

National Performance Review



2013-14
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water
NEW ZEALAND
The New Zealand Water & Wastes Association Waiora Aotearoa



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Contents

List of Figures	2
List of Tables	5
1. INTRODUCTION	13
1.1 NPR Report participants	13
1.2 International comparisons	15
1.3 Alignment with other performance reporting initiatives	15
1.4 How to utilise benchmarks for continuous improvement	16
1.5 Interpreting information in the National Performance Report	16
2. ASSET INFORMATION	21
2.1 Service Coverage	21
2.2 Asset Condition	24
2.3 Condition Assessment Methodologies	26
2.4 Asset Capacity	29
3. FINANCIAL MANAGEMENT	32
3.1 Customer bills	33
3.2 Revenue	39
3.3 Expenditure	42
3.4 Cost Coverage	46
4. CUSTOMER SERVICE LEVELS	49
4.1 Customer complaints	49
4.2 Water supply interruptions	54
4.3 Fault response times	56
4.4 Compliance	59
5. WATER SUPPLY	60
5.1 Water loss	61
5.2 Residential water consumption	64
5.3 Metering	66
5.4 Sludge production	67
6. WASTEWATER	68
6.1 Overflows	68
6.2 Wastewater sludge	69
7. STORMWATER	71
7.1 Flooding events	71
8. CONCLUSION	73
REFERENCES	76
APPENDIX I: National Performance Review Participants and classifications	78
APPENDIX II: Alignment with DIA Non-financial reporting metrics	79
APPENDIX III: NPR requested data fields	82

List of Figures

Figure 1:	New Zealand population covered by the 2013-14 NPR	7
Figure 2:	Average service coverage	8
Figure 3:	Median cost coverage of NPR and international benchmark participants	8
Figure 4:	Median residential water and wastewater charges for a connection using 200m ³	9
Figure 5:	Average number of metering connections	9
Figure 6:	Participants water loss efficiency rankings using the Infrastructure Leakage Index	10
Figure 7:	Median residential water consumption	10
Figure 8:	Confidence Grading of Non-Financial Performance Measures	11
Figure 9:	Wastewater sludge disposal routes by volume (tonnes of dry sludge per year)	11
Figure 10:	Confidence Grading's of Asset Condition Data	12
Figure 11:	Protocols used for above ground condition assessments	12
Figure 12:	Length of pipe (m) per connection for NPR sector groups	14
Figure 13:	Median 3 waters revenue for NPR sector groups	14
Figure 14:	Colour coding of data confidence levels	17
Figure 15:	Unplanned water supply interruptions normalised by 1000 connections and 100km of pipe	19
Figure 16:	Average residential service coverage for each of the three waters	22
Figure 17:	Residential water coverage	22
Figure 18:	Residential wastewater coverage	23
Figure 19:	Residential stormwater coverage	23
Figure 20:	Condition grading and data confidence for water mains	24
Figure 21:	Condition grading and data confidence for wastewater mains	24
Figure 22:	Condition grading and data confidence for stormwater mains	25
Figure 23:	Water pipe age data confidence	25
Figure 24:	Water pipe age for NPR report participants compared with Europeans	26
Figure 25:	Proportion of network assessed using CCTV for wastewater and stormwater networks	27
Figure 26:	Confidence level of percentage wastewater and stormwater networks assessed using CCTV	27
Figure 27:	Method used for undertaking condition assessments of above ground water wastewater and stormwater infrastructure	28
Figure 28:	Percentage of assets assessed on 3 year asset management cycles for water wastewater and stormwater	29
Figure 29:	Capacity for additional population at existing wastewater treatment plants	29
Figure 30:	Days of treated water reservoir capacity normally available	30
Figure 31:	Storage levels for water treated at time of reporting	31
Figure 32:	Annual charge for 3 water services for connections using stormwater and 200m ³ of water and wastewater	33
Figure 33:	Median residential water and wastewater charges for a connection using 200m ³	34
Figure 34:	Number of fixed and user based water charges	37
Figure 35:	Water charges for a connection using 200m ³ of water a year	37
Figure 36:	Wastewater charges for a connection discharging 200m ³ of wastewater a year	38

Figure 37: Proportion of NPR participants with a stormwater charge	38
Figure 38: Stormwater charges per connection	39
Figure 39: Revenue per property	40
Figure 40: Total revenue for water wastewater and stormwater services	40
Figure 41: Sources of revenue for water infrastructure	41
Figure 42: Sources of revenue for wastewater infrastructure	41
Figure 43: Sources of revenue for stormwater infrastructure	42
Figure 44: Proportion of 3 waters expenditure by major cost category	43
Figure 45: Actual capital expenditure as a ratio of budgeted capital expenditure across the three waters	43
Figure 46: Purpose of capital expenditure on water	44
Figure 47: Purpose of capital expenditure on wastewater	44
Figure 48: Purpose of capital expenditure on stormwater	45
Figure 49: Purpose of operational expenditure on water	45
Figure 50: Purpose of operational expenditure on wastewater	46
Figure 51: Purpose of operational expenditure on stormwater	46
Figure 52: Total cost coverage for 3 waters infrastructure	47
Figure 53: Operational cost coverage of 3 waters infrastructure	48
Figure 54: Customer complaints of NPR participants versus international medians for water wastewater and stormwater	50
Figure 55: Water complaints and data confidence by complaint type	51
Figure 56: Number of water complaints per 1000 properties	51
Figure 57: Wastewater complaints by complaint type	52
Figure 58: Confidence in wastewater complaint data	52
Figure 59: Number of wastewater complaints per 1000 properties	53
Figure 60: Stormwater complaints and data confidence by complaint type	53
Figure 61: Number of stormwater complaints per 1000 connections	54
Figure 62: Number of interruptions to the water supply network	55
Figure 63: Data confidence of interruptions by council sector and interruption type	55
Figure 64: Unplanned water supply interruptions normalised by 1000 connections and 100km of pipe	56
Figure 65: Median unplanned interruptions per 100km of water main for NPR versus Canadian benchmarking participants	56
Figure 66: Water supply response times and data confidence levels	57
Figure 67: Wastewater fault attendance and resolution times and data confidence	58
Figure 68: Time taken to attend to call outs (in hours) related to flooding events and data confidence by sector group	58
Figure 69: Water supplied to participants system in cubic metres	61
Figure 70: Current annual real losses (litres/service connection/day)	62
Figure 71: Infrastructure Leakage Index for NPR Participants	63
Figure 72: Water loss data confidence rating by indicator type	63

