPLAINTS

Table 12: Summary statistics for total number of water complaints

Complaint statistics	Drinking water clarity [WSS5a]	Drinking water taste [WSS5b]	Drinking water odour [WSS5c]	Drinking water pressure of flow [WSS5d]
Median	10	11	1	37
Upper quartile	2.5	2	0	2.5
Maximum	2432	113	9	823
Minimum	0	0	0	0
Lower quartile	58.5	18	2.8	72.5

Figure 55: Water complaints and data confidence by complaint type

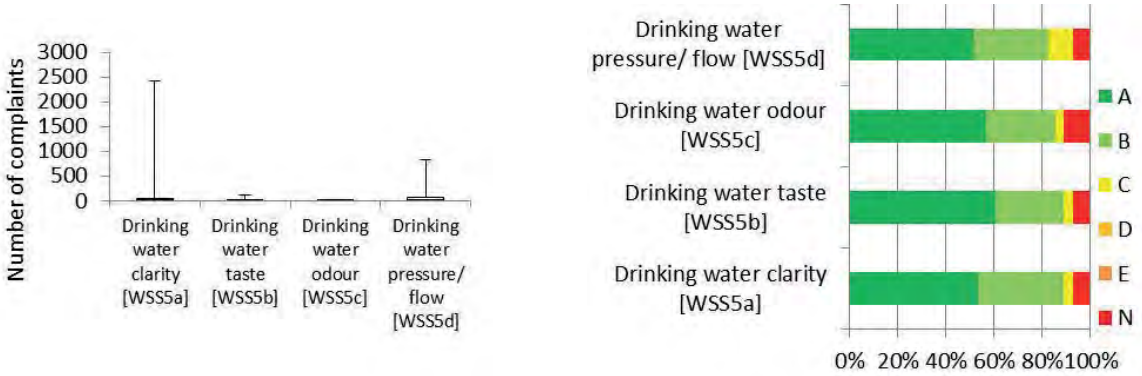
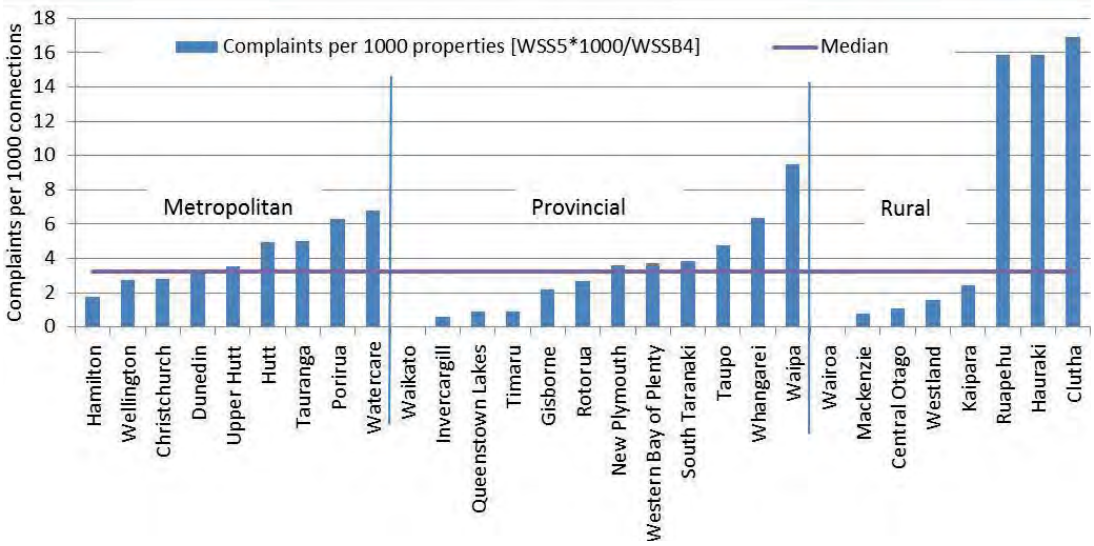


Figure 56: Number of water complaints per 1000 properties



4.1.2 WASTEWATER COMPLAINTS

Table 13: Summary statistics for wastewater complaints

Complaint statistics	WWTP overflow or odours [WWS5a]	Sewer odours [WWS5b]	Pump station overflow or odours [WWS5c]	Sewerage system faults [WWS5d]	Sewerage system blockages [WWS5e]
Median	1	6	1	33	36
Upper quartile	0	1	0	5	15
Maximum	254	699	33	7101	841
Minimum	0	0	0	0	0
Lower quartile	3	14	4	92	76

Figure 57: Wastewater complaints by complaint type

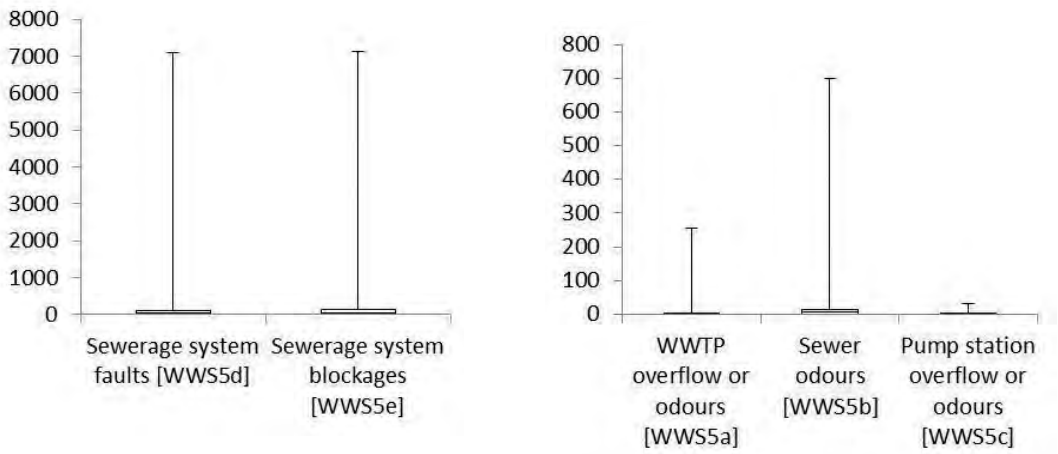


Figure 58: Confidence in wastewater complaint data

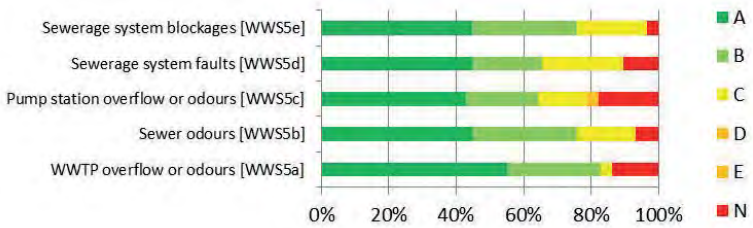
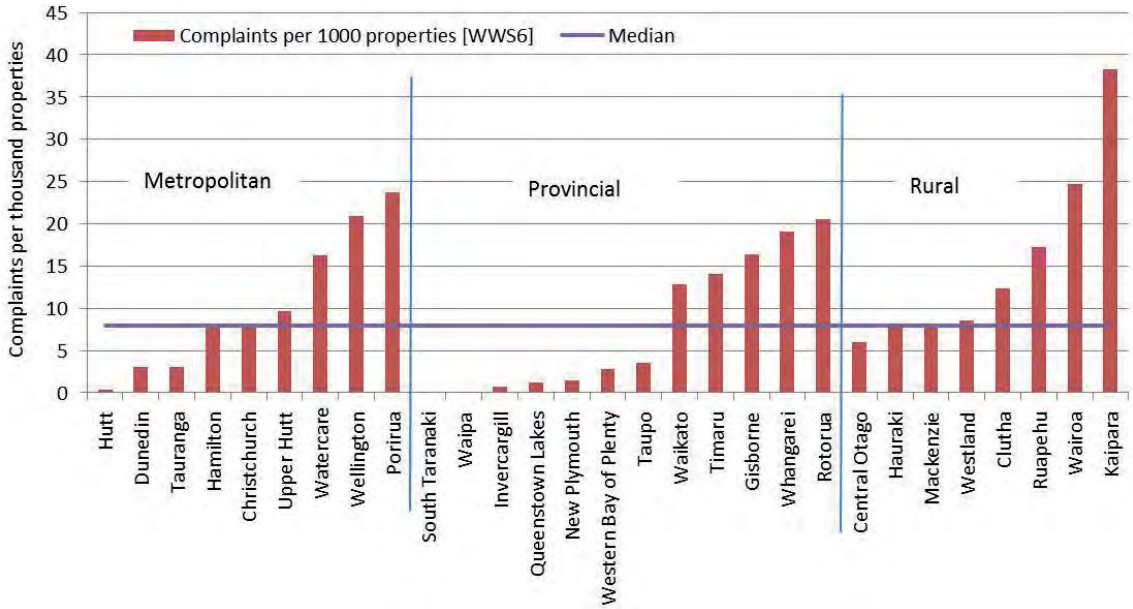


Figure 59: Number of wastewater complaints per 1000 properties



4.1.3 STORMWATER COMPLAINTS

Table 14: Summary statistics for stormwater complaints

Complaint statistics	Blockages [SWS2a]	Faults [SWS2b]
Median	21	17.5
Upper quartile	9	5.8
Maximum	111	996
Minimum	0	0
Lower quartile	47	76.5

Figure 60: Stormwater complaints and data confidence by complaint type

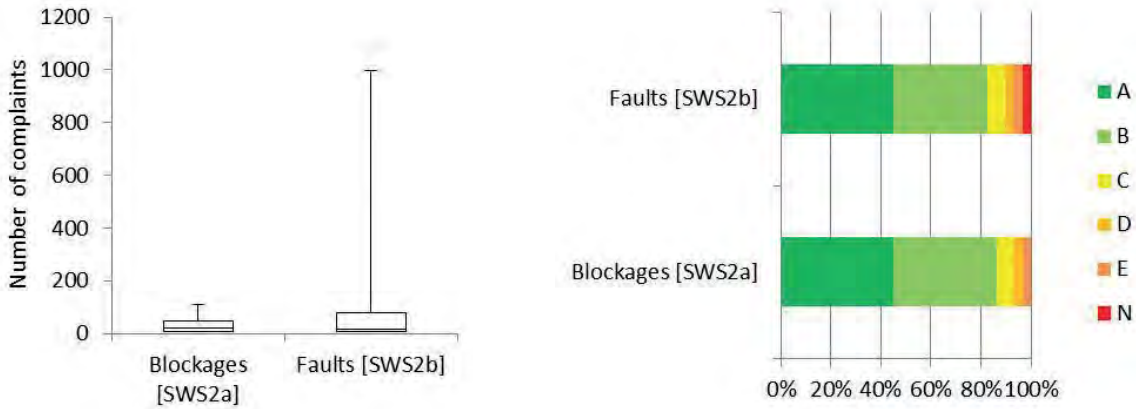
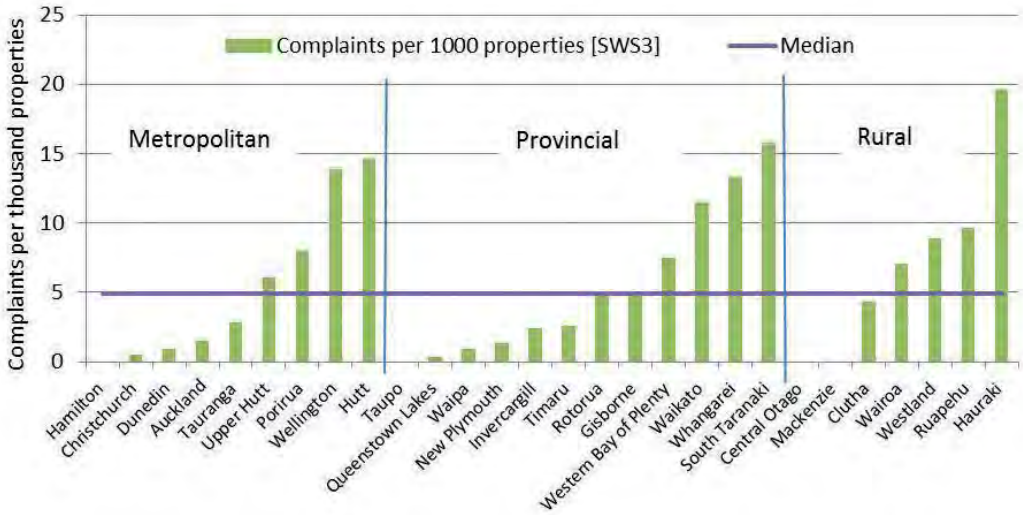


Figure 61: Number of stormwater complaints per 1000 properties



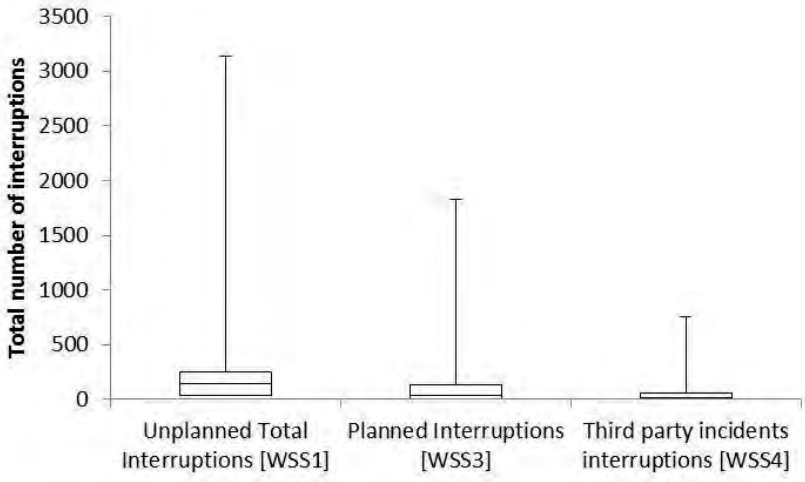
4.2 Water supply interruptions

Planned, unplanned and third party interruptions to the water supply network collectively provide an indication of continuity of supply, a mandated reporting metric for DIA Non-financial reporting (Department of Internal Affairs, 2014).

Table 15: Summary statistics on number of water supply interruptions

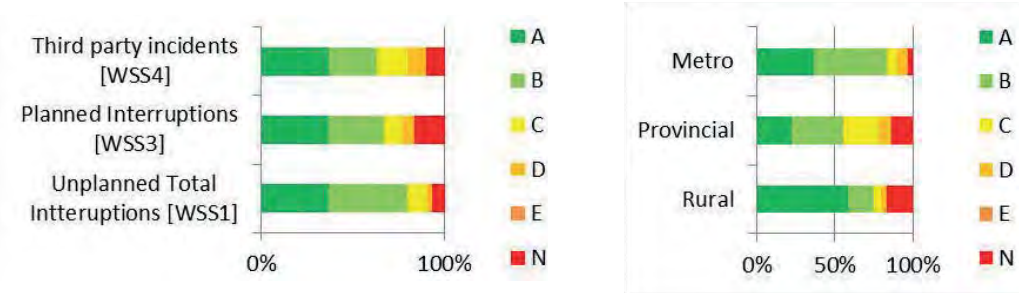
Interruption statistics	Unplanned Total Interruptions [WSS1]	Planned Interruptions [WSS3]	Third party incidents interruptions [WSS4]
Median	139.5	35	15.5
Upper quartile	36.5	6.75	1.75
Maximum	3137	1832	751
Minimum	0	0	0
Lower quartile	252.25	129.75	54

Figure 62: Number of interruptions to the water supply network



Data confidence ratings for interruptions illustrate that a number of participants do not currently have data for this metric. This is particularly true of rural sector participants, with half having poor quality or no data available.

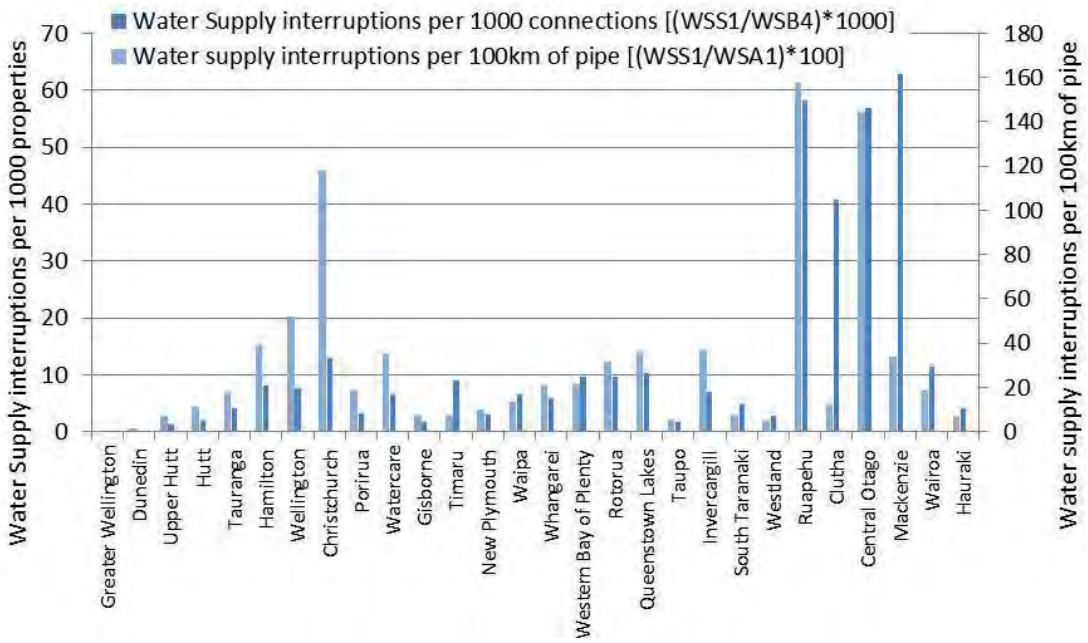
Figure 63: Data confidence of interruptions by council sector and interruption type



Water supply interruptions comparisons are influenced by the normative factors used to compare relative performance. DIA non-financial reporting measures use a normative factor of 1000 connections. It is of note that this metric is likely to favour participants with high population density who have fewer kilometres of water main per connection that could be interrupted.

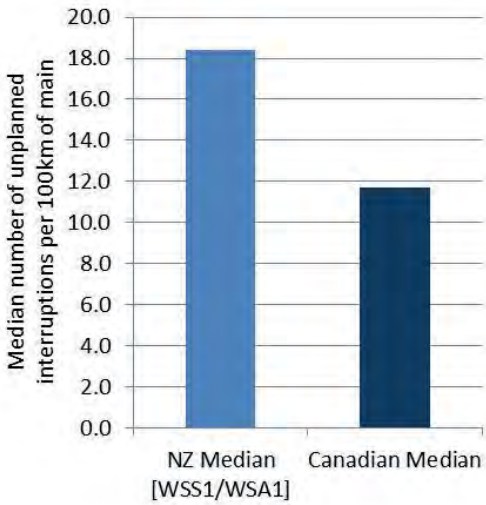
Comparing unplanned water supply interruptions per head of population with unplanned interruptions per kilometre of mains illustrates the difference that normative factors play in assessing relative performance. These differences are important to note when attempting to draw conclusions about relative performance.

Figure 64: Unplanned water supply interruptions normalised by 1000 connections and 100km of pipe



Canadian benchmarking (AECOM, 2013) uses the metric of number of unplanned system interruptions per 100km of pipe length to assess continuity of water supply. In 2011, the median interruption frequency was 11.7 per 100km of pipe i.e. lower than the median of 15.7 unplanned interruptions amongst NPR participants.

Figure 65: Median unplanned interruptions per 100km of water main for NPR versus Canadian benchmarking participants



4.3 Fault response times

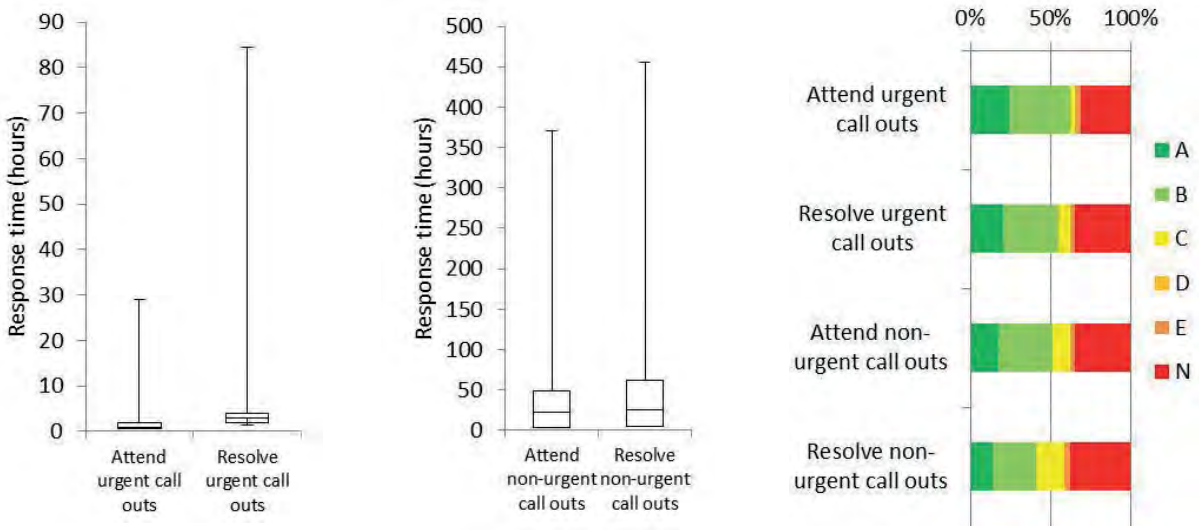
This section contains information on fault response attendance and resolution times and data confidence. These metrics are a requirement for DIA non-financial reporting (Department of Internal Affairs, 2014). Data confidence ratings illustrate that a number of NPR participants do not currently have response time data available.

4.3.1 WATER RESPONSE TIMES

Table 16: Summary statistics for the time taken to respond (in hours) to water call outs

Response time statistics [WSS13]	Attend urgent call outs	Resolve urgent call outs	Attend non-urgent call outs	Resolve non-urgent call outs
Median	1.0	3.0	23.1	24.9
Lower quartile	0.6	2.0	3.5	4.5
Maximum	27.0	80.3	322.1	392.7
Minimum	0.3	0.5	0.7	0.9
Upper quartile	2.0	4.1	48.4	62.4

Figure 66: Water supply response times and data confidence levels

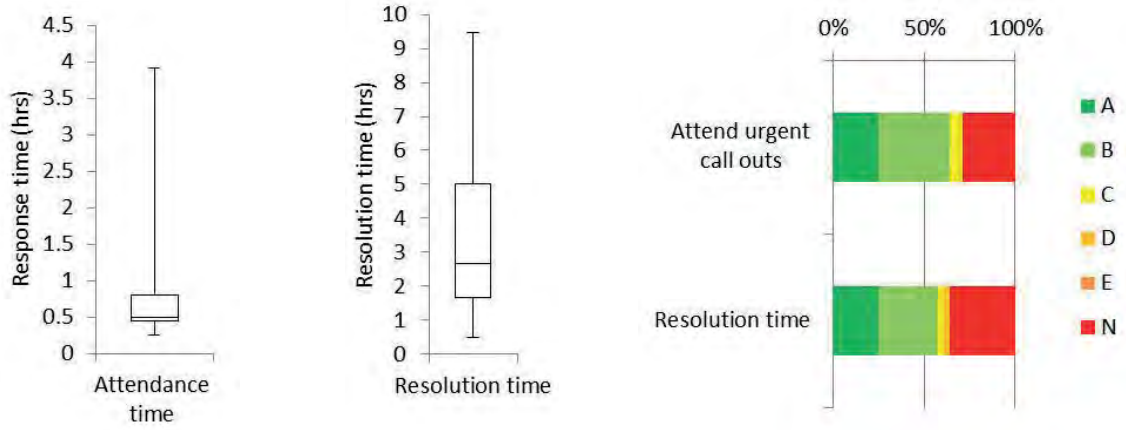


4.3.2 WASTEWATER RESPONSE TIMES

Table 17: Summary statistics for the time taken to respond (in hours) to wastewater call outs

Response time summary statistics [WWS7]	Attendance time	Resolution time
Median	0.60	2.68
Lower quartile	0.48	1.67
Maximum	9.54	9.47
Minimum	0.25	0.50
Upper quartile	1.00	5.00

Figure 67: Wastewater fault attendance and resolution times and data confidence

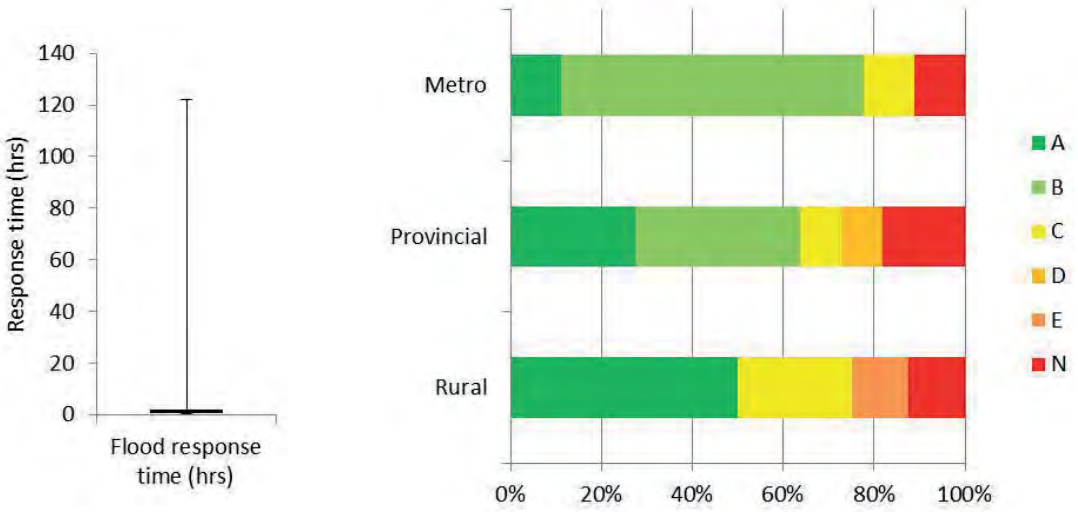


4.3.3 STORMWATER RESPONSE TIMES

Table 18: Summary statistics for the time taken to attend to call outs (in hours) related to flooding events

Stormwater response statistics [SWS5]	Flood response time (hrs)
Median	24.9
Upper quartile	4.5
Maximum	392.7
Minimum	0.9
Lower quartile	62.4

Figure 68: Time taken to attend to call outs (in hours) related to flooding events and data confidence by sector group



4.4 Compliance

4.4.1 DRINKING WATER QUALITY

The Health (Drinking Water) Amendment Act 2007 contains a statutory requirement that all drinking-water suppliers providing water to more than 500 people have a Water Safety Plan to guide the safe management of their supply. The Health Act is complemented by the Drinking Water Standards for New Zealand (DWSNZ) which specifies maximum acceptable concentrations of harmful contaminants in drinking water (Ministry of Health, 2008).

The Annual Report on Drinking Water Quality (Ministry of Health, 2015) describes drinking water quality for all registered suppliers serving more than 100 people, and progress towards meeting the requirements of the Health Act 1956, including bacterial, protozoa as well as chemical standards is outlined in the DWSNZ. The Annual report provides detailed sector analysis as well as data for individual water supply systems.

DIA Non-financial measures (Department of Internal Affairs, 2014) also require local authorities report the extent to which drinking water complies with bacteria and protozoa criteria in the DWSNZ. To align with the DIA metrics these indicators have been included in NPR data collection, but are not reported here to avoid duplicating information in the Annual Report on Drinking Water Quality (Ministry of Health, 2015).

4.4.2 RESOURCE CONSENT COMPLIANCE

Resource consent compliance has been recorded across metrics required under DIA Non-financial performance measures (Department of Internal Affairs, 2014). Compliance with resource consents for both wastewater and stormwater across these measures is high as was data confidence.

Table 19: Resource consent non-compliance for wastewater and stormwater

Column1	Abatement notices	Infringement notices	Enforcement orders	Successful prosecutions
Wastewater [WWE5]	5	8	1	5
Stormwater [SWE1]	1	1	0	1

Participants were additionally asked to report on the number of wastewater treatment plants without consent approvals [WWE4]. Taupo was the only participant to report a treatment plant without resource consent approvals, at Acacia Bay, which was still legally operating under an expired consent while the new consent is being processed.

Consent conditions are a legal requirement, however participants noted that consent compliance implies different things for different consents, as compliance conditions vary across jurisdiction.

5. Water Supply

KEY OBSERVATIONS IN THIS SECTION:

There are opportunities to reduce water loss. Of the 19 participants who had assessed water loss efficiency using the Infrastructure Leakage Index, four had "high" or "very high" water losses. Median current annual real losses of 161 litres/service connection/day is twice as high as the urban Australian median of 79 litres/service connection/day (National Water Commission, 2014).

Water loss efficiency assessments are not universally employed. Fewer than half the NPR respondents have reliable or highly reliable data on water loss. Current annual real loss in connections per day is the water loss efficiency metric most widely reported, however over a third of participants had no data for this metric. Large variations in current annual water loss across years suggest water loss methodologies are not being consistently applied.

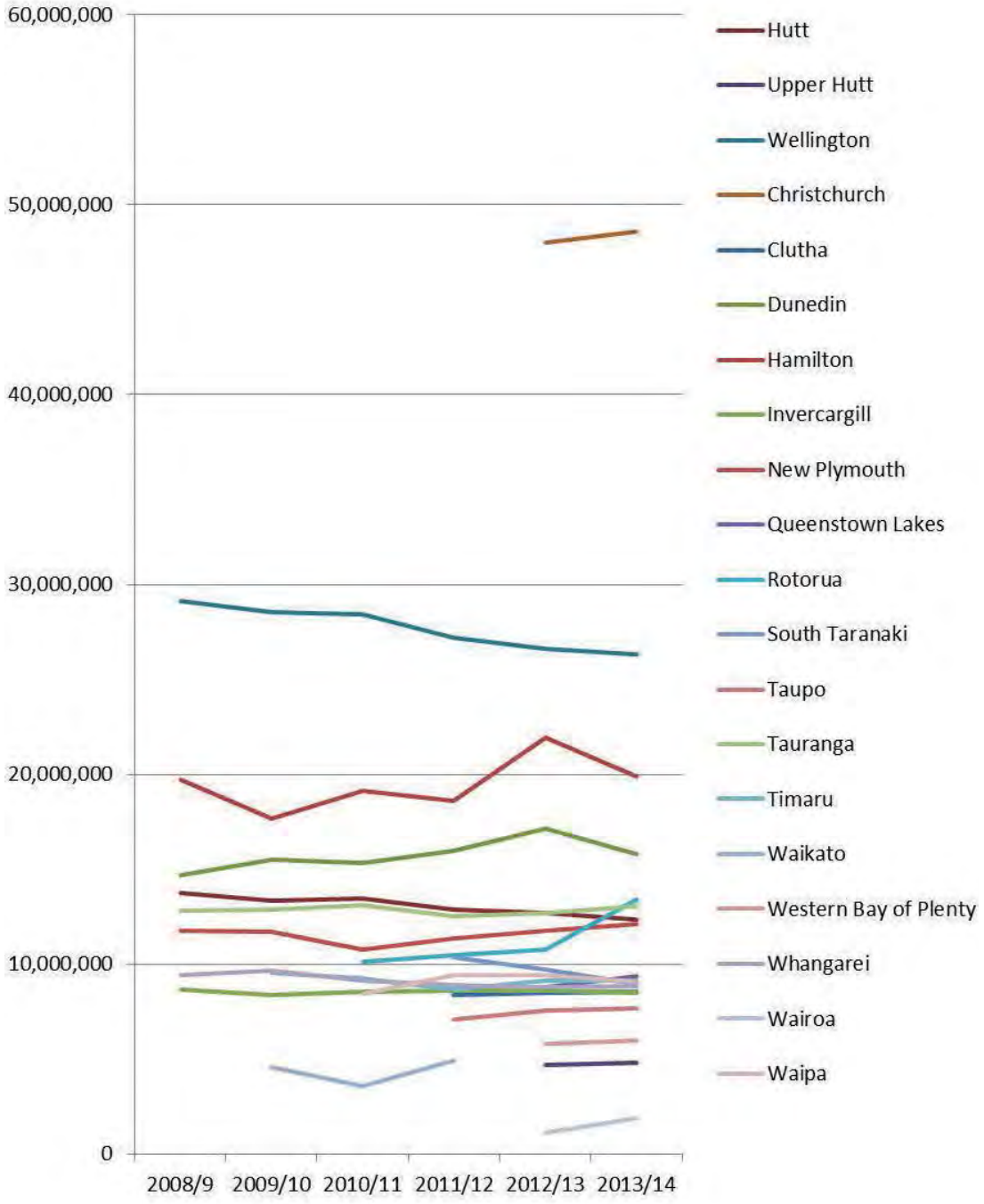
Residential water use is high relative to most international benchmarks. 231 litres per person per day was the median water use amongst NPR participant residential customers. This is higher than median residential water use volumes in Pacific and World Bank benchmarking exercises and on par with Canada.

Metering is common practice in non-residential properties however is not yet wide spread amongst residential properties. On average NPR participants metered 94% of non-residential properties, but only 29% of residential properties.

468 million cubic metres of water was supplied to water systems [WSB5] managed by NPR participants in 2013-14. Water supply volumes have remained relatively constant over time amongst repeat participants.

Timaru District Council data is for urban schemes only in Figures 69, 70, 71 and 73.

Figure 69: Water supplied to participants system in cubic metres



5.1 Water loss

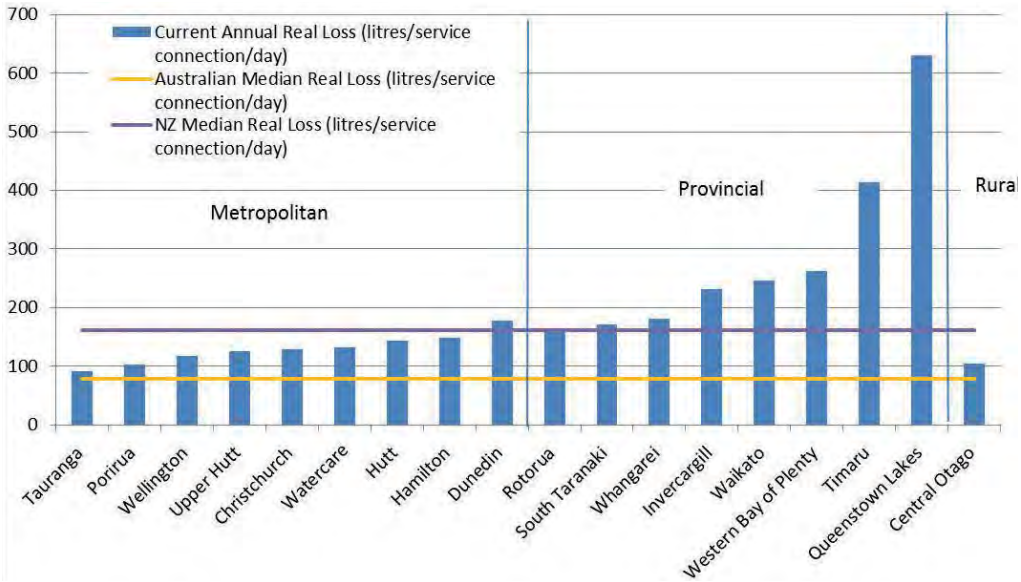
70.7 million cubic meters was the total water lost in NPR participants networks. Sources of water loss include unbilled and unauthorised consumption, and leakage from mains, service reservoirs and connections.