Figure 73: Trends in current annual real loss (litres/service connection/day)	64
Figure 74: Residential water consumption (litres/population/day)	65
Figure 75: Percentage of metered connections for residential versus non-residential properties	66
Figure 76: Percentage of connections with water metering	66
Figure 77: Water treatment sludge disposal routes	67
Figure 78: Total wastewater production in cubic metres	68
Figure 79: Total number of overflows per 1000 connections showing wet and dry weather split where available	69
Figure 80: Data confidence for wastewater overflows	69
Figure 81: Wastewater sludge disposal routes by known weight (tonnes of dry solids)	70
Figure 82: Total number of flooding events	72
Figure 83: Flooding event data confidence	72

List of Tables

Table 1: Characteristics of different council classifications used in the NPR	13
Table 2: International benchmarking studies referenced in the 2013-14 NPR	15
Table 3: Data confidence ratings used by NPR participants	17
Table 4: Asset quantities in the NPR report by sector group	21
Table 5: Percentage of wastewater and stormwater networks with CCTV assessments overall and in 2013-14	26
Table 6: Variations in water, wastewater and stormwater charges	35
Table 7: Median revenue by sector category	39
Table 8: Total expenditure of NPR participants	42
Table 9: Purpose of NPR participants capital expenditure	44
Table 10: Median operational expenditure by NPR sector category	45
Table 11: International benchmark complaint indicators	50
Table 12: Summary statistics for total number of water complaints	51
Table 13: Summary statistics for wastewater complaints	52
Table 14: Summary statistics for stormwater complaints	53
Table 15: Summary statistics on number of water supply interruptions	54
Table 16: Summary statistics for the time taken to respond (in hours) to water call outs	57
Table 17: Summary statistics for the time taken to respond (in hours) to wastewater call outs	57
Table 18: Summary statistics for the time taken to attend to call outs (in hours) related to flooding events	58
Table 19: Resource consent non-compliance for wastewater and stormwater	59
Table 20: Likely priorities for action based on ILI	62
Table 21: International benchmarks for daily residential water consumption	65
Table 22: Water treatment sludge production	67
Table 23: Wastewater sludge disposal routes	70
Table 24: Flooding event statistics	71

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.

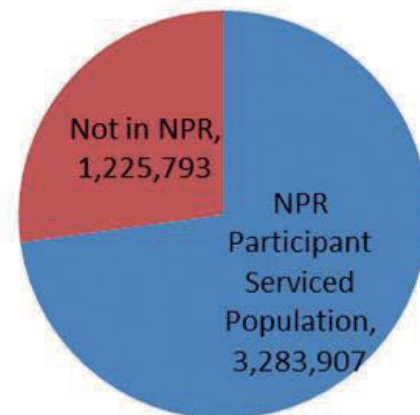
Participants include a mix of Regional Councils, Territorial Local Authorities and Council Controlled Organisations, hereafter referred to as NPR participants. In 2013-14 NPR participant costs totalled over two billion dollars. Collectively NPR participants manage a combined asset base of over 21 billion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

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

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.

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

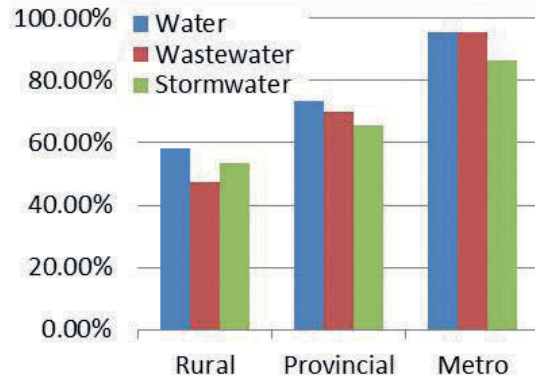


VARIATIONS ACROSS METROPOLITAN AND RURAL SECTORS ARE LARGE.

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

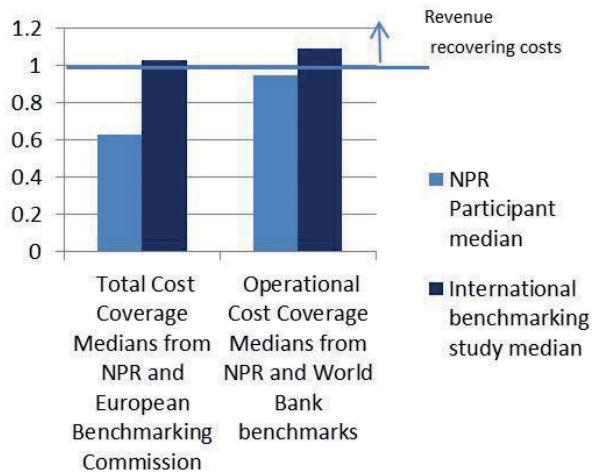


REVENUE DOES NOT APPEAR TO COVER COST FOR MOST PARTICIPANTS.

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.

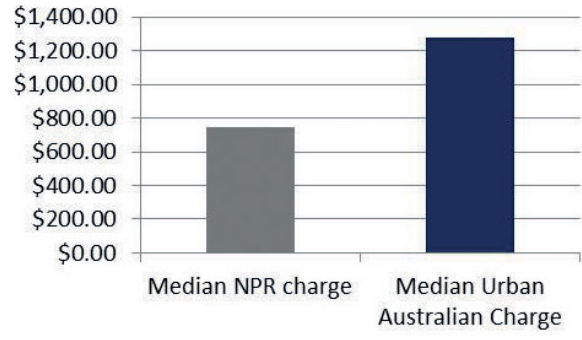
Stormwater systems generally have lower revenue to cost ratios than water and wastewater systems. Four participants do not generate any revenue directly associated with their stormwater systems. For four others developer contributions constituted the majority of their 2013-14 revenue stream.

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 200m³ 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 200m³

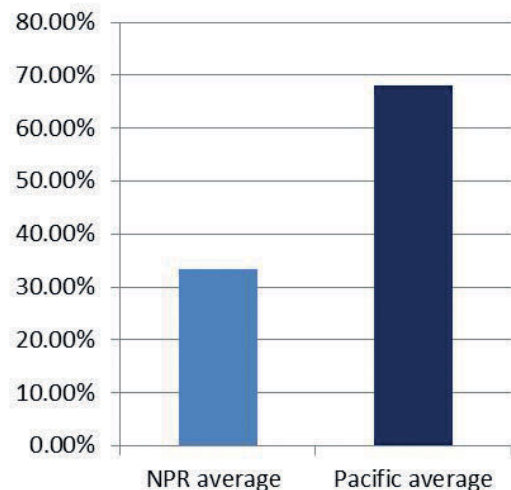


METERING IS COMMON PRACTICE IN NON-RESIDENTIAL PROPERTIES HOWEVER IS NOT YET WIDE SPREAD AMONGST RESIDENTIAL PROPERTIES.