Various metrics are used to account for different losses throughout the water supply system. The NPR uses infrastructure leakage indicators recommended in the study "Benchmarking of Water Losses in New Zealand Manual" (Dr Ronnie McKenzie, 2008) and international best practice guidance documentation as performance indicators for comparing relative water loss including current annual real losses and the infrastructure leakage index.

The current annual real loss of the system is the difference between total water losses and apparent losses. Real losses include water losses from leaks bursts and overflows from the pressurised system and overflows from service reservoirs up to the customer boundary. They do not include apparent losses due to unauthorised consumption resulting from theft, illegal use or unregistered customers.

The National Water Commission benchmarked water loss amongst urban Australian water providers who in 2012-13 had median real losses of 79 litres/service connection/day.

Figure 70: Current annual real losses (litres/service connection/day)

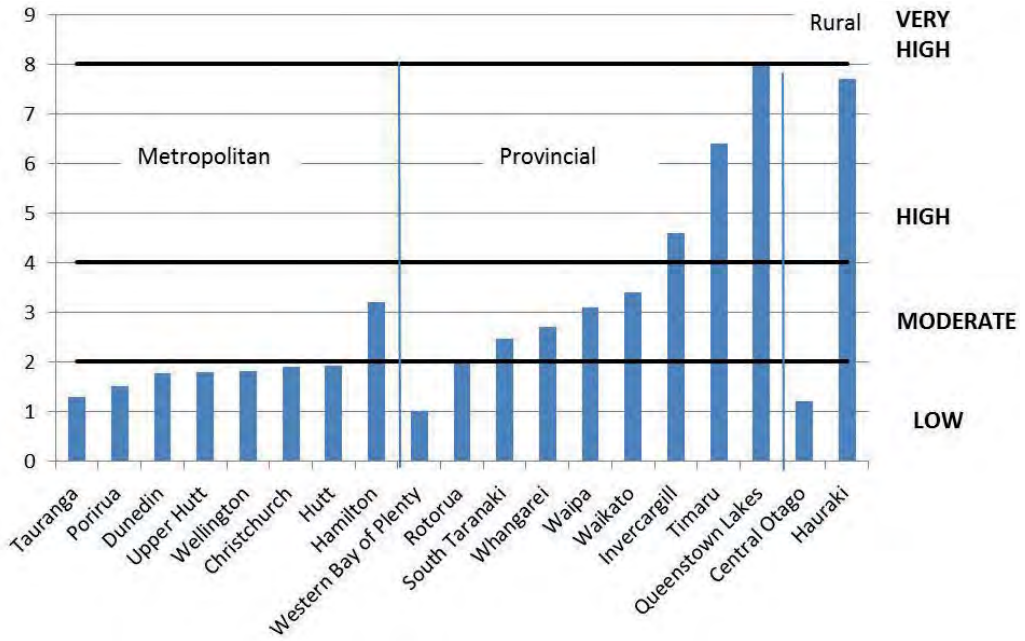


The Infrastructure Leakage Index (ILI) provides an overview of leakage management at the current average operating pressure by dividing current annual real losses by unavoidable annual real losses. It may be used for overview of comparison between utilities. The European Commission reference document "Good Practices on Leakage Management" (European Union, 2015) has developed priorities of action based on different ranges of ILI shown in the table below.

Table 20: Likely priorities for action based on the Infrastructure Leakage Index

Recommended actions for each ILI description	LOW ILI <2	MODERATE 2<ILI <4	HIGH 4<ILI<8	VERY HIGH ILI >8
Investigate pressure management options	Yes	Yes	Yes	
Investigate speed and quality of repairs	Yes	Yes	Yes	
Check ALC economic intervention frequency	Yes	Yes		
Introduce/improve active leakage control	Yes	Yes	Yes	
Identify options for improved maintenance		Yes	Yes	
Assess Economic Leakage Level	Yes	Yes		
Review burst frequencies			Yes	
5-year plan to achieve next lowest band			Yes	Yes
Fundamental peer review of all activities				Yes

Figure 71: Infrastructure Leakage Index for NPR Participants

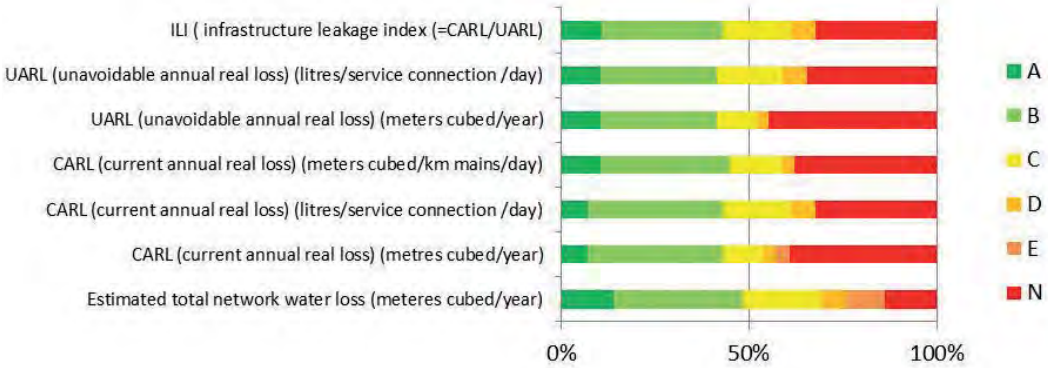


Percentage water loss figures are another metric often used in international reports and are required for DIA reporting. The NPR has not reported on percentage water loss as it has been shown to be less meaningful for comparing performance of different networks, particularly where average water consumption varies. Where average water consumption varies percentage water loss figures will vary proportionally.

The majority of NPR participants do not have universal metering in place limiting the confidence of water loss data. Reported confidence ratings across various water loss metrics included in the NPR illustrates that fewer than half of NPR participants have very good or good quality data on water loss.

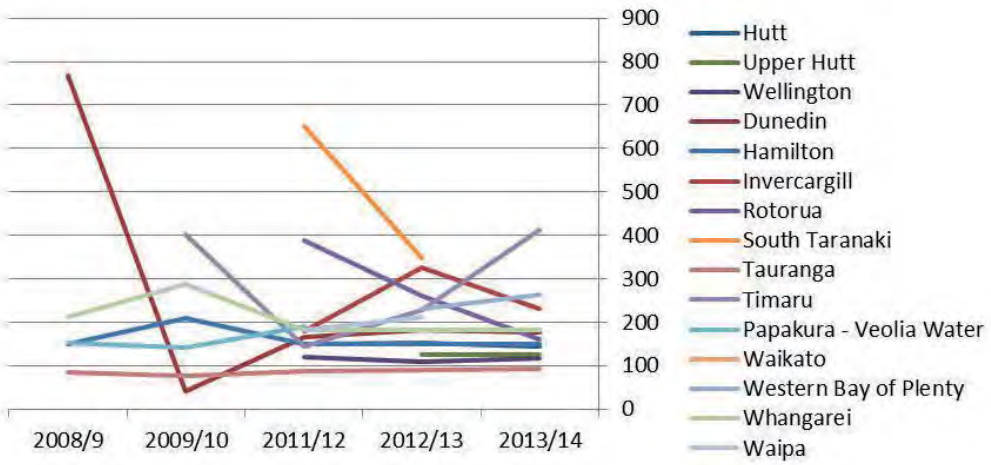
Most councils have estimated total water loss however the efficiency with which water loss is being managed is less widely assessed. The efficiency of water loss can be managed using any of the other indicators included in performance measure WSE1 and shown in *Figure 72: Water loss data confidence rating by indicator type.*

Figure 72: Water loss data confidence rating by indicator type



Low confidence in water loss data confidence and large annual variance in current annual real loss suggests water loss methodologies are not being consistently understood and applied. The gradual convergence of loss measures amongst return participants does suggest that water loss calculations may be improving over time.

Figure 73: Trends in current annual real loss (litres/service connection/day)



5.2 Residential water consumption

Universal metering of residential water use has not been implemented by a number of NPR participants thus requiring estimates of residential water consumption to be derived through other methods. Previously the NPR requested authorities' self-report data. In 2012-13 respondents employed a range of approaches to estimate residential water use including:

- Conducting a water balance
- Internal surveys
- Comparison with other water suppliers
- Extrapolating from a sample of customers with meters

To facilitate standardised comparisons in 2013-14 the following formula was used to determine residential water use:

$$\text{Residential consumption[WSB8]} = \frac{\text{Water supplied [WSB5]-Non residential Consumption [WSB7]-Network loss [WSE1]}}{\text{Water Serviced Population [WSB1][WSF11+WWF12+SWF8])}}$$

Where universal metering, or in depth end use water studies have been conducted, residential end use figures have been based on council supplied data. Limitations with the standardised approach included:

- Un-metered commercial water use being included in residential figures (in particular on site irrigation and trough water were cited by participants as examples)
- Water loss data that was inaccurate or unavailable
- Water serviced populations in high rise apartments being under-represented, as water serviced population statistics have been based on connections
- Seasonal population variations unaccounted for in population statistics

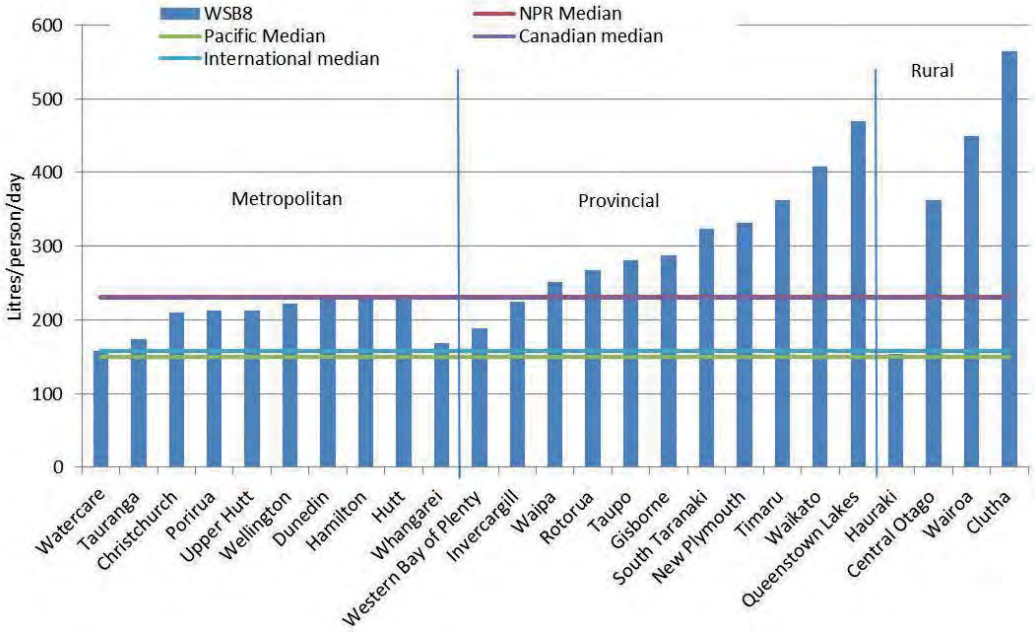
The limitations with the calculation point to the need for improved understanding of the split between residential and non-residential uses and water end uses amongst residential households.

Daily residential water use is a commonly applied metric for water efficiency, facilitating comparisons with international benchmarks. Daily residential water consumption comparisons should be considered with the aforementioned data limitations in mind.

Table 21: International benchmarks for daily residential water consumption

Benchmarking study	Litres/person/day
Pacific Water and Wastes Association (Thiadens, 2013)	150 (2013 average)
Canadian National Water and Wastewater Benchmarking Initiative (AECOM, 2013)	231 (2011 median)
The International Benchmarking Network for Water and Sanitation Utilities (Danilenko, 2014)	158 (2010 median)

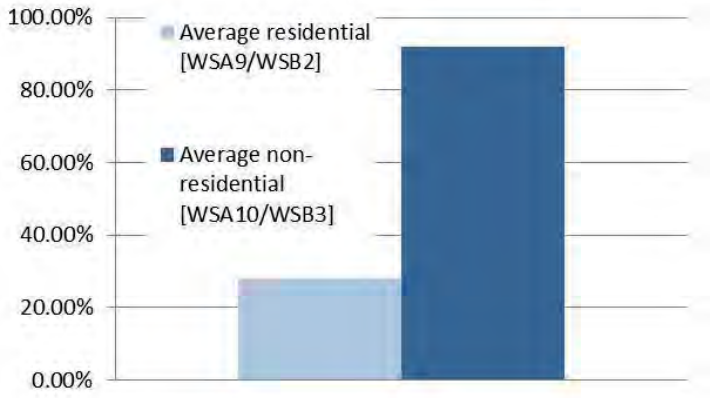
Figure 74: Residential water consumption (litres/population/day)



5.3 Metering

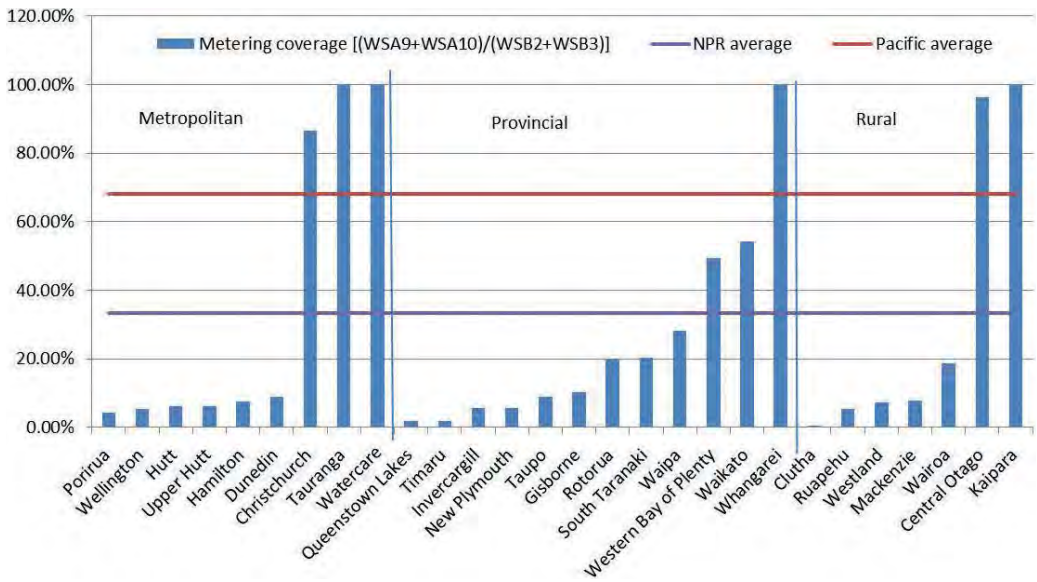
Water metering is widespread amongst non-residential properties but not yet common for residential properties.

Figure 75: Percentage of metered connections for residential versus non-residential properties



There are large variations in metering coverage amongst participants, however median metering coverage is twice as high in Pacific Island benchmarking participants than NPR benchmarking participants.

Figure 76: Percentage of connections with water metering



5.4 Sludge production

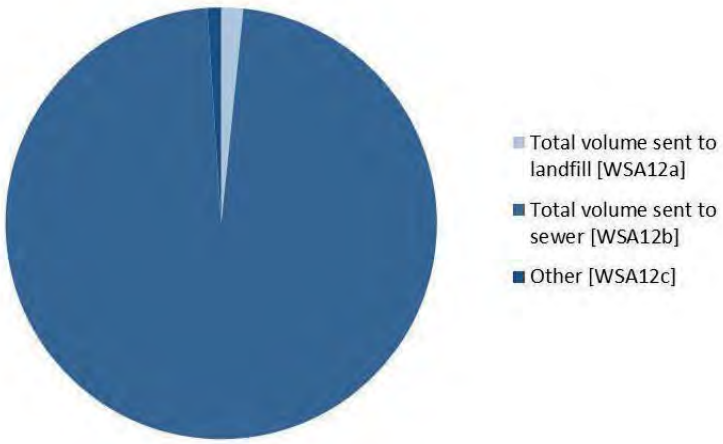
Water sludge is produced as a bi-product of the water treatment process. Most commonly sludges were disposed of to landfill, with a small amount being disposed to sewer or via:

- Land application
- Onsite stockpiling
- Third party disposal with unknown disposal route
- Disposed to river

Table 22: Water treatment sludge production

Water treatment sludge production statistics [WSA11]	
Number of participants who reported sludge production volumes	13
Total quantity of sludge produced (tDS/year)	8

Figure 77: Water treatment sludge disposal routes



6. Wastewater

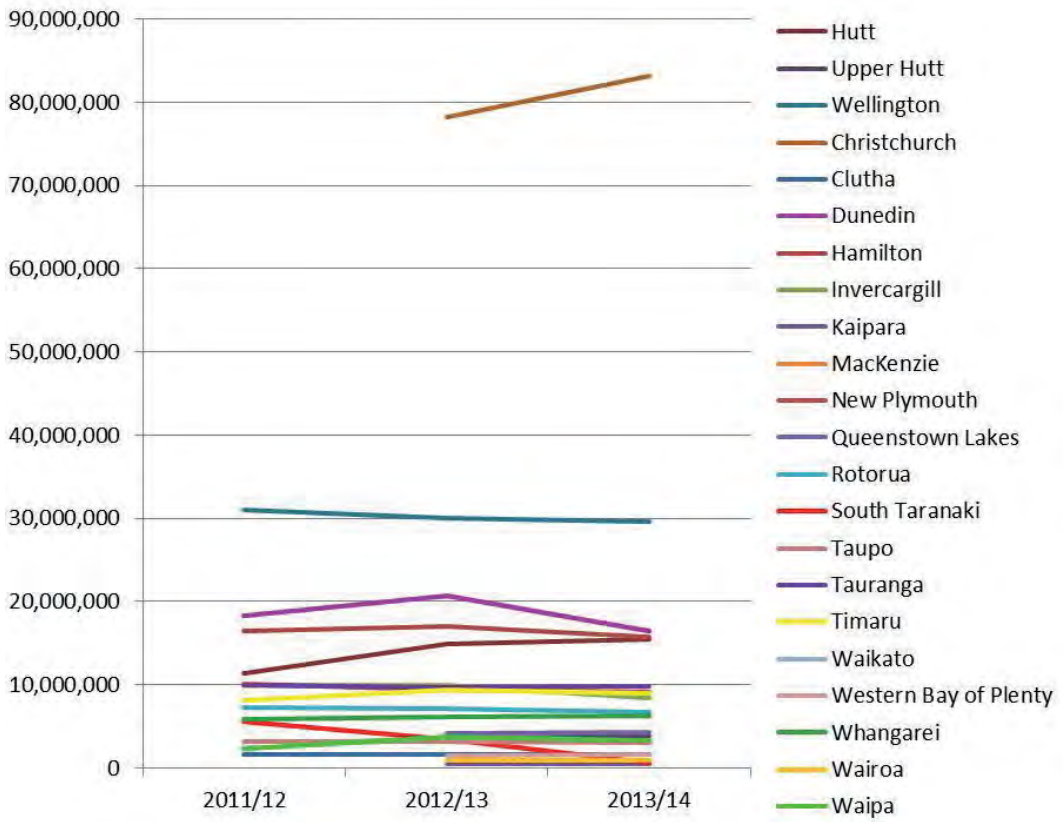
KEY OBSERVATIONS:

Some wastewater sludges are widely used for beneficial reuse with room for further improvement. 52,461 tonnes of wastewater sludge were used for land rehabilitation or compost or other beneficial reuses. 27,781 tonnes were disposed of to land or stockpiled on site.

Data on wet and dry weather flow required for DIA Non-financial reporting is not available. Six participants do not have data that distinguishes between wet and dry weather flows.

In 2013-14 over 386 million cubic metres of sewage was produced and reticulated to treatment plants in areas under the jurisdiction of NPR participants. Wastewater volumes have remained relatively constant.

Figure 78: Total wastewater production in cubic metres



6.1 Overflows

The total number of sewage overflows has been split between wet and dry weather flows, in line with DIA Non-Financial Reporting metrics (Department of Internal Affairs, 2014). Data confidence ratings show that a number of councils do not currently have data available on these indicators.

Figure 79: Total number of overflows per 1000 connections showing wet and dry weather split where available

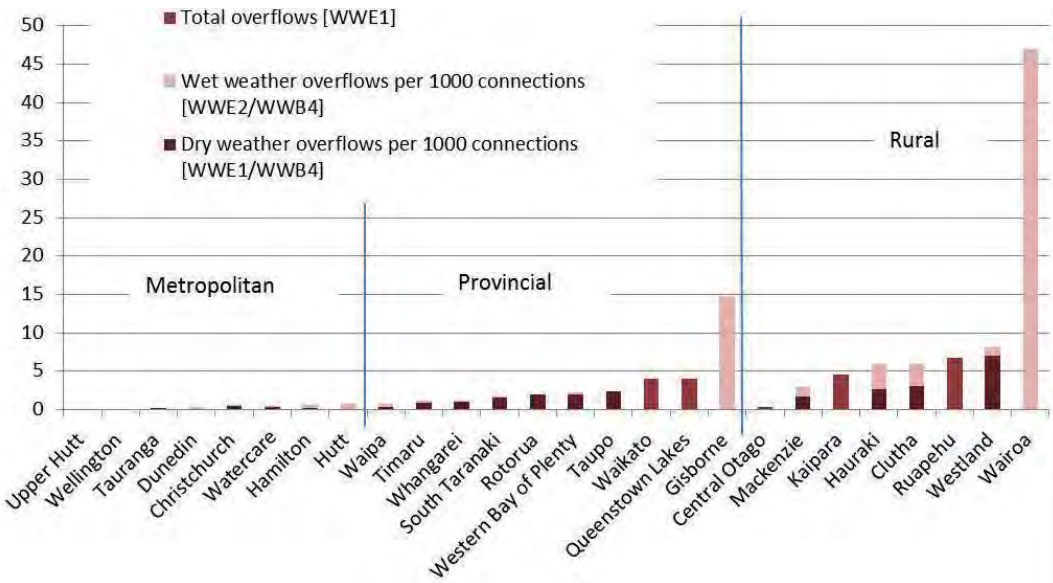
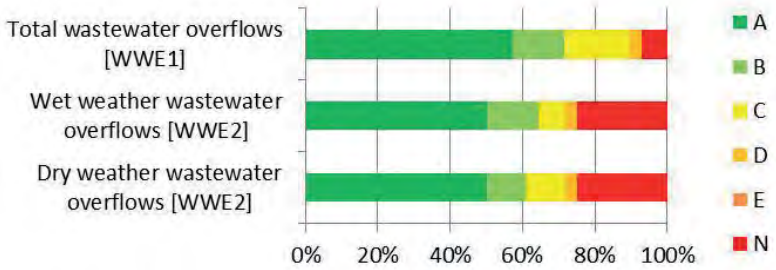


Figure 80: Data confidence for wastewater overflows



6.2 Wastewater sludge

Sludge is produced as a by-product of wastewater treatment processes and requires disposal. 80,741 tonnes of wastewater sludges were produced by 17 participants who had sludge production data. Sludge ponds are employed by a number of authorities and do not require cleaning out on an annual basis, meaning data was often not available.

Figure 81: Wastewater sludge disposal routes by known weight (tonnes of dry solids)

Table 23: Wastewater sludge disposal routes

Council	Wastewater sludge disposal route
Hutt City Council	Land application and landfill
Porirua City Council	Landfill
Wellington City Council	Landfill
Christchurch City Council	Rehabilitation of mine tailings
Dunedin City Council	Incineration and landfill
Hamilton City Council	Vermicomposting
Tauranga City Council	Landfill and stockpiled in ponds
Watercare Services Ltd	Landfill and pond rehabilitation
Gisborne District Council	Marine Outfall
Invercargill City Council	Stockpiled in ponds
New Plymouth District Council	Sold as bio-boost fertiliser, off speck product landfilled
Queenstown Lakes District Council	Landfilled or stockpiled in ponds
Rotorua District Council	Vermicomposting
South Taranaki District Council	Land Application
Taupo District Council	Land Application
Waikato District Council	Stockpiled in ponds
Western Bay of Plenty District Council	Composting and reuse
Whangarei District Council	Landfill
Waipa District Council	Onsite storage
Clutha District Council	Landfill
Central Otago District Council	Landfill
Hauraki District Council	Stockpiled in ponds

7. Stormwater

KEY OBSERVATIONS:

Some wastewater sludges are widely used for beneficial reuse with room for further improvement. 52,461 tonnes of wastewater sludge were used for land rehabilitation or compost or other beneficial reuses. 27,781 tonnes were disposed of to land or stockpiled on site.

Data on wet and dry weather flow required for DIA Non-financial reporting is not available. Six participants do not have data that distinguishes between wet and dry weather flows.

The NPR included questions on stormwater treatment not reported here. This is because the definition of stormwater treatment varies across authorities. Catch pits for example have been interpreted as a stormwater treatment methodology by some authorities and not by others.

7.1 Flooding events

The number of flooding events and habitable floors per flooding event has been recorded in line with DIA Non-Financial Performance Measures (Department of Internal Affairs, 2014).

It is of note that the number of habitable floors per flooding event appears to be low. This may reflect that properties are generally not flood affected, or that this metric is not well understood or recorded.

Table 24: Flooding event statistics

Flooding performance measure	
Median flooding events per participant [SWS4]	1.00
Total flooding events across all participants [SWS4]	104
Median habitable floors per flooding event [SWS4a/SWS4]	0.10
Flooding events for which habitable floors was not recorded [SWS4a]	21
Flooding events where habitable floors was recorded [SWS4a]	83

Figure 82: Total number of flooding events

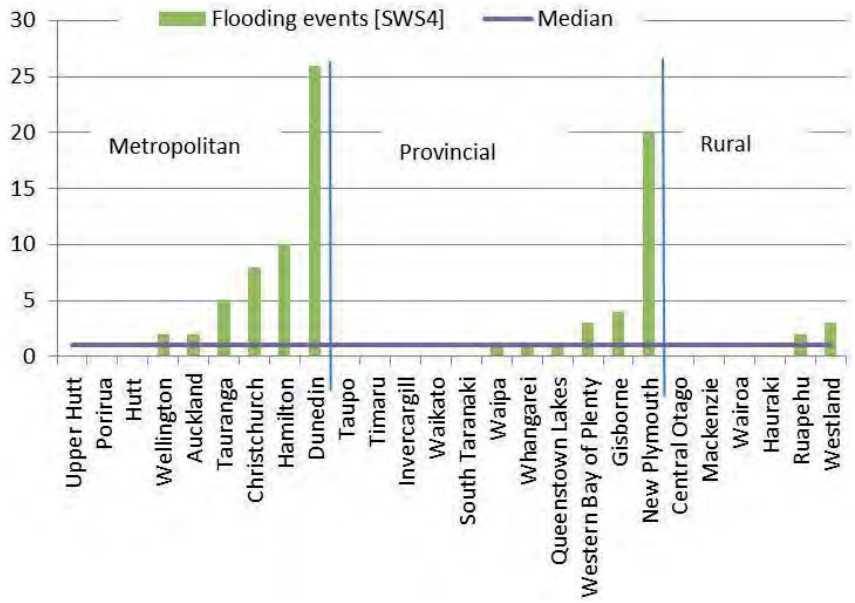
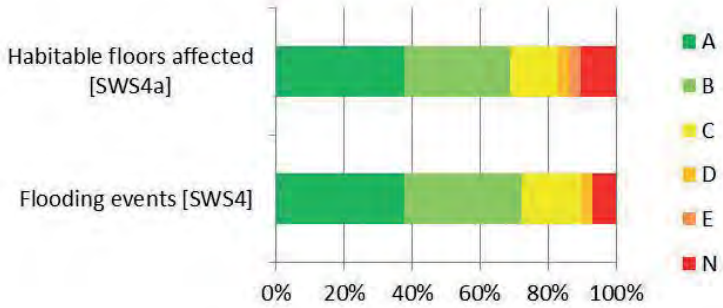


Figure 83: Flooding event data confidence



8. Conclusion

Benchmarking for continuous improvement is a cyclical process that consists of two consecutive steps, performance assessment and performance improvement. The National Performance Review provides participants and decision makers with a performance assessment.

It is intended that this performance assessment will be used by participants to identify opportunities for improvement. The report also highlights key themes across the water sector that provides Water New Zealand with an opportunity to assist its members. Themes and Water New Zealand's response are outlined below.

Revenue does not appear to cover cost of most participants. Water New Zealand will seek to improve understanding of revenue sources being used to fund 3 waters infrastructure.

The National Performance Revenue reports on total reported revenue of participants, composed of developer contributions, supply to other authorities and other operating revenue.

Cost coverage ratios show that reported revenue is not covering the reported costs for a number of authorities. The shortfall between revenue and costs suggest that revenue is being sourced from other areas not identified in the report.

To improve understanding of revenue being used to fund 3 waters infrastructure Water New Zealand will consult with participants to identify where additional revenue streams are being sourced. This information will be used to update future National Performance Review guidelines.

Metering is common practice in non-residential properties however is not yet wide spread amongst residential properties. Water New Zealand will continue to advocate for the adoption of residential water metering where it is cost effective to do so.

Water New Zealand will continue to advocate for the adoption of residential metering as an effective tool for managing network demand. Water New Zealand's position on residential water metering is outlined in our Water Metering and Volumetric Charging on Domestic Dwellings policy (Water New Zealand, 2014).

To advance the policy Water New Zealand will facilitate the dissemination of lessons learnt from districts who have introduced universal metering through our Journal, regional based events and at our Annual Conference. In addition, the Water New Zealand website contains a Demand Management and Water Metering portal, which will be updated over 2015.

Case studies will be provided that showcase lessons learnt from councils who have installed metering. These examples provide others with learnings on implementing meters, as well as the benefits of metering including water loss reduction, lowered wastewater treatment costs, reduced pumping volumes, differed network upgrades and improved network understanding.

Water loss understanding and volumes have room for improvement. Water New Zealand will re-launch guidance and benchmarking software for assessing water loss.

Water loss efficiency assessments are not universally employed. Where assessments have been undertaken they indicate that there is room to improve water loss.

Guidance and software to support the assessment and management of water loss was developed in 2002. To ensure that the document captures current understanding, subsequent updates to software and guidelines have been completed in 2008 and 2010 respectively (Lambert, 2010). Findings of the National Performance Report indicate there is room to improve the use of this material.

Water New Zealand will use its existing communication forums to re-launch guidance material and highlight the ongoing need for improved water loss management. Information dissemination will occur through relevant special interest groups, regional forums, social media platforms, the Water Journal and at the Water New Zealand Annual Conference.

We also note that any actions that improve the uptake of residential water metering will make substantial grounds towards improving the accuracy and ease of water loss assessments.

Residential water use is high relative to international benchmarks. We will seek out partnerships to improve the understanding of residential end use patterns and opportunities for improvement within New Zealand.

National Performance Review participants had median residential water consumption of 231 litres of person per day, higher than most international benchmarks. Where universal residential metering does not exist, the method used for determining residential end use varied. Data also contained a number of limitations restricting its accuracy. These related to difficulties determining serviced populations, and distinguishing between residential and other end uses.

To improve the ability to compare residential end use data across jurisdictions a standardised approach for determining residential end use (in the absence of metered data) is required. Water New Zealand will seek out partnerships to develop guidance that will standardise the approach for assessing residential end use, build understanding of existing areas of water end use and identify opportunities to improve water use efficiency.

We also note that any actions that improve the uptake of residential water metering will make substantial grounds towards improving the accuracy of residential water efficiency calculations.

Wastewater sludges are being beneficially reused but there is room for further improvement. Water New Zealand is updating guidance to support the safe application of wastewater sludges to land.

NPR participants were beneficially using wastewater sludges by producing agricultural products and rehabilitating land, however approximately one third of reported wastewater volumes went to landfill, and additional sludges where stockpiled on site or in lagoons. This excludes any assessment of backlog from previous years.

To support the beneficial reuse of sludges Water New Zealand is in the process of updating the current Biosolids Guideline. (New Zealand Water and Wastes Association, 2003). The guidelines support the safe application of biosolids to land in New Zealand. A revision of the guidelines in underway to update the guidelines with current information and provide additional guidance on related organic materials.

Customer Service Level information is not always available or consistently recorded. Water New Zealand will improve guidance on customer service reporting.

Customer service level indicators are required for mandatory Department of Internal Affairs reporting. Data on these indicators is not widely available nor consistently reported indicating that there is room to provide industry with improved definitions and guidance on customer service levels.

Water New Zealand will draw on participant and international complaints definition to improve guidance on customer complaint reporting. We will consult with DIA to ensure definitions are aligned with non-mandatory financial reporting measures.

Water New Zealand will consult with members and other stakeholders to determine if there is a role for Water New Zealand in providing further assistance in administering customer complaints systems.

Confidence in pipeline condition grading is generally low. Water New Zealand will work with its membership to identify opportunities to improve condition grading assessments.

Confidence in over half of pipeline condition grading data was categorised between "less reliable" and "no data confidence" categories. Water New Zealand has commenced discussions with its membership to identify what opportunities exist for the industry to collectively improve asset condition understanding.

Members have identified that meta data standards are required to provide a common platform for assessing asset condition. Water New Zealand is collaborating with a range of stakeholders to facilitate the development of such standards.

Training on data collection from buried pipelines has been developed by the New Zealand Water and Environment Training Academy (NZWETA, a Joint Venture between Water New Zealand and Opus).

The training has been developed to assist asset management and field staff to improve the quality and quantity of data available for asset condition grading. Through NZWETA we will continue to develop and promote the delivery of this course to 3 waters operators throughout New Zealand.

Assessment methodologies for above ground assets vary across participants. Water New Zealand will improve the functionality of its website to provide members with a single reference point that can be used to access guidance material.

A variety of above ground asset assessment methodologies were used by participants. New Zealand Asset Management Support (NAMS) guidelines were the most commonly applied and used for 45% of above ground assessments. Currently there is no reference point for water managers in New Zealand to access the range of useful guidance material that exists across agencies.

The majority of reference material on the Water New Zealand website has been produced in house. We will update our website to improve navigability and include links to third party resources. Website updates will be designed to provide a 'one stop shop' for technical reference material on 3 waters.