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



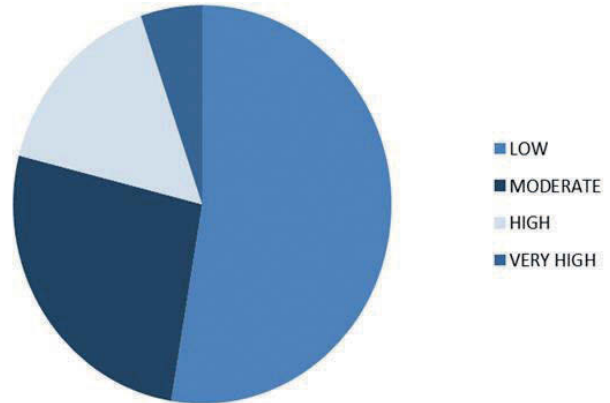
WATER LOSS UNDERSTANDING AND VOLUMES HAVE ROOM FOR IMPROVEMENT.

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).

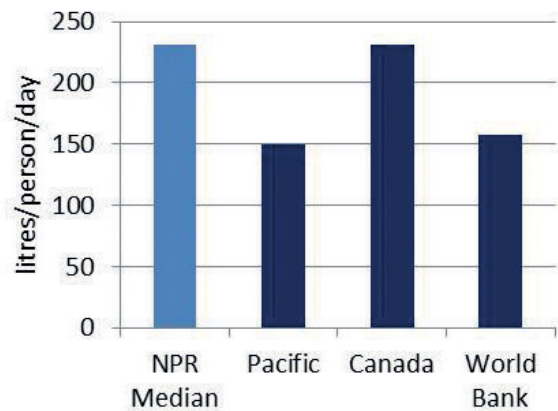
Figure 6: Participants water loss efficiency rankings using the Infrastructure Leakage Index



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

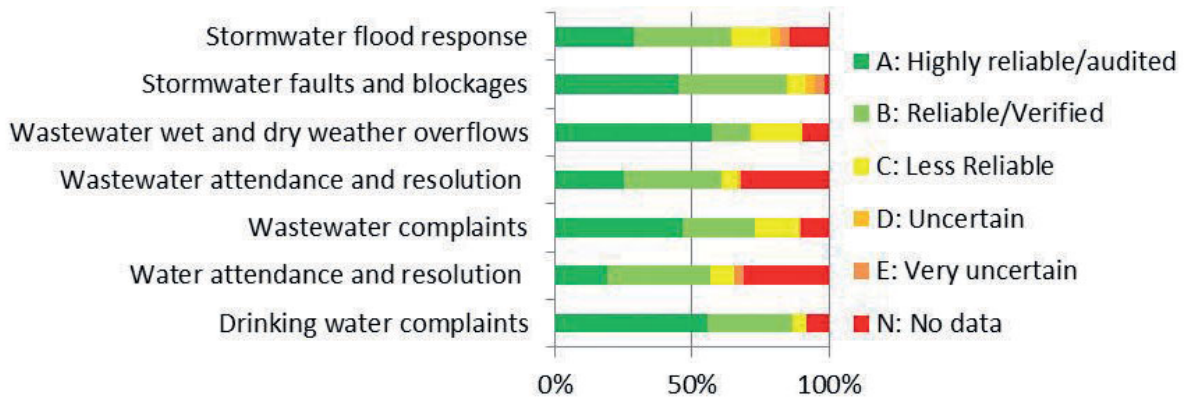


CUSTOMER SERVICE LEVEL INFORMATION IS NOT ALWAYS AVAILABLE OR CONSISTENTLY RECORDED.

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



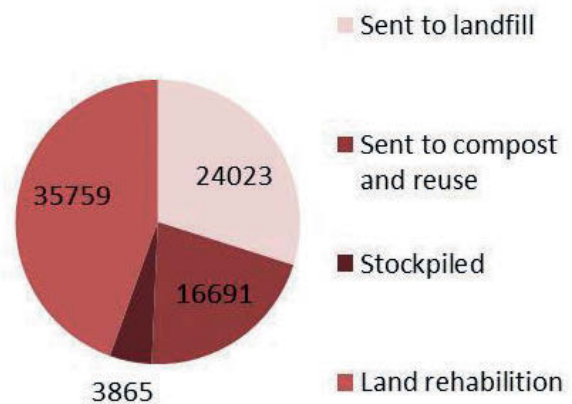
Complaints per head of population were higher for NPR participants than similar Canadian and European benchmarks. This may result from complaint definitions, which for a number of NPR participants included service requests.

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.

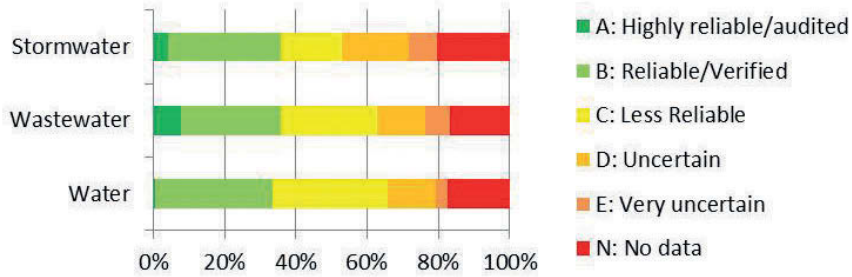
Figure 9: Wastewater sludge disposal routes by volume (tonnes of dry sludge per year)



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



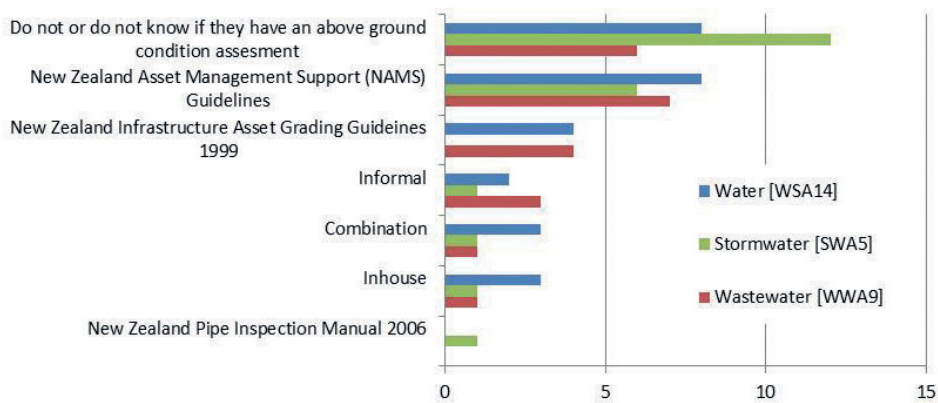
Data confidence was higher for average water pipe age. The median age of water pipes amongst NPR participants was similar to European benchmarking participants (Co-operation, 2013), with median ages of 34 and 36 years respectively.

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

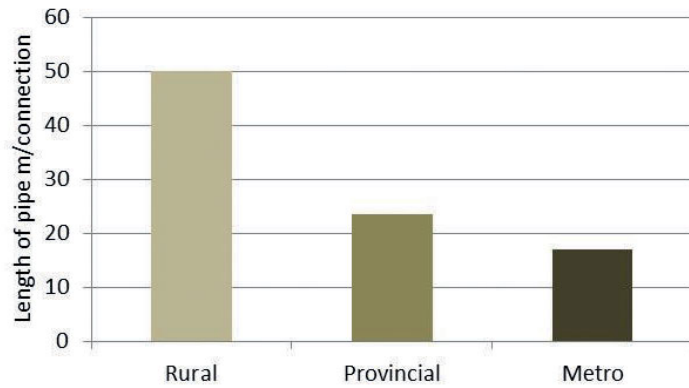
Participation	Total	Rural	Provincial	Metro
Number of NPR participants	31	11	12	8
Total Population served by each sector (CB2)	3,283,907	125,656	651,443	2,506,808
Properties (CB7)	1,373,292	71,838	305,032	996,422
Total length of pipe (km) across the three waters (WSA1+WWA1+SWA1)	64,321	6,294	15,266	42,760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

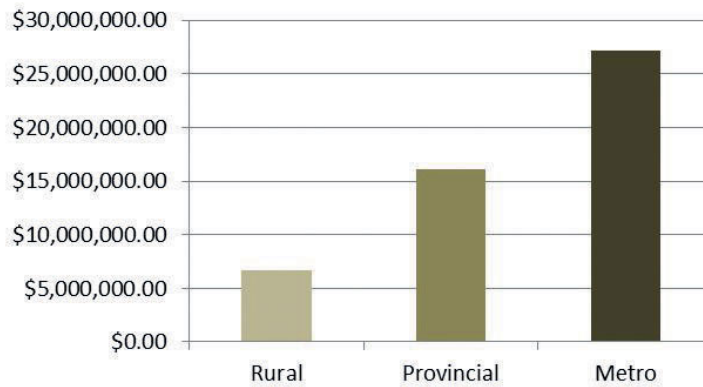
Figure 12: Length of pipe (m) per connection for NPR sector groups



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 <u>minor</u> 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 <u>supported</u> 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. <i>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.</i>

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.

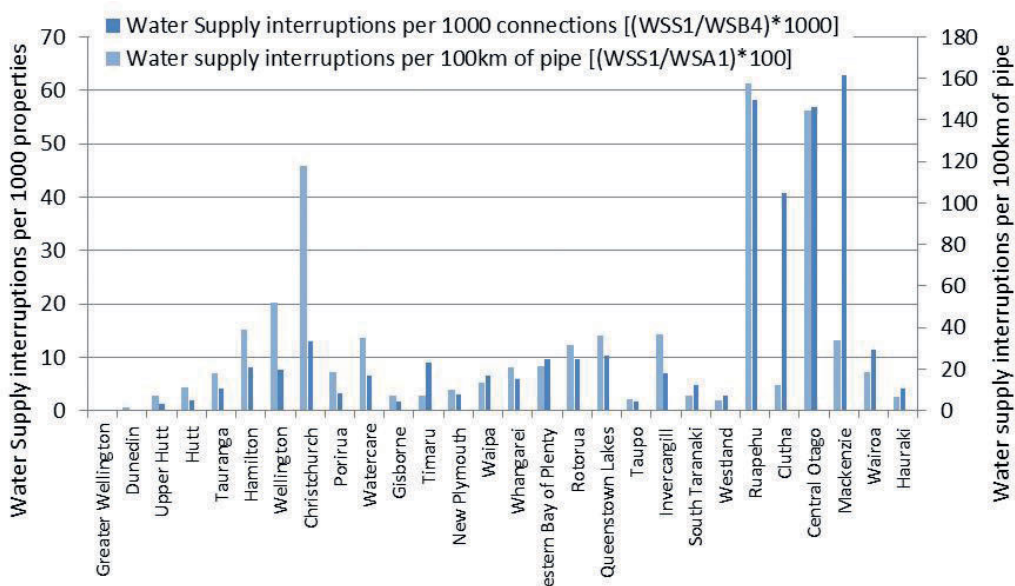
1.5.5 INTERPRETING DATA PROVIDED IN THE NPR

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:

$$\begin{aligned}
 &Population\ served\ [WSB1,WWB1,SWB5] \\
 &= Total\ Water\ Serviced\ Properties\ Residential\ [WSB2,WWB2,SWB5] \\
 &\times Usually\ resident\ population\ per\ occupied\ dwelling
 \end{aligned}$$

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

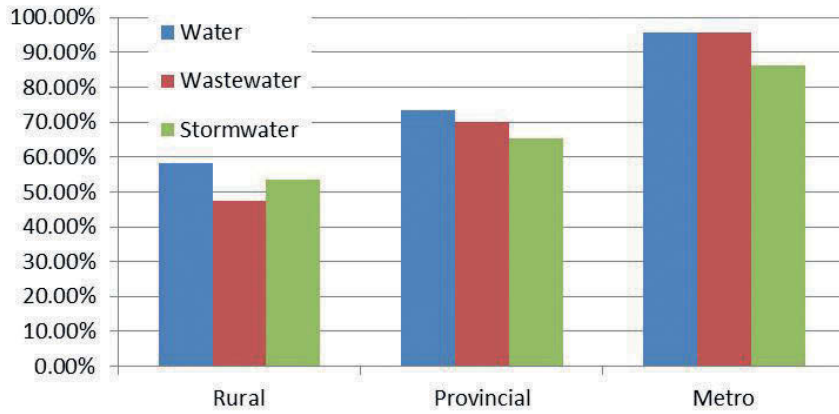
Asset	Total	Rural	Provincial	Metro
Total length (km) of water supply network (WSA1)	29,894	4,386	8,631	16,877
Total Water Treatment Plants (WSA4)	207	58	101	48
Total Water Pump Stations (WSA5)	650	105	204	341
Total Water Supply Reservoirs (WSA6)	967	211	316	440
Total length (km) of wastewater network (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.