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Appendix I:

National Performance Review Participants and classifications

Participant	Sector
Auckland Council	Metro
Hutt City Council	Metro
Porirua City Council	Metro
Upper Hutt City Council	Metro
Wellington City Council	Metro
Christchurch City Council	Metro
Dunedin City Council	Metro
Greater Wellington Regional Council	Metro
Hamilton City Council	Metro
Tauranga City Council	Metro
Watercare Services Ltd	Metro
Gisborne District Council	Provincial
Invercargill City Council	Provincial
New Plymouth District Council	Provincial
Queenstown Lakes District Council	Provincial
Rotorua District Council	Provincial
South Taranaki District Council	Provincial
Taupo District Council	Provincial
Timaru District Council	Provincial
Waikato District Council	Provincial
Western Bay of Plenty District Council	Provincial
Whangarei District Council	Provincial
Waipa District Council	Provincial
Clutha District Council	Rural
Central Otago District Council	Rural
Hauraki District Council	Rural
Kaipara District Council	Rural
Mackenzie District Council	Rural
Ruapehu District Council	Rural
Westland District Council	Rural
Wairoa District Council	Rural

Appendix 2:

Alignment with DIA Non-financial reporting metrics

DIA Reference	DIA Measure	Corresponding NPR Indicator	Explanation of difference
PART 1	WATER SUPPLY		
1	Safety of drinking water	WSS7: Percentage of water supplied that is fully compliant with Drinking Water Standards	
a	Compliance with part 4 of the drinking water standards (bacterial compliance)	WSS7a: Bacteria compliance	
b	Compliance with part 5 of the drinking water standards (protozoa compliance)	WSS7b: Protozoa compliance	
2	Maintenance of the reticulation network Percentage of real water loss including methodology	WSE1b: Percentage estimated total network loss	Total network loss includes apparent losses
		WSEc, WSEd, WSEe: Current annual real loss (m^3/km/day)	NPR uses units expressed as litres/service connection/ day, m^3/km/day, m^3/day
3	Fault response times	WSS13: Fault response time	
a	Attendance for urgent call outs	WSS13a: Attendance for urgent call outs	
b	Resolution for urgent call outs	WSS13b: Resolution for urgent call outs	
c	Attendance for nonurgent call outs	WSS13c: Attendance for nonurgent call outs	
d	Resolution of nonurgent call outs	WSS13d: Resolution of nonurgent call outs	
4	Customer satisfaction Complaints per 1000 connections	WSB4: Total Water Serviced Properties	
a	Drinking water clarity	WSS5a Drinking water clarity	
b	Drinking water taste	WSS5b Drinking water taste	
c	Drinking water odour	WSS5c Drinking water odour	
d	Drinking water pressure or flow	WSS5d Drinking water pressure or flow	
e	Continuity of supply	WSS1 Unplanned interruptions	Sun of WSS1, WSS3 and WSS4 provides an indication of conintuity of supply. Requested as separate mea
		WSS3 Planned interruptions	
		WSS4 Third party incidents	

DIA Reference	DIA Measure	Corresponding NPR Indicator	Explanation of difference
f	The local authorities response to any of these issues	WSS13b Resolution for urgent call outs	The NPR has no qualitative assessment of responses other than response times
		WSS13d Resolution for non-urgent call outs	
PART 2	SEWERAGE AND TREATMENT AND DISPOSAL OF SEWAGE		
1	System and adequacy: Number of dry weather overflows per 1000 connections	WWE1 Dry Weather Wastewater Overflows	
2	Discharge compliance with resource consent	WWE5 Compliance f wastewater discharge consent in one year	
a	Abatement notices	WWE5a Abatement notices	
b	Infringement notices	WWE5b Infringement notices	
c	Enforcement orders	WWE5c Enforcement orders	
d	Convictions	WWE5d Convictions	
3	Fault response times median time to attend to blockage or fault	WWS7 Time to attend call-outs in response to sewerage overflows resulting from a blockage or other fault	
a	Attendance time	WWS7a Attendance time	
b	Resolution time	WWS7b Resolution time	
4	Customer satisfaction: Total number of complaints received per 1000 connections	WW5	
a	Sewage odour	WW5a WTP overflows or odour	Includes WTP and pump station overflows
		WW5b sewer odours	
		WW5c pump station overflows	
b	Sewerage system faults	WW5d sewerage system faults	
c	Sewerage system blockages	WW5e sewerage system blockages	
d	The territorial authorities response		The NPR has no qualitative assessment of responses other than response times

DIA Reference	DIA Measure	Corresponding NPR Indicator	Explanation of difference
PART 3	STORMWATER DRAINAGE		
1	System adequacy		
a	The number of flooding events that occur in a territorial authority district	SWS4 Number of flooding events	
b	Number of habitable floors per 1000 properties for each flooding event	SWS4b Number of habitable floors per 1000 stormwater serviced properties	NPR does not record floors affected per 1000 events
2	Discharge compliance with resource consent	SWE1 Compliance of stormwater discharge consents in one year	
a	Abatement notices	SWE1a Abatement notices	
b	Infringement notices	SWE1b Infringement notices	
c	Enforcement orders	SWE1 c Enforcement orders	
d	Convictions	SWE1d Successful prosecutions	
3	Response times Median time to attend flooding event	SWS5 Median time to attend flooding event	
4	Customer satisfaction Complaints per 1000 properties	SWS3 Stormwater complaints per 1000 serviced properties	

Appendix 3:

NPR requested data fields

WATER SUPPLY			
Code	**Measure**	**Description**	**Units**
Background Info			
WSB1	Total Water Serviced Population	Total residential population serviced by a reticulated water supply	Nu
WSB2	Total Water Serviced Properties - Residential	Total number of residential properties serviced by a reticulated water supply	Nu
WSB3	Total Water Serviced Properties – Non-Residential	Total number of non-residential properties serviced by a reticulated water supply	Nu
WSB4	Total Water Serviced Properties	Total number of all properties serviced by a reticulated water supply	Nu
WSB5	Water Supplied to Own System	Volume of water supplied in area under the Councils' jurisdiction. This is 'Water Supplied' in terms of the standard Water Balance	m^3/year
WSB6	Total Authorised Consumption in Area under the Council's Jurisdiction	'Authorised Consumption' in terms of the standard Water Balance in area under the Council's jurisdiction	m^3/year
WSB7	Total non-residential Water Consumption	Water consumption for non-residential properties.	m^3/year
WSB8	Average Residential Water Consumed per Person per Day	Calculated residential water consumption based on "Water Supplied to Own System" and "Total Water Serviced Population"	litres/person /day
Asset Quantities			
WSA1	Total Length of Public Water Supply Network	Total length of public water mains excluding service connections (ie mains to property connections)	km
WSA2	Condition of Pipelines	Proportion of water mains assessed as:	
WSA2a		Condition Grade 1	%
WSA2b		Condition Grade 2	%
WSA2c		Condition Grade 3	%
WSA2d		Condition Grade 4	%
WSA2e		Condition Grade 5	%

WATER SUPPLY			
Code	**Measure**	**Description**	**Units**
WSA3	Average Age of Pipelines	Weighted Average Age of All Pipelines within the "Total Water Serviced Area"	Nu
WSA4	Total Water Treatment Plants	Total number of water treatment plants in area under the Councils' jurisdiction	Nu
WSA5	Total Water Pump Stations	Total number of water pump stations (including those at a water treatment plant where applicable) in area under the Council's jurisdiction	Nu
WSA6	Total Water Supply Reservoirs	Total number of water supply reservoirs (but excluding bulk storage reservoirs and sub-surface suction tanks where applicable) in area under the Council's jurisdiction	Nu
WSA7	Total Water Stored in Reservoirs	Estimate of total volume of water normally stored in water supply reservoirs	m^3
WSA8	Total Capacity of Water Storage Reservoirs	Total volume of water that could be stored in water supply reservoirs	m^3
WSA9	Properties with Water Meters – Residential	Number of residential properties with metered connections	Nu
WSA10	Properties with Water Meters – Non-Residential	Number of non-residential properties with metered connections	Nu
WSA11	Sludge Production	Amount of water sludge produced	tDS/year
WSA12	Sludge Disposal	Percentage of water sludge disposal in year to:	
WSA12a		landfill	%
WSA12b		sewer	%
WSA12c		other (specify)	%
WSA13	Condition Assessments of Above Ground Assets	Do you have a regular condition assessment programme?	Yes/No
WSA14		What protocol is used for the assessment e.g. NAMS	Comment
WSA15		What percentage of above ground assets are assessed within each AMP 3 year cycle?	%
Environmental			
WSE1	Network Water Losses (please supply available data)	Estimated total network water loss	m^3/year
		Percentage Estimated Total Network Water Loss	%
		CARL (current annual real loss)	m^3/year
		CARL (current annual real loss)	litres/service non-dimensional connection /day
		CARL (current annual real loss)	m^3/km mains/day
		UARL (unavoidable annual real loss)	m^3/year

WATER SUPPLY			
Code	**Measure**	**Description**	**Units**
		UARL (unavoidable annual real loss)	litres/service connection /day
		ILI (infrastructure leakage index (=CARL/UARL)	non-dimensional
Social			
WSS1	Unplanned Total Interruptions – WS	The number of unplanned interruptions to water supply service, excluding interruptions caused by third party damage	Nu/year
WSS2	Unplanned Interruption Frequency – WS	"Unplanned Total Interruptions" per 1000 water serviced properties	Nu/1000 prop
WSS3	Planned Interruptions – WS	Total number of planned interruptions to water service for maintenance or renewal works	Nu/year
WSS4	Third Party Incidents – WS	The number of unplanned interruptions to service caused by third parties	Nu/year
WSS5	Water Quality Complaints	Total number of water quality complaints received by the organisation in the reporting year	
		Drinking water clarity	Nu
		Drinking water taste	Nu
		Drinking water odour	Nu
		Drinking water pressure or flow	Nu
WSS6	Water Quality Complaints Frequency	"Water Quality Complaints" per 1000 water serviced properties	Nu/1000 prop
WSS7	Drinking Water Compliance	Percentage of water supplied that is fully compliant with the Drinking Water Standards	
		Bacteria Compliance	%
		Protozoal Compliance	%
WSS8	Price – Fixed Charge	The fixed charge (inc GST) for residential customers (if applicable otherwise leave blank)	
WSS9	Price – User Charge	The user charge (inc GST) for residential customers (if applicable)	
WSS10	Annual Bill Based on 200 m^3/yr Consumption	The average residential customer's bill (GST included) based on an annual consumption of 200m^3	\$/200m^3
WSS11	Proportion of Bill Based on a User Charge	Proportion of a standardised residential customer's bill (WSS7 above) based upon metered water	%
WSS12	Fire Flow Compliance	Percentage of water serviced properties with fire flow compliance	%

WATER SUPPLY			
Code	**Measure**	**Description**	**Units**
WSS13	Fault Response Time	Time taken for the local authority to attend call-outs in response to a fault or unplanned interruption to its networked reticulation system.	
		Attendance for urgent call-outs	hrs
		Resolution for urgent call-outs	hrs
		Attendance for non-urgent call-outs	hrs
		Resolution for non-urgent call-outs	hrs
Financial			
WSF1	Revenue from Supply of Water to Other Local Authorities	Revenue (if any) related to bulk water supply to other local authorities	$
WSF2	Operating Revenue	Operating Revenue associated with water supply to the area under the Council's jurisdiction. Excludes Development contributions	$
WSF3	Development Contribution Revenue	Development contributions - cash payment only. (Include asset contributions under WSF18)	$
WSF4	Total Revenue – WS	Total water supply revenue for the reporting year related to area under the Council's jurisdiction	$
WSF5	Revenue per Property	Revenue per serviced property	$/property
WSF6	Energy Costs	Electricity costs associated with water supply	$
WSF7	Chemicals and Consumables	Cost of chemicals and consumables used to treat water before supplying to customers	$
WSF8	Other External Opex	All other external costs associated with the operation and maintenance of the water supply network , including purchase of bulk water (where applicable) and the cost of external consultants and contractors	$
WSF9	Management Costs	Own organisation costs* (includes salary, accommodation, IT,etc)	$
WSF10	Council Overview Costs	Council's 'overview' costs** where management of the network is carried out by a stand-alone entity (eg a CCTO)	$
WSF11	Operating Cost – WS	Operating cost *(discounted for revenue from sale of bulk water, if any, to other local authorities)* for the reporting year associated with water supply to the area under the Council's jurisdiction	$
WSF12	Operating Cost per Property	Operating Cost per serviced property	$/property
WSF13	Annual Depreciation	The 'fully funded' depreciation cost in the reporting year	$
WSF14	Interest	The interest cost for the reporting year	$
WSF15	Total Cost – WS	Total cost for the reporting year associated with water supply to the area under the Council's jurisdiction	$

WATER SUPPLY			
Code	**Measure**	**Description**	**Units**
WSF16	Total Cost per Property	Total Cost per serviced property	$/property
WSF17	Capital Expenditure Budget	Capital expenditure budget for water supply in the reporting year	$
WSF17a		Growth	$
WSF17b		Levels of Service	$
WSF17c		Renewals	$
WSF18	Actual Capital Expenditure – WS	Capital expenditure on water supply for the reporting year	$
WSF18a		Growth	$
WSF18b		Levels of Service	$
WSF18c		Renewals	$
WSF19	Development Contributions	Value of assets vested in the council during the reporting year as part of development contributions	$
WSF20	Asset value at end of reporting year	Book value of asset after depreciation (and any impairment) has been applied	$
WSF21	Renewals vs Depreciation	Ratio of Capital Expenditure Budget (Renewals) to Annual Depreciation	Nu
WSF22	Actual Capital Expenditure per Property – WS	Actual Capital Expenditure per serviced property in the reporting year	$/property

WASTEWATER			
Code	**Measure**	**Description**	**Units**
Background Info			
WWB1	Total Wastewater Serviced Population	Total residential population served by a reticulated wastewater system	Nu
WWB2	Total Wastewater Serviced Properties – Residential	Total number of residential properties served by a reticulated wastewater system	Nu
WWB3	Total Wastewater Serviced Properties – Non-residential	Total number of non-residential properties served by a reticulated wastewater system	Nu
WWB4	Total Wastewater Serviced Properties	Total number of all properties served by a reticulated wastewater system	Nu
WWB5	Wastewater Treated in Council's own WWTPs	Volume of wastewater treated at WWTPs in area under the Council's jurisdiction	m^3/year

WASTEWATER			
Code	**Measure**	**Description**	**Units**
WWB6	Wastewater 'Exported' for treatment (if any)	Volume of wastewater produced in area under the Council's jurisdiction that is exported for treatment by an adjacent Council's WWTP	m^3/year
WWB7	Wastewater 'Imported' for Treatment (if any)	Volume of wastewater produced in area under the Council's jurisdiction that is imported for treatment at the Council's WWTPs	m^3/year
WWB8	Total Wastewater Produced	Volume of wastewater produced within the area under the Council's jurisdiction and reticulated to a public wastewater treatment plant. (Excludes any on-site treatment of wastewater)	m^3/year
WWB9	Trade Waste	Estimated proportion of total wastewater produced (WWB8 above) that can be classified as trade waste	%
WWB9	Average Residential Wastewater Produced per Person per Day	Calculated residential wastewater produced based on "Total Wastewater Produced" and "Total Wastewater Serviced Population"	litres/ person /day
Asset Quantities			
WWA1	Total Length of Public Wastewater Network	Total length of public wastewater mains (excluding service connections)	km
WWA2	Condition of Pipelines	Proportion of wastewater mains assessed as:	
WWA2a		Condition Grade 1	%
WWA2b		Condition Grade 2	%
WWA2c		Condition Grade 3	%
WWA2d		Condition Grade 4	%
WWA2e		Condition Grade 5	%
WWA3	Network CCTV inspection	Percent of network that has had CCTV completed	%
WWA3a		Percent of network that has had CCTV completed for this financial year	%
WWA4	Total Wastewater Pump Stations	Total number of wastewater pump stations in area under the Council's jurisdiction	Nu
WWA5	Total Wastewater Treatment Plants	Total number of wastewater treatment plants owned by (operated for) the organisation responsible for delivering wastewater services in area under the Council's jurisdiction	Nu
WWA6	Wastewater Treatment Plant Capacity Currently Utilised	Estimated combined annual flow related capacity of WWTPs currently being utilised (without upgrading)	%
WWA7	Design Capacity of Waste Water Treatment plants	Estimated combined annual flow related to current design capacity of WWTPs in area under the Council's jurisdiction (without upgrading)	m^3/year

WASTEWATER			
Code	**Measure**	**Description**	**Units**
WWA8	Above ground assets	Do you have a regular condition assessment programme?	Yes/No
WWA9		What protocol is used for the assessment e.g. NAMS	Comment
WWA10		What percentage of above ground assets are assessed within each AMP 3 year cycle?	%
Environmental			
WWE1	Dry Weather Wastewater Overflows	Total number of dry weather wastewater overflows in year (eg due to blockages or power outages)	Nu
WWE2	Wet Weather Wastewater Overflows	Total number of wet weather wastewater overflows (usually related to stormwater infiltration)	Nu
WWE3	Total Wastewater Overflows	Toatal number of overflows in year irrespective of the weather. (Provide this data if split between wet and dry weather overflows is not known)	Nu
WWE4	WWTPs without Resource Consents	Number of operating wastewater treatment plants that do not have current air or effluent discharge consents	Nu
WWE5	Compliance with Resource Consents	Compliance of wastewater discharge consents in year, measured by:	
WWE5a		abatement notices	Nu
WWE5b		infringement notices	Nu
WWE5c		enforcement orders	Nu
WWE5d		successful prosecutions	Nu
WWE6	Sludge Production	Total quantity of sludge produced	tDS/year
WWE7	Sludge Disposal	Disposal of wastewater sludge in year to:	
WWE7a		landfill	%
WWE7b		composting and reuse	%
WWE7c		other (specify)	%
Social			
WWS1	Fixed Wastewater Charge	The fixed charge (inc GST) that some organisations apply for the supply of wastewater services to residential customers. If not applicable to the organisation leave blank.	$
WWS2	User Wastewater Charge	The user charge (inc GST) that organisations apply for the supply of wastewater services to residential customers. The latter charge should be the one inserted in the data field.	$
WWS3	Annual Wastewater Bill Based on 200 m^3/yr Water Useage	The average residential customer's bill (GST included) for wastewater based on an annual consumption of 200m^3 of water. (Leave blank if no targeted wastewater charge)	$
WWS4	Proportion of Bill Based on a User Charge	Proportion of a standardised residential customer's bill (WWS1 above) based upon metered water (as applicable)	%

WASTEWATER			
Code	**Measure**	**Description**	**Units**
WWS5	Total Wastewater Complaints	Total number of complaints in reporting year related to wastewater leakage or odours	Nu
WWS5a		WWTP overflow or odours	Nu
WWS5b		sewer odours	Nu
WWS5c		pump station overflow or odours	Nu
WWS5d		sewerage system faults	Nu
WWS5e		sewerage system blockages	Nu
WWS6	Wastewater Complaints Frequency	"Wastewater Complaints" per 1000 serviced properties	Nu/1000 prop
WWS7	Fault Response Time	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	hrs
		Resolution Time	hrs
Financial			
WWF1	Revenue from the Provision of Wastewater Treatment Services to Another Local Authority	Revenue (if any) related to the provision of treatment services associated with wastewater from an adjacent local authority	$
WWF2	Operating Revenue	Operating revenue associated with reticulation and treatment of wastewater from the area under the Council's jurisdiction. (Excludes development contributions and any revenue from sale of biosolids)	$
WWF3	Development Contribution Revenue	Development contributions – cash payments only. (Include asset contributions under WWF20)	$
WWF4	Total Revenue – WW	Total wastewater revenue for the reporting year related to the area under the Council's jurisdiction	$
WWF5	Revenue per Property	Revenue per serviced property	$/property
WWF6	Energy Costs	Electricity/gas/fuel costs associated with wastewater reticulation and treatment	$
WWF7	Sludge Disposal Costs	Net Cost of Sludge Disposal (ie costs less any revenue from sale of biosolids)	$
WWF8	WWTP External Opex	All other external costs, including cost of wastewater treatment services (if any) provided by an adjacent local authority and the cost of consultants and contractors, associated with wastewater treatment	$
WWF9	Reticulation External Opex	All other external costs (including the cost of consultants and contractors) associated with the operation and maintenance of the Wastewater Network but excluding wastewater treatment	$