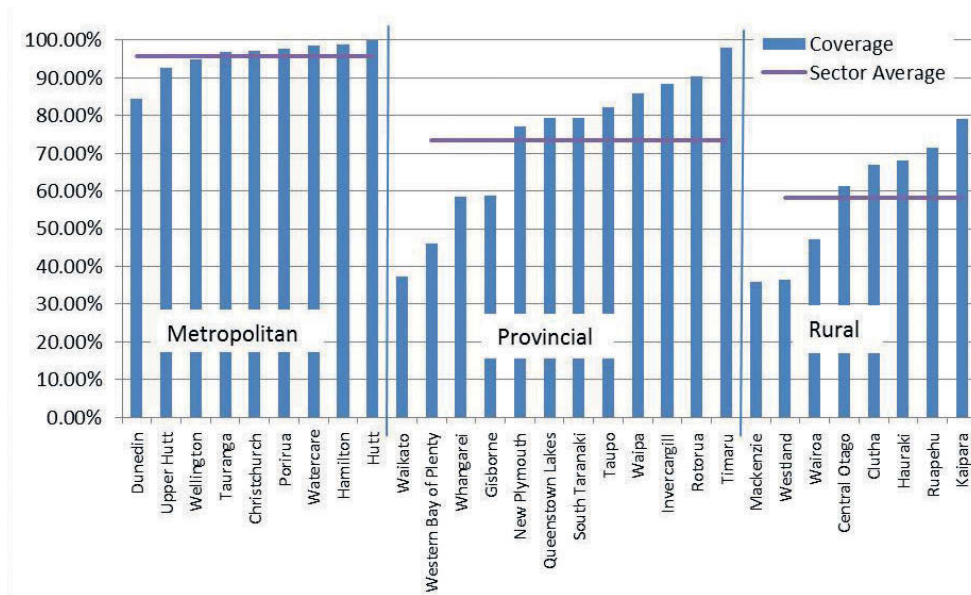
Timaru District Council residential water coverage data covers urban schemes only.

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



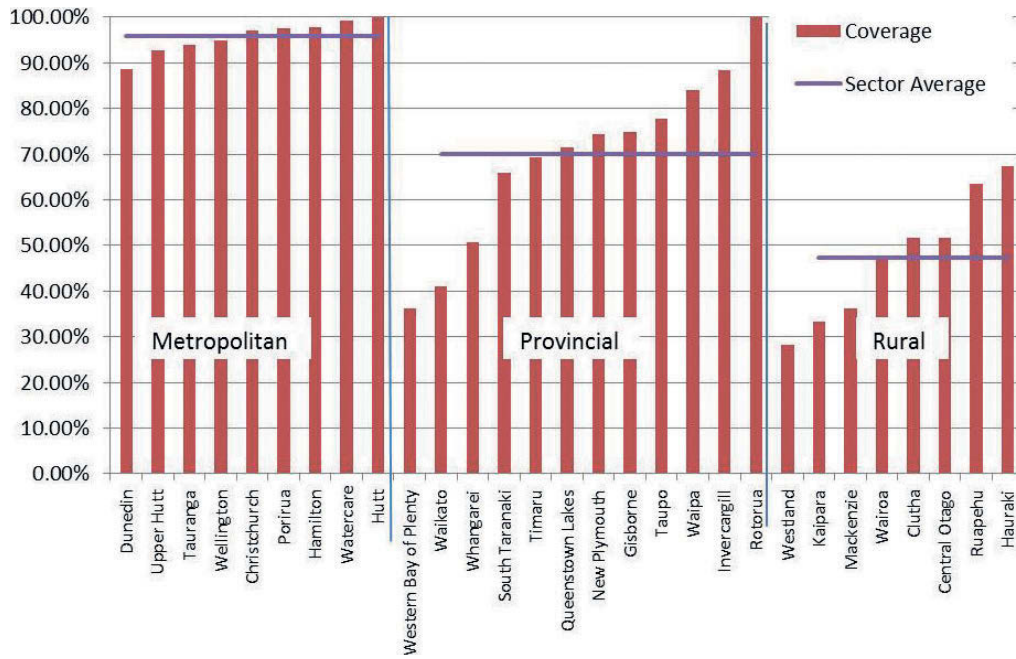
Equation 3: Water coverage = $WSB2/(CB3+CB4)$, Wastewater coverage = $WWB2/(CB3+CB4)$, Stormwater coverage = $SWB1/(CB3+CB4)$

Figure 17: Residential water coverage



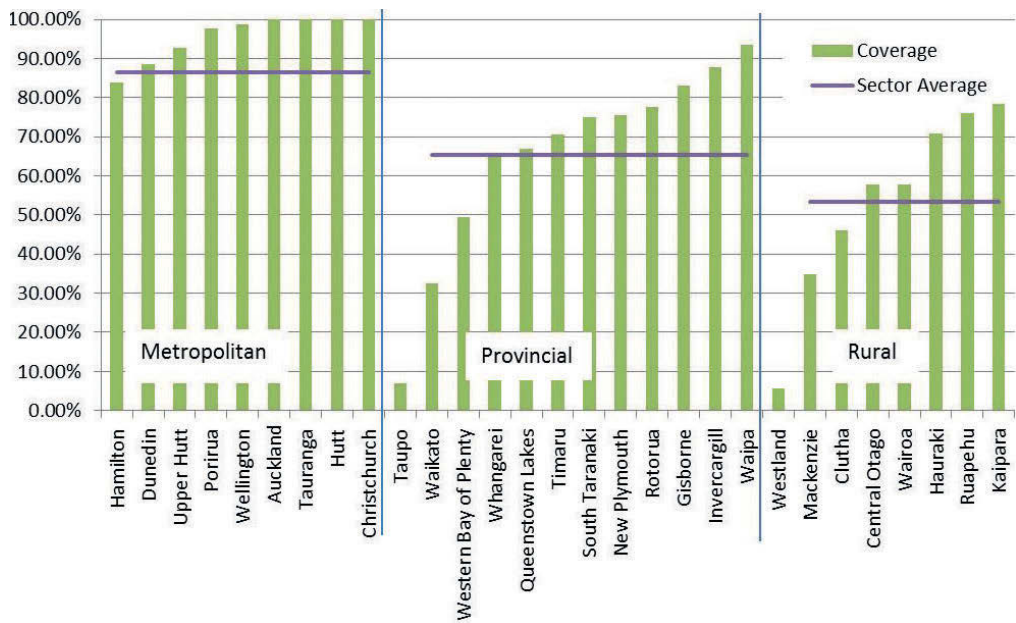
Equation 4: Water coverage = $WSB2/(CB3+CB4)$