WASTEWATER			
Code	**Measure**	**Description**	**Units**
WWF10	Management Costs	Own organisation costs* (includes salary, accommodation, IT,etc)	$
WWF11	Council's Overview Costs	Council's 'overview' costs** where management of the network and/or wastewater treatment is carried out by a stand-alone entity (eg a CCTO)	$
WWF12	Operating Cost – WW	Operating cost *(discounted for any revenue from the provision of wastewater services to other local authorities)* for the reporting year associated with providing wastewater services in the area under the Council's jurisdiction	$
WWF13	Operating Cost per Property	Operating Cost per serviced property	$/property
WWF14	Annual Depreciation	The 'fully funded' depreciation cost in the reporting year	$
WWF15	Interest	The interest cost for the reporting year	$
WWF16	Total Cost – WW	Total cost for the reporting year associated with wastewater services to the area under the Council's jurisdiction	$
WWF17	Total Cost per Property	Total Cost per serviced property	$/property
WWF18	Capital Expenditure Budget	Capital expenditure budget for wastewater in the reporting year	$
		Growth	
		Levels of Service	
		Renewals	
WWF19	Actual Capital Expenditure – WW	Capital expenditure on wastewater in the reporting year	$
		Growth	
		Levels of Service	
		Renewals	
WWF20	Development Contributions	Value of assets vested in the council as part of development contributions	$
WWF21	Asset value at end of reporting year	Book value of asset after depreciation (and any impairment) has been applied	$
WWF22	Renewals vs Depreciation	Ratio of Capital Expenditure Budget (Renewals) to Annual Depreciation	Nu
WWF23	Actual Capital Expenditure per Property – WW	Actual Capital Expenditure per serviced property in the reporting year	$/property

STORMWATER			
Code	**Measure**	**Description**	**Units**
Background Info			
SWB5	Total Stormwater Serviced Population	Total residential population serviced by a reticulated stormwater system	Nu
SWB1	Total Stormwater Serviced Properties – Residential	Total number of residential properties served by a reticulated stormwater system	Nu
SWB2	Total Stormwater Serviced Properties – Non-residential	Total number of non-residential properties served by a reticulated stormwater system	Nu
SWB3	Total Stormwater Serviced Properties	Total number of all properties served by a reticulated stormwater system	Nu
SWB4	Total stormwater catchments	Total number of stormwater catchments	Nu
Asset Quantities			
SWA1	Total Length of Public Stormwater Network	Length of mains in public stormwater reticulation system, including culverts and lined channels (excluding service connections)	km
S2WA2	Condition of Pipelines	Proportion of stormwater mains assessed as:	
SWA2a		Condition Grade 1	%
SWA2b		Condition Grade 2	%
SWA2c		Condition Grade 3	%
SWA2d		Condition Grade 4	%
SWA2e		Condition Grade 5	%
SWA3	Stormwater Treatment	Percent stormwater catchments with treatment prior to discharge	%
SWA4	Above Ground Assets	Do you have a regular condition assessment programme?	Yes/No
SWA5		What protocol is used for the assessment e.g. NAMS?	Comment
SWA6		What percentage of above ground assets are assessed within each AMP 3 year cycle?	%
SWA7	Network CCTV inspection	Percent of network that has had CCTV completed	%
SWA8		Percent of network that has had CCTV completed for this financial year	%
Environmental			
SWE1	Compliance with Resource Consents	Compliance of stormwater discharge consents in year, measured by:	
SWE1a		abatement notices	Nu
SWE1b		infringement notices	Nu
SWE1c		enforcement orders	Nu
SWE1d		successful prosecutions	Nu

STORMWATER			
Code	**Measure**	**Description**	**Units**
Social			
SWS1	Stormwater Charge	Average annual targeted stormwater charge (GST included) for a residential property, where applicable. (Leave blank if no targeted stormwater charge)	$
SWS2	Stormwater Complaints	Number of complaints related to blockages or faults in reticulated stormwater network, excluding complaints related to service connections and complaints lodged during extreme events, eg a civil defence emergency	Nu
SWS2a		Blockages	Nu
SWS2b		Faults	Nu
SWS3		"Stormwater Complaints" per 1000 stormwater serviced properties	Nu/1000 props
SWS4	Flooding Events	Number of flooding events that occur in a local authority's district	Nu
SWS4a		Number of habitable floors affected	Nu
SWS4b		Number of habitable floors affected per 1000 stormwater serviced properties	Nu/1000 props
SWS5	Flooding Response Time	Median time taken for the local authority to attend call-outs in response to a flooding event	hrs
Financial			
SWF1	Operating Revenue	Operating revenue associated with stormwater in the area under the Council's jurisdiction. Excludes development contributions	$
SWF2	Development Contribution Revenue	Development contributions - cash payment only. (Include asset contributions under SWF16)	$
SWF3	Total Revenue – SW	Total stormwater revenue for the reporting year	$
SWF4	Total Revenue per Property	Revenue per serviced property	$/property
SWF5	External Opex	All external costs (including consultant and contractor costs) associated with the operation and maintenance of the stormwater network	$
SWF6	Management Costs	Own organisation costs* (includes salary, accommodation, IT,etc)	$
SWF7	Council Overview Costs	Council's 'overview' costs** where management of the network is carried out by a stand-alone entity (eg a CCTO)	$
SWF8	Operating Cost – SW	Operating cost for the reporting year associated with stormwater in the area under the Council's jurisdiction	$
SWF9	Operating Cost per Property	Operating Cost per serviced property	$/property
SWF10	Annual Depreciation	The 'fully funded' depreciation cost in the reporting year	$
SWF11	Interest	The interest cost for the reporting year	$
SWF12	Total Cost	Total cost for the reporting year associated with stormwater services in the area under the Council's jurisdiction	$

STORMWATER			
Code	**Measure**	**Description**	**Units**
SWF13	Total Cost per Property – SW	Total Cost per serviced property	$/property
SWF14	Capital Expenditure Budget	Capital expenditure budget for stormwater in the – reporting year	$
		Growth	$
		Levels of Service	$
		Renewals	$
SWF15	Actual Capital Expenditure – SW	Actual capital expenditure on stormwater for the reporting year relating to the "Total Stormwater Serviced Area"	$
		Growth	$
		Levels of Service	$
		Renewals	$
SWF16	Development Contributions	Value of assets vested in the council during the reporting year as part of development contributions	$
SWF17	Asset value at end of reporting year	Book value of asset after depreciation (and any impairment) has been applied	$
SWF18	Renewals vs Deprecetion	Book value of asset added in the financial year.	Nu
SWF19	Actual Capital Expenditure per Property – SW	Actual Capital Expenditure per serviced property in the reporting year	$/property

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The New Zealand Water & Wastes Association Waiora Aotearoa

Submission Analysis - Sewerage and the Treatment and the Disposal of Sewage

Introduction

1. This report summarises submissions, and where appropriate provides recommendations, on the "*Sewerage and the Treatment and the Disposal of Sewage*" discussion document of the Local Government Mandatory Performance Measures consultation.

Structure of this report

2. The report sets out submitters' responses by the order of the questions in the discussion document and any relevant general comments made by the submitters at the beginning. Recommendations on the individual performance measures are at the end of each section. Submitters' comments are, where relevant, ordered by themes arising from the submissions.

Common abbreviations

3. A number of abbreviations are used in this report and are set out in the table below.

Term	Abbreviation
District Council	DC
City Council	CC
Regional Council	RC

Overall number of submitters

Submitters

Thirty-four submitters commented on sewerage and the treatment and disposal of sewage overall, including: Clutha DC, Dunedin CC, Far North DC, Hastings DC, Hamilton CC, Hauraki DC, Hutt CC, Invercargill CC, Matamata-Piako DC, Marlborough DC, Napier CC, Nelson CC, New Plymouth DC, Palmerston North CC, Ruapehu DC, Selwyn DC, Southland DC, SOLGM, South Waikato DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waikato RC, Waitaki DC, Waitomo DC, Waimakariri DC, Wanganui DC, Watercare, Whakatane DC, Whangarei DC, Wellington CC, Anonymous #6, Anonymous #7, and Anonymous #10.

General comments

Submitters

Three submitters provided general comments on sewerage and the treatment and the disposal of sewage flood protection including: Far North DC, Selwyn, and Waikato DC.

4. There were no specific themes from the submitters. Their comments included:
   - general agreement with the proposed performance measures (Selwyn DC);
   - support for the first three proposed performance measures (Waikato RC); and
   - general support for SOLGM's submission and general support for the findings of the Department.

5. Specific issues for small councils included:
   - if a national satisfaction survey is implemented, it should be managed by the DIA. This would avoid bias and design issues as well as reduce costs through there only being one national contract for a survey; and
   - the complaints measure is considered not to be a good proxy measure of customer satisfaction. Such a measure is vulnerable to hazardous national events beyond the control of Council (Far North DC).

KEY ASPECTS OF SEWRAGE AND THE TREATMENT AND DISPOSAL OF SEWERAGE

Q2a - Are these the key aspects on which members of the public need information in order to participate in discussions on the level of service for the provision of a sewerage system?

1. **Is the sewerage system adequate and is it being maintained sufficiently to ensure it remains adequate?**

2. **Is the sewerage system being managed in a way that does not unduly impact on the environment?**

3. **Does the local government organisation responsible for the service provide a timely response if there is a problem?**

4. **Are customers satisfied with the service provided - with both the operation of the service itself and the way in which complaints about the service are dealt with?**

Submitters

Twenty submitters responded to this question including: Hamilton CC, Hauraki DC, Hastings DC, Hutt CC, Invercargill CC, Napier CC, Matamata Piako DC, Marlborough DC, Porirua CC, South Waikato DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Wellington CC, Watercare, Whakatane DC, Whangarei District Council, Anonymous #7, and Anonymous #10.

6. Sixteen submitters agreed or broadly agreed that these were the key aspects that the public needed information on in order to participate in discussions on the level of service for the provision of a sewerage system. Submitters included: Dunedin CC, Hauraki DC, Hastings DC, Hutt CC, Invercargill CC, Matamata-Piako DC, Marlborough DC, South Waikato DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Wellington CC, Watercare, Whakatane DC, Whangarei DC, and Anonymous #7.

7. Four submitters either queried specific aspects of the measures or whether the information produced would be hard for the public to understand (submitters included: Invercargill CC, Thames-Coromandel DC, Waikato DC, and Whangarei DC). Specific comments included:

   - Invercargill CC, Whangarei DC, and Thames-Coromandel DC queried the link to the performance measures, and in particular the bio-solids performance measure; and

   - Waikato DC noted the main aspects of interest to the public are captured, but queried whether the information that would be produced may be too technical.

8. Anonymous #10 queried two of the aspects. They noted that aspect “1” is an input, not an outcome and the focus should be on what the community gets as a result. They also submitted that number “3” is not relevant to most councils, as there are long periods when desludgings and sometime bio-solids are retained on site.

9. Hamilton CC made a number of comments on the aspects including:

    - [1] customers generally experience maintenance of the network in terms of how reliable it is. They proposed an alternative aspect

        "*Are the sewerage services reliable?*";

    - [2a] minimising environmental effects is important;
    - [2b] this aspect is just part of the overall environmental impacts and is technical. They recommend that this aspect is removed;
    - [3] responsiveness is important for customers; and
    - [4] while customer satisfaction is important, the public cannot always provide an informed comment. Additionally, customers are concerned with network reliability.

Q2b - Are there any others?

Submitters

Thirteen submitters commented on this question including: Dunedin CC, Hauraki DC, Hastings DC, Matamata-Piako DC, Marlborough DC, Porirua CC, South Waikato DC, Thames-Coromandel DC, Upper Hutt CC, Watercare, Whakatane DC, Anonymous #7, and Anonymous #10.

10. Six submitters (Dunedin CC, Hastings DC, Upper Hutt CC, Whakatane DC, Anonymous #7, and Anonymous #10) commented that were no other relevant aspects for the treatment and the disposal of sewerage.

11. Seven submitters commented that not all the relevant aspects for and the treatment and the disposal of sewerage were captured (submitters included: Hauraki DC, Matamata-Piako DC, Marlborough DC, Porirua CC, South Waikato DC, Thames-Coromandel DC, and Watercare). Specific comments included:

    - Marlborough DC noted that inflow and infiltration is a major problem for many service providers and its costs can be significant. Impacts can include sewer overflows and subsequent health risks;
    - Porirua CC noted three other possible aspects that could be used:
        - "*quantify wastewater lost throughout the network*"- they noted, however, that measuring this may be difficult to do; and
        - "quantify peak wet versus dry weather flows".
    - Porirua CC considered that it would also be useful to see a measure comparing forecast and actual renewals funding expenditure, as defined in asset plans and depreciation.
    - Thames DC submitted that another measure of environmental impact could be wastewater overflows to water bodies; and

- Watercare noted that the availability and capacity of the sewerage system to accommodate new development would be of public interest.

Q2C - Do you have any other comments?

Submitters

Eleven submitters commented on this question, including: Dunedin CC, Hastings DC, Hauraki DC, Matamata-Piako DC, Upper Hutt CC, Porirua CC, Southland DC, South Waikato DC, Porirua CC, Watercare, and Anonymous #7.

Use of Bio-solids in a performance measure

12. Three submitters commented on the use of "biosolids" in the performance measures for sewerage and the treatment and the disposal of sewage (submitters included: Southland DC, Porirua CC, and Watercare). Submitters provided varied views in their comments:

- Southland DC commented that they considered that biosolids were an inappropriate measure;
- Porirua CC stated that the bio-solids re-use measure may be more appropriate in a waste minimisation context. They also noted that if a bio-solids performance measure was progressed then a definition of "undue impact on the environment" would be required. The performance measure is ambiguous as it discusses two different concepts, namely "re-use" and "sustainable disposal" interchangeably; and
- Watercare submitted that they did not understand splitting Performance Measure Two. It would be better to have biosolids as a separate measure. They also noted that the ability to reuse biosolids has been seriously hampered by the policy and legislative framework that does not enable the sustainable use of biosolids.

Other comments

13. Other comments from submitters included:

- Dunedin CC submitted that the wording "*Is the sewerage system adequate and is it being maintained sufficiently to ensure it remains adequate?*" should be consistent with that of the Resource Management Act 1991, which is, "*to avoid, remedy, mitigate*" adverse effects on the environment. The word "adequate" in this case is undefined; and,
- Watercare commented that Aspect 4 on customer satisfaction merges two distinct issues, which should be separated. The aspect deals with customer satisfaction but addresses customers' satisfaction through the operation of the service and whether customers are satisfied with how the organisation responds to complaints. Merging these aspects could skew or mask performance..

Recommendation on key aspects of sewerage and the treatment and the disposal of sewerage

14. Submitters were generally supportive of the key aspects indentified. There was, however, some concern over the use of biosolids as a performance measure and the customer service measure. These issues are dealt with elsewhere in this report.

15. It is recommended that the key aspects remain unchanged.

PROPOSED PERFORMANCE MEASURE ONE: SYSTEM ADEQUACY AND MAINTENANCE

"Annual number of dry weather overflows from a municipal sewerage system per 1000 sewerage connections."

Q3A - Is the measure easy to understand?

Submitters

Twenty-two submitters responded to this question including: Clutha DC, Dunedin City Council, Hauraki DC, Hutt CC, Hastings DC, Invercargill City Council, Marlborough DC, Matamata- Piako DC, Napier City Council, New Plymouth DC, Porirua CC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC, Anonymous #6, and Anonymous #10 .

16. Eleven submitters agreed or strongly agreed that the proposed performance was easy to understand. Submitters included Clutha DC, Dunedin CC, Hutt CC, Marlborough DC, Napier CC, New Plymouth DC, Porirua CC, Upper Hutt CC, Waitomo DC, Whakatane DC, and Whangarei DC.

17. Three submitters (Waikato DC, Anonymous #6, and Anonymous #10) were neutral as to whether the proposed performance measure was easy to understand.

18. Five submitters disagreed that the proposed performance measure was easy to understand (submitters included: Hastings DC, Invercargill CC, Southland DC, Thames-Coromandel DC, and Watercare).

19. Three submitters (Hauraki DC, Matamata-Piako DC, and South Waikato DC) commented that the term "*dry weather overflows*" needed to be defined.

Q3B - Would the information provided by the performance measure help the public to assess a local government organisation's levels of service and to participate in discussions on future levels of service?

Submitters

Twenty-one submitters commented on this question including: Clutha DC, Dunedin CC, Hauraki DC, Hastings DC, Invercargill CC, Hutt CC, Marlborough DC, Matamata Piako DC, Napier CC, New Plymouth DC, Porirua CC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC, and Anonymous #10.

20. Sixteen submitters either agreed or strongly agreed that the information provided by the performance measure would assist the public to assess a local government organisation's levels of service and to participate in discussions on future service levels. Submitters included: Clutha DC, Dunedin CC, Hauraki DC, Invercargill CC, Hutt City, Marlborough DC, Matamata-Piako DC, Napier CC, Porirua CC, South Waikato DC,

Upper Hutt CC, Waikato DC, Waitomo DC, Whakatane DC, Whangarei DC and Anonymous #10.

21. Four submitters either disagreed or strongly disagreed that the information provided by the performance measure would assist the public to assess a local government organisation's levels of service and to participate in discussions on future service levels. (New Plymouth DC, Southland DC, Thames-Coromandel DC, and Watercare).

22. Hastings DC submitted that they were neutral.

Q3C – Do you agree that only dry weather overflows should be recorded against this measure? If you disagree, what are your reasons for this?

Submitters

Twenty-three submitters responded to this question including: Dunedin CC, Hamilton CC, Hauraki DC, Hastings DC, Invercargill CC, Marlborough DC, Matamata-Piako DC, Napier CC, Nelson CC, New Plymouth DC, Porirua CC, Ruapehu DC, Selwyn DC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Watercare, Wellington CC, Whakatane DC, Whangarei DC, and Anonymous #10.

23. Thirteen submitters agreed that only dry weather overflows should be recorded against the proposed performance measure. Submitters included: Hauraki DC, Invercargill CC, Marlborough DC, Matamata-Piako DC, Napier CC, Nelson CC, Selwyn DC, South Waikato DC, Upper Hutt CC, Waikato DC, Watercare, Whakatane DC, and Whangarei DC.

    - Hauraki DC, Matamata-Piako DC, and South Waikato DC noted that most overflows are caused by storm events and measuring dry weather overflows is more accurate;
    - Selwyn DC, Marlborough DC and Invercargill CC noted the importance of defining a dry weather overflow and when it should be reported;
    - Nelson CC noted that the performance measure needed to be limited to pump stations not pipes, as the latter is affected by private actions outside of the control of local authorities

24. Nine submitters disagreed that only dry weather overflows should be measured against this performance measure. Submitters included: Dunedin CC, Hamilton CC, New Plymouth DC, Porirua CC, Ruapehu DC, Southland DC, Thames-Coromandel DC, Watercare, Wellington CC and Anonymous #10. Submitters comments included:

    - Dunedin CC and Ruapehu DC submitted that both dry and wet weather overflows need to be measured. Dunedin CC, Wellington CC, and Porirua CC noted also that dry weather overflows can be maintenance issues whereas wet weather overflows are more likely to be capacity problems;
    - New Plymouth DC, Thames Coromandel DC and Anonymous #10 noted that overflows would be an issue for the public no matter what the reason;

- Wellington CC stated that they were unaware of dry weather overflows being an issue and the measure will suffer from 'floor effects'. That is, consistently measuring zero or low and not being sensitive to change in the system in either direction – improvement or degradation.

Q3D - Would implementing the measure result in additional costs or other implementation issues for local government organisations? If so, what are they?

Submitters

Twenty-one submitters commented on this question including: Clutha DC, Dunedin CC, Hamilton CC, Hauraki DC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Matamata-Piako DC, Napier CC, New Plymouth DC, Porirua CC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Watercare, Whakatane DC, Whangarei DC and Anonymous #10.

25. Twenty submitters commented that there would be either no or minimal costs from implementing this measure. Submitters included: Clutha DC, Dunedin CC, Hamilton CC, Hauraki DC, Hastings DC Hutt CC, Invercargill CC, Matamata-Piako DC, Napier CC, New Plymouth DC, Porirua CC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Watercare, Whakatane DC, Whangarei DC and Anonymous #10.

26. Invercargill CC and Dunedin CC noted that this would depend however on the wording of the measure and the requirements for monitoring.

27. Waikato DC submitted that local authorities would need additional SCADA information from every pump station which may incur additional costs.

28. Watercare commented that they already report on a similar measure, expressed as the number of dry weather overflows per 100km of pipe, which they considered to be a better measure of service.

Q3E - Do you have any other comments?

Submitters

Twenty submitters commented on this question, including Dunedin CC, Hamilton CC, Hastings DC, Marlborough DC, Matamata Piako DC, Napier CC, New Plymouth DC, Palmerston North CC, Porirua CC, Ruapehu DC, Selwyn DC, SOLGM, Southland DC, Waikato DC, Waitaki DC, Waimakariri DC, Watercare, Wellington CC, Whakatane DC, and Anonymous #7.

Agreement with the draft performance measure

29. Four submitters generally agreed with the proposal (Palmerston North CC, Selwyn DC, Waitaki DC, and Anonymous #7). Palmerston North CC noted that this was on the proviso that the measure was limited to where the council itself was at fault.

Further definitions necessary

30. Three submitters (Marlborough DC, Waikato DC and Whakatane DC) noted that there was a need for further definitions or guidance to support the measure. Waikato DC submitted that a clear definition of what a dry weather overflow is would be needed. Similarly, Whakatane DC asked for further detail to define the parameters for "dry weather" versus "wet weather" conditions.

Measurement of 'overflows'

31. Four submitters (Dunedin CC, Hastings DC, New Plymouth DC, and Waimakariri DC) identified differing issues around the measurement of overflows:

- there are national differences in the measurement of overflows with some local authorities using only "reported overflows", as opposed to electronic measurement;
- it will be difficult for the public, using this performance measure, to assess which schemes are performing well and which are not (Hastings DC);
- the measure does not include duration and size of overflows. Duration is a signification issue in considering potential harm (New Plymouth DC); and
- the numbers of dry weather overflows are not a measure of the sewerage scheme's effectiveness and there are significant subnational variations to "dry" and "wet" conditions (Waimakariri DC).

Alternative performance measures

32. Four submitters suggest alternative performance measures. Proposals included:

- "*the reliability and resilience of the network in terms of: number of wastewater network overflows by township per month, and number of wastewater overflows per km*" (Ruapehu DC);
- "*the number of overflows per kilometre of reticulation*" (Matamata-Piako DC); and
- Hamilton CC proposed two alternatives, either
    - "*the number of unplanned interruptions to service per year*", or
    - "*the number of unplanned interruptions per 1000 customers or km of sewerage main*"
- Hamilton CC commented that the above would lead into key aspect three (timeliness of response if there is a problem) i.e. how many interruptions are there, and if there is one, how quickly is it resolved; and
- "*measure of planned versus unplanned events*" (Southland DC).

Other comments

33. Submitters made a number of other comments, of which there were no specific themes, these included:

    - SOLGM noted that adequacy and maintenance is not an accurate description of this level of service. The measure seems to relate to network reliability and resilience or possibly the management of environmental effects. SOLGM agreed

that dry weather overflows are a fundamental sewerage system failure, the general public will not distinguish between the types of overflow. If wet weather overflows were included there it would need to be clarified as to whether one event constituted an overflow or whether the measure related to the number of overflows in total;

- Hamilton CC noted that overflows are a failure of the sewerage system and suggested that for the public it may sit better alongside key aspect two, which is about environmental effects; and
- Wellington CC submitted that the measure has no future focus component and therefore does not adequately measure key aspect one.

Recommendation on proposed performance measure one: system adequacy and maintenance

34. The majority of submitters considered that the performance measure was easy to understand and would be useful to the public. There were issues raised over whether only dry weather overflows should be measured. Further definitions to support the performance measure were considered necessary and submitters queried whether flows could be uniformly measured across New Zealand.

35. It is recommended that there be no change to the performance measure, dependent on a re-examination of whether only dry weather overflows should be measured. It is also recommended that thought be given to guidance and definitions that could support this performance measure.

PROPOSED PERFORMANCE MEASURE TWO (A): MANAGEMENT OF ENVIRONMENTAL IMPACTS

"Compliance with resource consents for discharge to air, land, or water from a municipal sewerage system, measured by the number of:

a) abatement notices; and

b) infringement notices; and

c) enforcement orders; and

d) successful prosecutions."

Q4A - Is the measure easy to understand?

Submitters

Twenty submitters commented on this question including: Clutha DC, Dunedin CC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Napier CC, New Plymouth DC, Porirua CC, Selwyn DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC., Anonymous #6, and Anonymous #10.

36. Twelve submitters either agreed or strongly agreed that the performance measure was easy to understand. Submitters included: Clutha DC, Dunedin CC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Napier CC, Selwyn DC, Upper Hutt CC, Waitomo DC, Watercare, and Whakatane DC. Hutt CC and Upper Hutt CC qualified their agreement by noting that there are differences around the country in how non-compliance is managed, with some councils and consenting authorities working closely together to overcome issues, rather than resorting to compliance action.

37. Six submitters either disagreed or strongly disagreed that the measure was easy to understand (submitters included: New Plymouth DC, Porirua CC, Southland DC, Thames-Coromandel DC, Waikato DC and Anonymous #10).

38. Whangarei DC and Anonymous #6 were neutral as to whether the measure was easy to understand.

Q4B - Will the information provided by the performance measure help the public to assess a local government organisation's levels of service and to participate in discussions on future levels of service?

Submitters

Twenty-two submitters commented on this question including: Clutha DC, Dunedin CC, Hastings DC, Hutt CC, Invercargill CC, Napier CC, Marlborough DC, New Plymouth DC, Porirua CC, Selwyn DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC, and Anonymous #10.

39. Eight submitters agreed that the information provided by the performance measure would assist the community in assessing a local government organisation's service levels and to participate in discussions on future service levels (submitters included: Clutha DC, Dunedin CC, Invercargill CC, Napier CC, New Plymouth DC, Selwyn DC, Waitomo DC, and Whakatane DC).

40. Ten submitters either disagreed or strongly disagreed that the information provided by the performance measure would assist the community in assessing a local government organisation's service levels and to participate in discussions on future service levels (submitters included: Hutt CC, Marlborough DC, Porirua CC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Watercare, Whangarei DC, Anonymous #10).

41. Hutt CC and Upper Hutt CC noted that the Resource Management Act provides for other options for achieving compliance, rather than just punitive action. They also noted national differences in how non-compliances are managed.

42. Hastings DC was neutral on this question.

Q4C - Would implementing the measure result in additional costs or other implementation issues for local government organisations? If so, what are they?

Submitters

Twenty submitters commented on this question including Clutha DC, Dunedin CC, Hauraki DC, Hamilton CC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Napier CC, New Plymouth DC, Porirua CC, Selwyn DC, South Waikato DC, Southland DC, Upper Hutt CC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC and Anonymous #10.

43. Eighteen submitters commented that this measure would not result in additional costs or implementation issues. Submitters included: Clutha DC, Dunedin CC, Hauraki DC, Hamilton CC, Hastings DC, Hutt CC, Invercargill CC, Napier CC, New Plymouth DC, Selwyn DC, South Waikato DC, Southland DC, Upper Hutt CC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC, and Anonymous #10.

44. Porirua CC submitted that there may be cost increases due to regional councils issuing more notices, leading to more consultations and legal costs for councils.

45. Marlborough DC submitted that while the measure is clear, it is more reflective of the local authority's attitude and relationship with the regional regulatory authority. This may make regional councils more formal in their dealings with councils and add legal and bureaucratic costs. Marlborough DC also noted that due to low numbers prosecutions, notices and abatement orders would need to be aggregated and the seriousness of the event would be lost.

Q4D – Do you have any other comments?

Submitters

Twenty-three submitters commented on this question including: Dunedin CC, Hamilton CC, Hastings DC, Matamata-Piako DC, Napier CC, Nelson CC, New Plymouth DC, Palmerston North CC, Porirua CC, Ruapehu DC, Selwyn DC, SOLGM, Southland DC, Thames-Coromandel DC, Waikato DC, Waimakariri DC, Waitaki DC, Watercare, Whakatane DC, Wellington CC, Whangarei DC, Anonymous #7, and Anonymous #10.

Submitters in agreement

46. Six submitters either agreed with or accepted the performance measure as it was proposed (submitters included: New Plymouth CC, Palmerston North CC, Nelson CC, Waitaki DC, Wellington CC, and Whakatane DC).

Differing levels of enforcement

47. Seven submitters noted that were differing levels of enforcement across the country due to local authorities different approaches and the differing requirements of specific resource consents (submitters included: Dunedin CC, Hamilton CC, Hastings DC, Porirua CC, Thames-Coromandel DC, Waitaki DC, Whangarei DC).

Not user-friendly for the public

48. Three submitters considered that the public would find the proposed performance measure hard to understand (submitters included: New Plymouth DC, Porirua CC, and Waikato DC).

Alternative performance measures

49. SOLGM, Whangarei DC and Anonymous #10 proposed alternative measures:

- "*the number of days that the council does not comply with any of its consent conditions to discharge waste water*" (Anonymous #10). They considered that this measure would be easier to understand; and
- "*number of days that local beaches or waterways are closed for swimming due to sewerage contamination*" (SOLGM and Whangarei DC).

Not a useful indicator of environmental impact

50. Three submitters stated that the proposed performance measure would not be a good indicator for a number of reasons including: not many notices would be received; it would not really measure environmental impact; and, such action is generally a measure of last resort. (Submitters included: SOLGM, Waimakariri DC, and Watercare).

Potential for inconsistent measurement

51. Five submitters commented that inconsistent measurement of performance was likely due to such things as differing consent requirements between local authorities (submitters included: Palmerston North CC, SOLGM, Thames-Coromandel DC, and Wellington CC).

Other comments

52. Other comments from submitters included:

- if the performance measure proceeds, then the overall consent compliance criteria referred to in the Resource Management Act should be used (Hamilton CC);
- there may be an increase in notices, orders and prosecutions by regional councils, whereas now most breaches are minor and dealt with administratively (Matamata-Piako DC); and
- there is a need to clarify how compliance will be reported (Selwyn DC).

Recommendation on proposed performance measure: 2A management of environmental impacts

53. Submitters considered the measure easy to understand but queried how useful it would be to the general public. The majority of submitters also considered that this performance measure would not result in significant additional costs or implementation issues.

54. Submitters did highlight issues regarding differing levels of enforcement across New Zealand and queried whether it was a useful indicator for measuring actual environmental impact. A small number of submitters also highlighted the potential for inconsistent measurement between differing local authorities.

55. It is recommended that the performance measure be retained pending a re-examination of its potential effectiveness in measuring environmental impact.

PROPOSED PERFORMANCE MEASURE TWO (B): MANAGEMENT OF ENVIRONMENTAL IMPACTS

"Percentage of biosolids that is reused on an annual basis."

Q5A - Is the measure easy to understand?

Submitters

Twenty-three submitters commented on this question including: Clutha DC, Dunedin CC, Hauraki DC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Matamata-Piako DC, Napier CC, New Plymouth DC, Porirua CC, Selwyn DC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC, Anonymous #6, and Anonymous #10.

56. Nine submitters agreed that the performance measure was easy to understand (submitters included: Clutha DC, Dunedin CC, Hauraki DC, Invercargill CC, Matamata-Piako DC, Selwyn DC, South Waikato DC, Waitomo DC, and Watercare).

57. Three submitters were neutral as to whether the performance measure was easy to understand (submitters included: Napier CC, Waikato DC, and Anonymous #6).

58. Ten submitters disagreed or strongly disagreed that the measure was easy to understand. Submitters included: Hastings DC, Hutt CC, Marlborough DC, New Plymouth DC, Porirua CC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Whangarei DC, and Anonymous #10. Additionally, Hutt CC and Upper CC commented that:

    - definitions for this performance measure are needed; and
    - different treatment processes produce different quantities of bio-solids. Some local authorities may have very low re-use, but of a much smaller total quantity. The overall benefit may then be higher than another Council which does re-use but with higher volumes of bio-solids.

Q5B – Will the information provided by the performance measure help the public to assess a local government organisation's levels of service and to participate in discussions on future levels of service?

Submitters

Twenty-two submitters commented on this question including Clutha DC, Dunedin CC, Hauraki DC, Hastings DC, Invercargill CC, Marlborough DC, Matamata-Piako DC, Napier CC, New Plymouth DC, Porirua CC, Selwyn DC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC, and Anonymous #10.

59. Six submitters agreed or strongly agreed that the information provided by the performance measure would assist the public to assess a local government organisation's levels of service and to participate in discussions on future service levels

(submitters included: Hauraki DC, Matamata-Piako DC, New Plymouth DC, South Waikato DC, Waitomo DC, and Whakatane DC).

60. Five submitters were neutral that the information provided by the performance measure would assist the public to assess a local government organisation's levels of service and to participate in discussions on future service levels (submitters included: Clutha DC, Dunedin CC, Napier CC, Waikato DC, and Watercare).

61. Ten submitters disagreed or strongly disagreed that the information provided by the performance measure would assist the public to assess a local government organisation's levels of service and to participate in discussions on future service levels. Submitters included: Hastings DC, Invercargill CC, Marlborough DC, Porirua CC, Selwyn DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Whangarei DC, and Anonymous #10. Hutt CC and Upper Hutt CC commented that the performance measure assumes that the re-use of bio-solids is always appropriate. This introduces a 'level of service' expectation that all bio-solids should be re-used

Q5C - Would implementing the measure result in additional costs or other implementation issues for local government organisations? If so, what are they?

Submitters

Nineteen submitters commented on this question including: Clutha DC, Dunedin CC, Hamilton CC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Napier CC, New Plymouth DC, Palmerston North CC, Porirua CC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC, and Anonymous #10.

62. Nine submitters commented that the measure would not result in additional costs or implementation issues. Submitters included: Clutha DC, Dunedin CC, Hamilton CC, Hutt CC, Invercargill CC, Napier CC, New Plymouth DC, Upper Hutt CC, and Watercare.

63. Thames-Coromandel DC submitted that they could not comment because of a lack of detail regarding the performance measure.

64. Nine submitters noted cost or implementation issues with the propose measure. Submitters included: Hastings DC, Marlborough DC, Palmerston North CC, Porirua CC, Southland DC, Waitomo DC, Whakatane DC, and Whangarei DC, and Anonymous #10. Specific comments were:

- Five submitters noted that performance would add extra costs for local authorities especially if they did not have appropriate facilities already in place (submitters included Hastings DC, Porirua CC, Southland DC, Waitomo DC, and Whangarei DC);
- Three submitters noted desludging and subsequent treatment of biosolids often did not happen annually and where there were multiple plants this was staggered. Therefore it was not a good annual measure (submitters included: Hastings DC, Whakatane DC, and Anonymous #10); and
- Whangarei DC also commented that introduction of the performance measure could be seen as forcing compliance with a desired outcome.