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

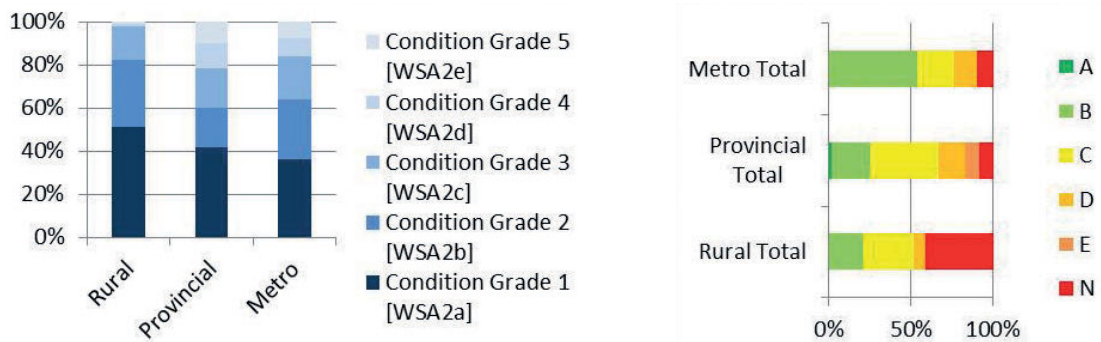


Figure 21: Condition grading and data confidence for wastewater mains

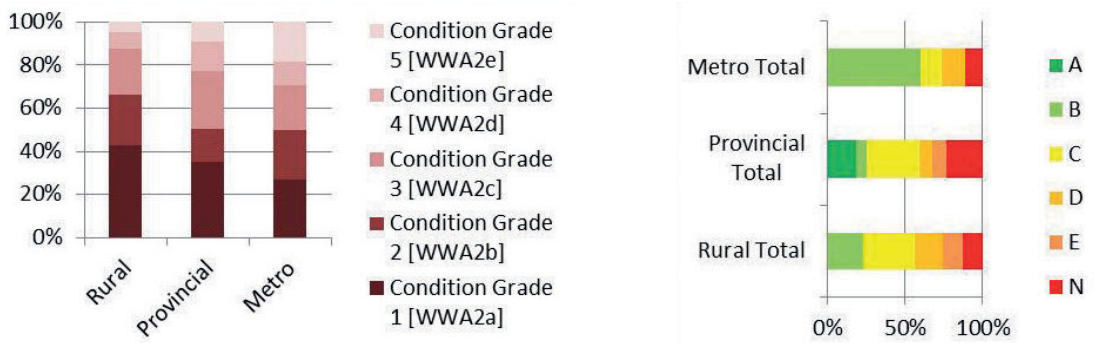
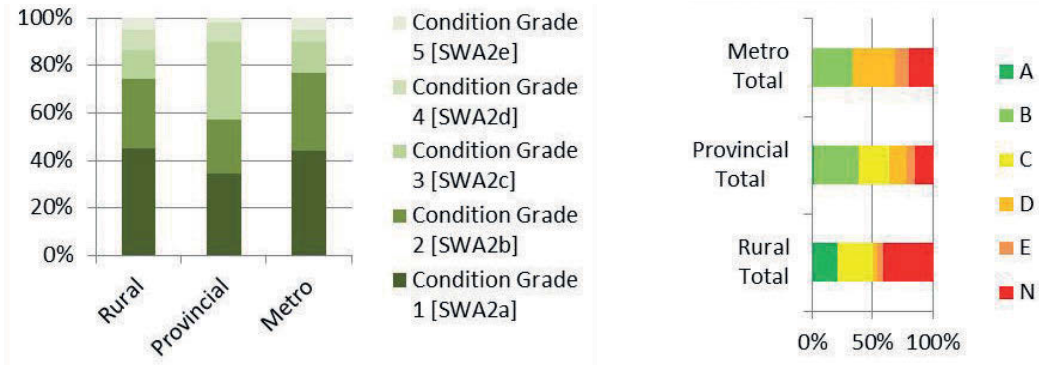


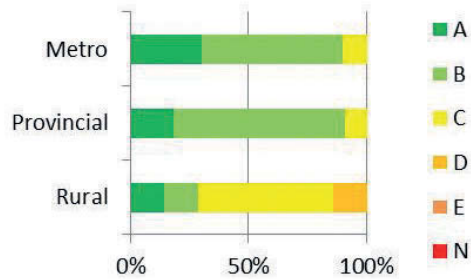
Figure 22: Condition grading and data confidence for stormwater mains



2.2.2 AGE OF WATER PIPELINES

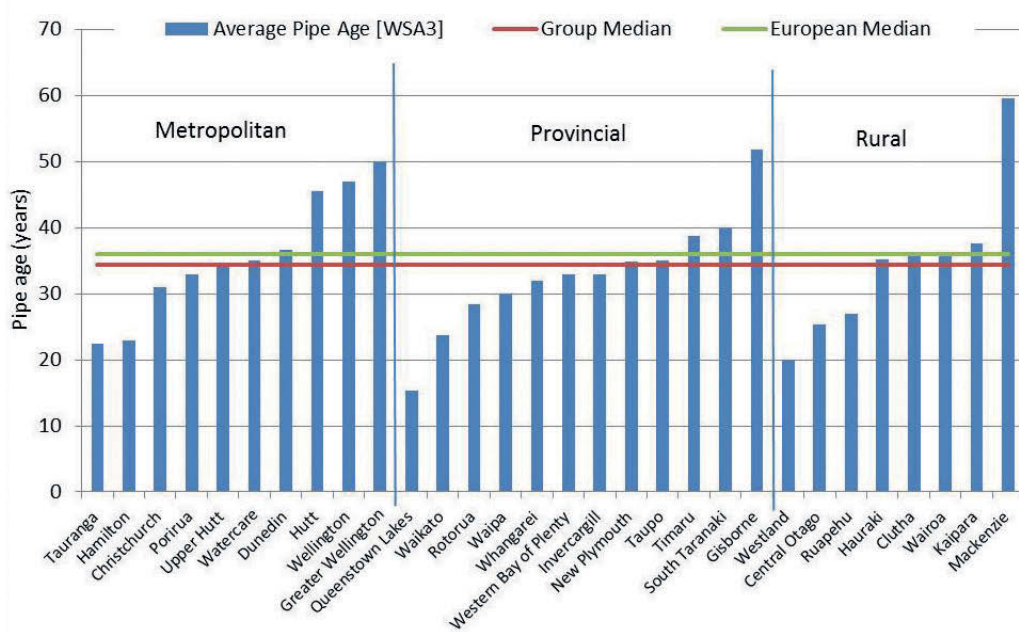
The weighted average age of pipelines provides a rough indicator of pipe condition, however it does not account for other important influences such as materials, soil and water pressure, which are accounted for in condition grading. Data confidence in water asset age was higher than condition grading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

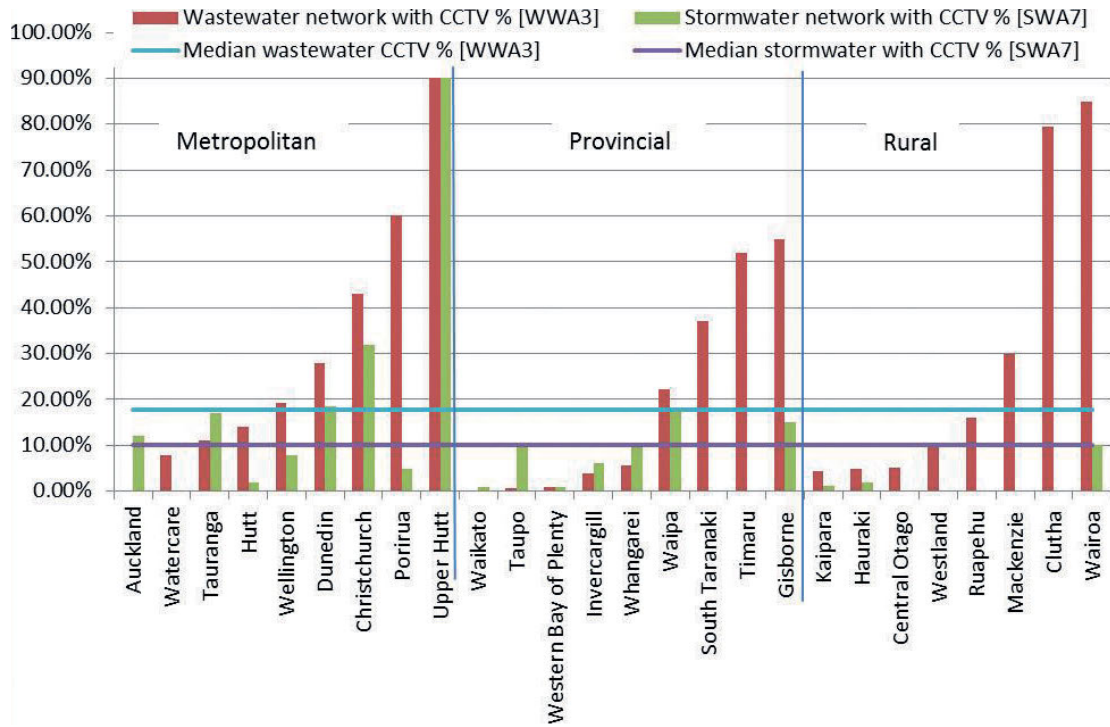
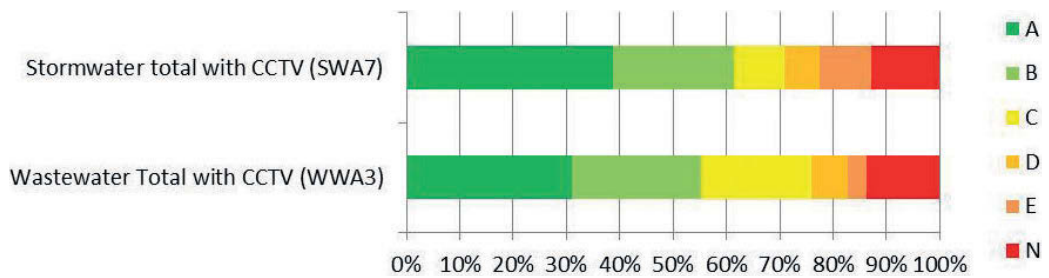


Figure 26: Confidence level of percentage wastewater and stormwater networks assessed using CCTV

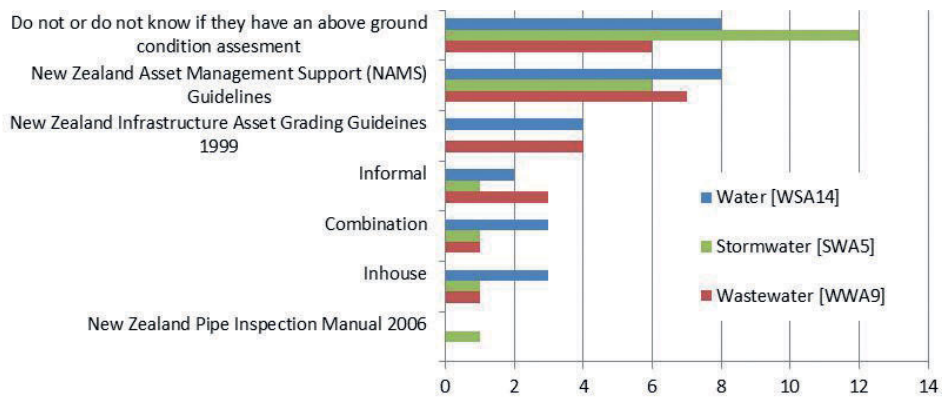


2.2.4 ABOVE GROUND ASSET CONDITION ASSESSMENT APPROACHES

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:

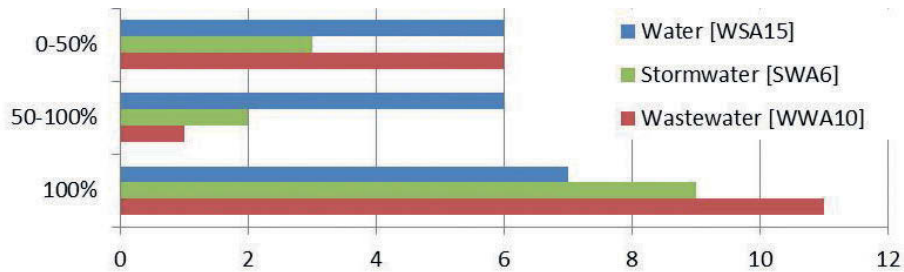
- Reliability-Centred Maintenance based on International Standards:
 - o SAEJA1011 – Evaluation Criteria for RCM Processes
 - o SAEJA1012 - A Guide to the RCM Standard
 - o IEC 60300-3-11 – Application Guide Reliability Centred Maintenance
- Visual Assessment of Utility Assets 2008 (Opus International 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

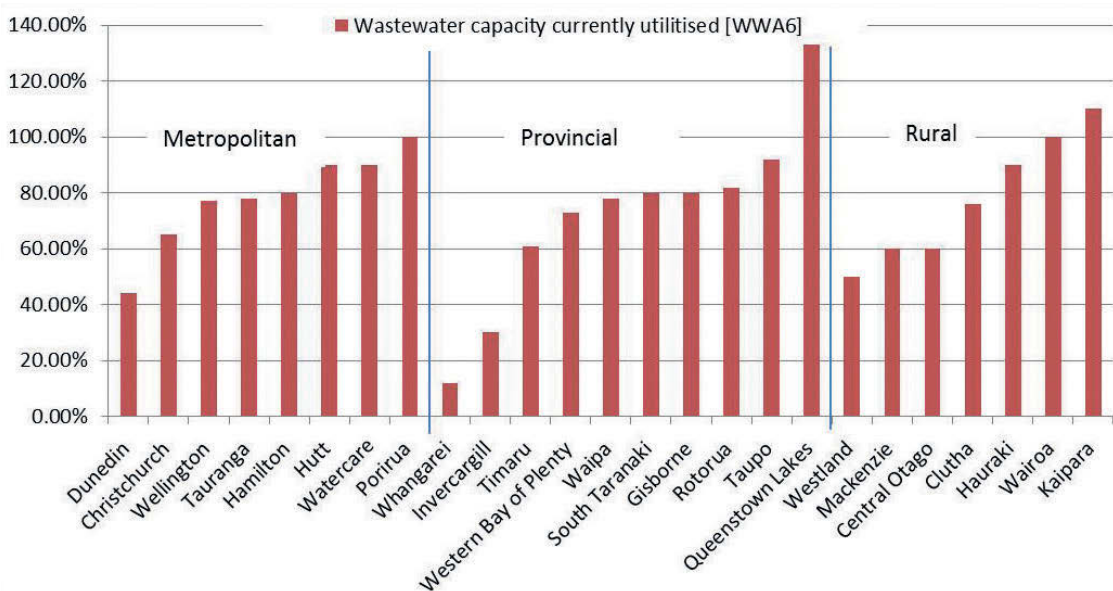


2.4 Asset Capacity

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.