Q5D – Do you have any other comments?

Submitters

Twenty-five submitters commented on this question including: Dunedin CC, Hamilton CC, Hastings DC, Invercargill CC, Napier CC, Nelson CC, New Plymouth DC, Matamata-Piako DC, Palmerston North CC, Porirua CC, Ruapehu DC, Selwyn DC, SOLGM, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waimakariri DC, Waitaki DC, Wanganui DC, Watercare, Wellington CC, Whakatane DC, Anonymous #7, and Anonymous #10.

Oppose the proposed performance measure

65. Nine submitters opposed the proposed draft performance measure. Submitters included: Hamilton CC, Hastings DC, Ruapehu DC, Selwyn DC, SOLGM, Waimakariri DC, Waitaki DC, Wanganui DC, and Anonymous #10. Several of those submitters recommended removing the measure from the suite of measures as a whole.

Performance measure hard to understand

66. Three submitters (Ruapehu DC, Dunedin CC, and New Plymouth DC) considered that the proposed draft performance measure would be hard for the public to understand, were it to proceed.

Definitions and guidance needed

67. Four submitters (Palmerston North CC, Upper Hutt CC, Waikato DC, and Wellington CC) commented that there was a need for guidance for the terms in the proposed performance measure. Submitters queried what “biosolids” “reuse” and sustainable meant in this context. Guidance would be necessary to ensure comparability across local authorities.

Desludging

68. Three submitters noted that desludging of sewerage ponds, particularly for smaller local authorities, may occur irregularly so that would skew the performance measure (submitters included: Dunedin CC, Palmerston North CC, Waimakariri DC).

69. SOLGM and Ruapehu DC queried whether the proposed performance measure met the tests in the Local Government Act 2002 for a performance measure.

Compliance costs

70. Two submitters commented that they believed that the proposed performance measure would be costly for territorial authorities. They noted that treatment facilities may have to be upgraded to treat sewerage in the way the performance measure envisages (submitters included: Hastings DC, Selwyn DC).

Relevance of the Measure

71. Four submitters noted that the measure was not relevant to them. This was for various reasons including that their systems do not produce biosolids regularly and that other methods were equally valid ways of disposing of waste (submitters included: Hamilton CC, Invercargill CC, Napier CC Southland DC).

Potential to bias investment decisions

72. Four submitters considered that proposed performance measure could bias local authorities' investment decisions through encouraging only one type of bio-solid disposal method. This investment may not necessarily be the most cost-effective or appropriate one for local authorities (submitters included: New Plymouth CC, Palmerston North CC, SOLGM, and Thames-Coromandel DC).

Measure design

73. Three submitters queried the design of the performance measures two and three. Specifically, were the measures to be considered together or separately (submitters included: SOLGM, Waitaki DC, Wanganui DC).

Alternative measures

74. Two submitters proposed a different or altered performance measure: Porirua CC proposed, "*Annual cost of bio-solids disposal per 1000 connections*". Whakatane DC suggested that reporting be required only in years where bio-solids are disposed of, rather than annually.

Support for the proposed performance measure

75. Nelson CC and Anonymous #7 supported the proposed performance measure.

Other comments

76. Other comments from submitters included:

- emphasising the beneficial reuse of biosolids reduces the significance of other potential impacts of sewage discharges (Invercargill CC); and
- the current use of bio-solids is very limited and is not supported by the regulatory frameworks. The reuse of biosolids is dependent on the constituents of the biosolids and relevant permission being given to reuse them. (Watercare)

Recommendation on proposed performance measure 2b: management of environmental impacts

77. A majority of submitters disagreed with this performance measure and whether the information it would produce would be useful to the community. Approximately half of submitters identified some level of cost or implementation issues that would result if the measure was progressed. Issues of relevance, being able to comprehend the measure, and its potential to bias investment decisions were raised by submitters.

78. The Department notes that there was a significant level of concern over the proposed performance measure from submitters. It is recommended that this performance measure be reviewed in its entirety.

PROPOSED PERFORMANCE MEASURE THREE: RESPONSE TO SEWERAGE SYSTEM FAULTS

"Median response time to attend to sewage overflows resulting from blockages or other faults of a municipal sewerage system:
a) between the time of notification and the time when service personnel reach the site; and
b) between the time of notification and resolution of the blockage or other fault."

Q6A - Is the measure easy to understand?

Submitters

Twenty-two submitters commented on this question including: Clutha DC, Dunedin CC, Hauraki DC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Matamata Piako DC, Napier CC, New Plymouth DC, Porirua CC, Selwyn DC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, Whakatane DC, Anonymous #6, and Anonymous #10.

79. Fourteen submitters either agreed or strongly agreed that the measure was easy to understand. Submitters included: Clutha DC, Dunedin CC, Hauraki DC, Invercargill CC, Matamata-Piako DC, Napier CC, Porirua CC, Selwyn DC, South Waikato DC, Thames-Coromandel DC, Waikato DC, Waitomo DC, Watercare, and Whakatane DC.

80. Two submitters were neutral as to whether the measure was easy to understand (submitters included: Southland DC and Anonymous #6).

81. Four submitters either disagreed or strongly disagreed that the performance measure was easy to understand (submitters included: Hastings DC, Marlborough DC, New Plymouth DC, and Anonymous #10).

82. Hutt CC and Upper Hutt CC submitted that the use of the term "median" was inappropriate. Further, the target should reflect each community's service level of service expectations which vary from council to council as per the Local Government Act 2002.

Q6B – Will the information provided by the performance measure help the public to assess a local government organisation's levels of service and to participate in discussions on future levels of service?

Submitters

Twenty-one submitters responded to this question including: Clutha DC, Dunedin CC, Hauraki DC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Matamata-Piako DC, Napier CC, New Plymouth DC, Porirua CC, Selwyn DC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, Whakatane DC, and anonymous #10.

83. Sixteen submitters agreed that the information provided by the performance measure would assist the community in assessing a local government organisation's service levels

and to participate in discussions on future service levels. Submitters included: Clutha DC, Hauraki DC, Hutt CC, Invercargill CC, Matamata-Piako DC, Napier CC, New Plymouth DC, Porirua CC, Selwyn DC, South Waikato DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, and Whakatane DC.

84. Three submitters were neutral as to whether the information provided by the performance measure would assist the community in assessing a local government organisation's service levels and to participate in discussions on future service levels (submitters included: Dunedin CC, Hastings DC, and Southland DC).

85. One submitter (Anonymous #10) strongly disagreed that the information provided by the performance measure would assist the community in assessing a local government organisation's service levels and to participate in discussions on future service levels.

Q6C - Would implementing the measure result in additional costs or other implementation issues for local government organisations? If so, what are they?

Submitters

Twenty submitters responded to this question including: Clutha DC, Dunedin CC, Hamilton CC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Matamata-Piako DC, Napier CC, New Plymouth DC, Porirua CC, Selwyn DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitomo DC, Watercare, Whakatane DC, and Anonymous #10.

86. Twelve submitters commented that implementing the performance measure would not result in additional costs or implementation issues. Submitters included: Clutha DC, Dunedin CC, Hutt CC, Invercargill CC, Marlborough DC, Napier CC, New Plymouth DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Watercare, and Whakatane DC. Other comments included:

    - Marlborough DC and Watercare reported already on a similar measure;
    - Thames-Coromandel DC and Napier CC noted that system changes would be needed but the impact would be minimal. Thames-Coromandel DC noted also that it was unclear as to what the potential impact would be on contractual arrangements with external contractors which involves variances; and
    - Invercargill CC noted the need for clear definitions, in particular 'resolution of blockage'.

87. Six submitters noted that there would be cost or implementation issues from the proposed performance measures. Submitters included: Hamilton CC, Hastings DC, Matamata-Piako DC, Waikato DC, Waitomo DC, and anonymous #10.

Q6D – Do you have any other comments?

Submitters

Twenty-two submitters responded to this question including: Hamilton CC, Hastings DC, Marlborough DC, Napier CC, Nelson CC, New Plymouth DC, Palmerston North CC, Porirua CC, Ruapehu DC, Selwyn DC, SOLGM, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waimakariri DC, Waitaki DC, Watercare, Wellington CC, Whakatane DC, Anonymous #7, and Anonymous #10.

Support for the proposed performance measure

88. Four submitters agreed or accepted the measure in its current form. Palmerston North CC noted that its support was conditional given that "resolution" covers what may be a temporary fix (submitters included: Palmerston North CC, Waitaki DC, Wellington CC, and Whakatane DC).

Definitions and guidance

89. Five submitters commented that the proposed performance measure needed to be supported by further definitions and appropriate guidance (submitters included: Dunedin CC, Hastings DC, Marlborough DC, New Plymouth DC, and Thames-Coromandel DC). Matters identified that needed to be defined were:

- what is "urgent" or "non-urgent" (Dunedin CC and Thames-Coromandel CC);
- whether a measure should be by scheme or overall assessment (Hastings DC);
- what "other faults" are (Dunedin CC);
- what median means and should the measure include a reference to the local authority's service level (New Plymouth DC);
- when is a request for service, a request for service (Thames-Coromandel CC); and
- what is resolution in this context, as this may be subject to different interpretations.

Alternative measures

90. One alternative measure was proposed by Dunedin CC:

"80th percentile response time to attend to urgent/ non-urgent issues resulting from municipal water reticulation network faults and unplanned interruptions:

- between the time of notification and the time when service personnel reach the site.
- between the time of notification and resolution of the fault or interruption."

Recommendation on proposed performance measure three: response to sewerage system faults

91. Submitters generally agreed that the performance measure was easy to understand and would be useful to the community without imposing additional costs or creating implementation issues for local authorities.

92. It is recommended that the performance measure be retained and consideration be given to appropriate guidance and definitions being created to support local authorities.

PROPOSED PERFORMANCE MEASURE FOUR: CUSTOMER SATISFACTION

Two possible measures for customer satisfaction were suggested:

"Option One: Number of complaints per 1000 properties connected to a municipal sewerage system about:

a) odour;

b) faults;

c) blockages; and

d) the way in which a local government organisation responds to issues with a municipal sewerage system."

Or

Option Two: Customer Satisfaction Survey (on a 5 point scale) on:

"a) the reliability of a municipal sewerage system; and

b) the way in which a local government organisation responds to issues with a municipal sewerage system."

Q7A - Which of the two options would give the better picture of a local government organisation's level of service and enable members of the public to contribute to discussions on future levels of service?

Submitters

Thirty submitters responded to this question including: Clutha DC, Dunedin CC, Far North DC, Hauraki DC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Matamata-Piako DC, Napier CC, Nelson CC, New Plymouth DC, Palmerston North CC, Porirua CC, Selwyn DC, Ruapehu DC, SOLGM, Southland DC, Thames-Coromandel DC, Upper Hutt CC, South Waikato DC, Waikato DC, Waitaki DC, Waitomo DC, Wanganui DC, Watercare, Whakatane DC, Whangarei DC, Anonymous #7, and Anonymous #10.

93. Eleven submitters supported using Option One. Submitters included: Invercargill CC, Marlborough DC, Ruapehu DC, SOLGM, Thames-Coromandel DC, Waikato DC, Waitomo DC, Wanganui DC, Watercare, Whakatane DC, and anonymous #7. Submitters made some further comments:

- Invercargill CC commented that specific guidance would be needed on how complaints are to be defined and recorded; and
- Ruapehu DC noted that setting the number at 1000 connects to a system makes some of their schemes too small to measure.

94. Fifteen submitters supported Option Two. Submitters included: Far North DC, Hauraki DC, HDC, Hutt CC, Matamata Piako DC, Napier CC, New Plymouth DC, Palmerston North CC, Selwyn DC, Southland DC, Upper Hutt CC, South Waikato DC, Waitaki DC, Whangarei DC, and anonymous #10. Far North DC also submitted that such a survey should be undertaken by the Department of Internal Affairs to avoid bias and differing methodologies and cost issues.

95. Nelson CC and Porirua CC supported the use of both options for measuring customer satisfaction.

Q7B - From your point of view, what are the good and bad points of each option?

Submitters

Twenty-six submitters responded to this question including: Clutha DC, Dunedin CC, Hamilton CC, Hauraki DC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Matamata Piako DC, Napier CC, New Plymouth DC, Palmerston North CC, Porirua CC, Ruapehu DC, Selwyn DC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waikato DC, Waitaki DC, Waitomo DC, Watercare, Whakatane DC, Whangarei DC and Anonymous #10.

Complaints based measures

96. Eight submitters considered that a complaints based measure could be negative, if it is only focussed on problems, and potentially skewed if there were significant numbers of complaints from a few individuals. Submitters included: Dunedin CC, Hauraki DC, Matamata-Piako DC, Palmerston North CC, Porirua CC, Selwyn DC, Thames Coromandel DC, and anonymous #10. Watercare commented that it may not actually represent actual customer satisfaction. They also noted that there was a difference between complaints and service requests; a complaint would need to be defined.

97. Six submitters (Hastings DC, Hutt CC, Invercargill CC, Upper Hutt CC, Waitaki DC, and Waitomo DC) commented that a complaints based measure would be preferable as it was more objective and specific. Submitters also noted that this type of measure would need appropriate definitions.

98. Thames-Coromandel DC and Whakatane DC noted that they had a general preference for Option One.

99. Waitaki DC noted that information for such a measure could be collected on either a scheme by scheme basis or combined.

Survey based measures

100. Four submitters noted that customer satisfaction surveys are difficult, costly to implement and run (submitters included: Dunedin CC, Watercare, Whangarei DC and Anonymous #10). Watercare noted that if a survey based measure was implemented, DIA would need to provide guidelines on the survey methodology to be used.

101. Six submitters considered that a survey based measure would be more objective and measureable, particularly if managed by an independent third party (submitters included: Hauraki DC, Matamata-Piako DC, Selwyn DC, South Waikato DC, Thames-Coromandel DC, Watercare).

102. Four submitters noted that there was an element of subjectivity to a customer service survey. Marlborough DC submitted that a customer satisfaction survey they run could be influenced by a single media issue which would be out of proportion to its actual impact (submitters included: Marlborough DC, Southland DC, Waikato DC, Waitomo DC, and anonymous #10).

103. Waikato DC expressed a general preference for Option Two.

104. Palmerston North CC noted there were difficulties in using either measure for customer satisfaction.

Q7C - Would implementing either measure result in additional costs or other implementation issues? If so, what are they?

Submitters

Twenty-two submitters commented on this question including: Clutha DC, Dunedin CC, Hamilton CC, Hauraki DC, Hastings DC, Hutt CC, Invercargill CC, Marlborough DC, Matamata-Piako DC, Napier CC, New Plymouth DC, Palmerston North CC, Porirua CC, South Waikato DC, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Wanganui DC, Waitomo DC, Watercare, Whakatane DC, and Anonymous #10.

105. Ten submitters commented that there would be no or minor costs from implementing this performance measure. Submitters noted that they either collected this information already or undertook regular customer service surveys. Submitters included: Hutt CC, Hauraki DC, Hastings DC, Matamata-Piako DC, Napier CC, Porirua CC, South Waikato DC, Upper Hutt CC, Wanganui DC, and Waitomo DC.

106. Eight submitters noted that there would be an increase in costs dependent on the option chosen (submitters included: Clutha DC, Hamilton CC, Invercargill CC, Marlborough DC, Palmerston North CC, Southland DC, Thames Coromandel DC and Watercare). Submitters focussed on the cost impact of surveys, in particular redesigning and commissioning surveys or establishing a survey from scratch.

107. Dunedin CC noted that if a complaints measure was to be used then they would require a more robust system for collecting complaint data.

Q7D – Do you have any other comments?

Submitters

Sixteen submitters commented on this question including: Dunedin CC, Hastings DC, Napier CC, New Plymouth DC, Porirua CC, Ruapehu DC, SOLGM, Southland DC, Thames-Coromandel DC, Upper Hutt CC, Waimakariri DC, Watercare, Wellington CC, Whangarei DC, Anonymous #7, and Anonymous #10.

108. Five submitters commented that if a survey based performance measure was pursued it would need to be administered nationally to ensure accuracy and validity (submitters included: Dunedin CC, Ruapehu DC, SOLGM, Southland DC, Thames-Coromandel DC, Waimakariri DC). Additionally, SOLGM noted that administering a regular survey would have cost implications for local authorities.

109. Porirua CC and Anonymous #7 noted that there were definitional issues with the complaints measure as to what was a "complaint".

110. SOLGM supported by Anonymous #10, submitted that a complaints based measure was preferable to a survey based one.

Other comments

111. There were a number of other comments from submitters, of which there were no specific shared themes. Submitter comments included:

- any survey would need to be carefully worded and consistent across councils (Southland DC);
- that the proposed performance measure was unsupported (Waimakariri DC);
- that the performance measure should be split into two (Wellington CC); and
- one submitter queried including the complaints related to the way in which the local government organisation responds to issues with a water supply. While acknowledging that it is a valid measure, it should be separate from issues related to the quality of water (Watercare).

Recommendation on proposed performance measure four: customer satisfaction

112. Submitters were divided on the best option to use for measuring customer satisfaction. A slim majority favoured a customer satisfaction survey over a complaints based measure. Submitters were concerned that a complaints measure would skew the results negatively, while some submitters thought it may be preferable as it was more objective.

113. Submitters considered, conversely, that customer satisfaction surveys could be costly and difficult to implement. Some submitters were also split on whether a survey would be more, or less, objective than a complaints based measure.

114. There are issues with surveying customer satisfaction across territorial authorities. If surveying is undertaken on an individual basis by specific territorial authorities

differences could arise between how surveying occurs in different areas and results may not be comparable. Additionally there would be costs from having to run the surveys which may have disproportionate impacts on smaller territorial authorities. Conversely, a national survey run centrally may be unwieldy, hard to maintain over time, and be difficult to manage.

115. It is recommended that a complaints based measure be used for customer satisfaction supported by appropriate definitions and guidance.