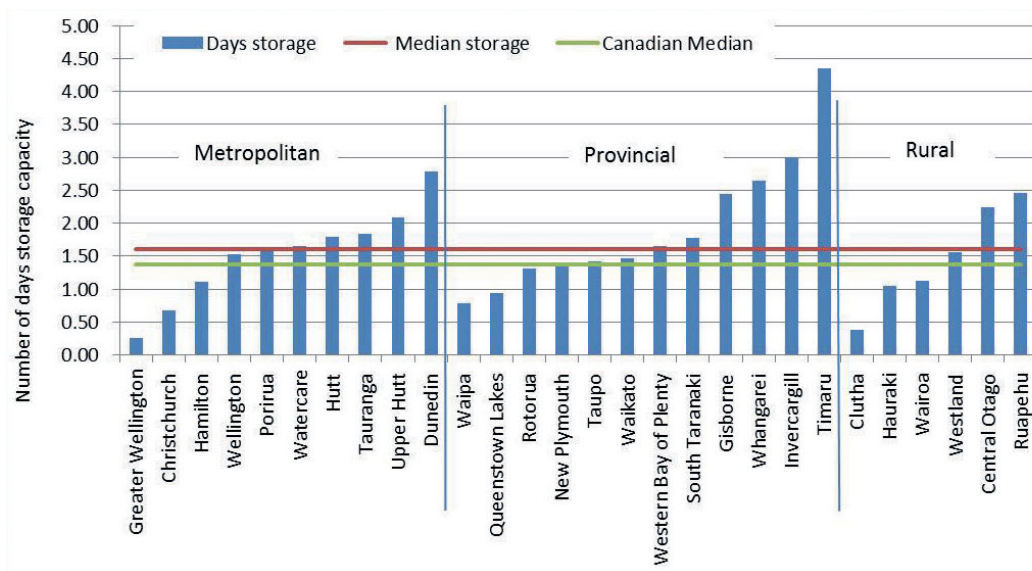
Days of water storage capacity in treated reservoirs has been calculated as:

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

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.

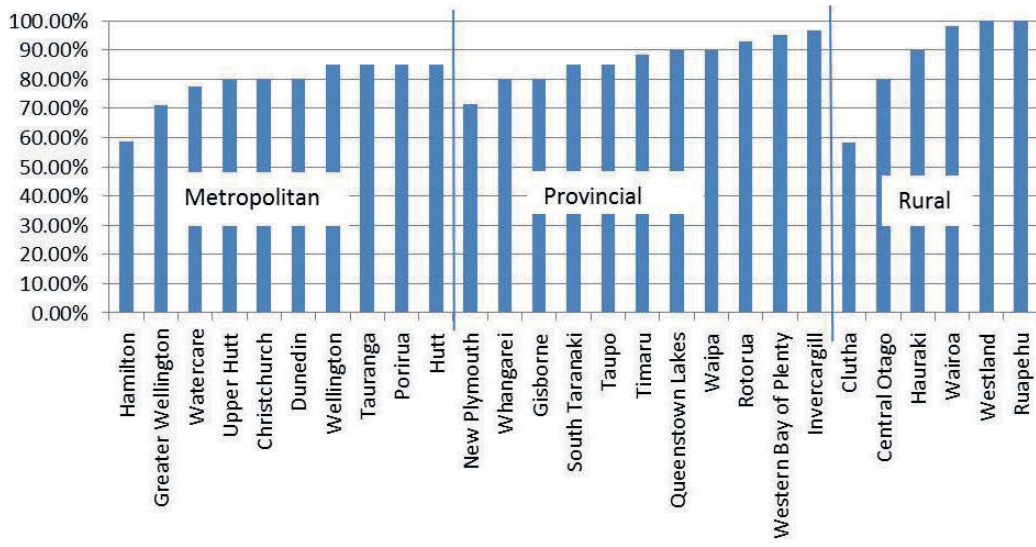
Figure 30: Days of treated water reservoir capacity normally available



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 200m³ 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.

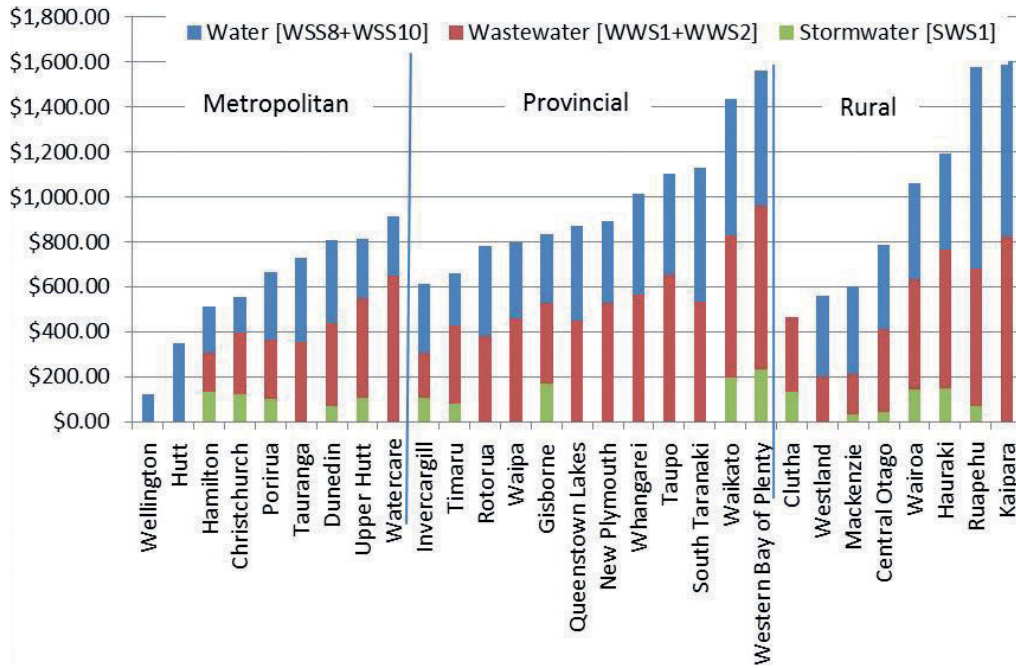
Timaru District Council data is for urban schemes only in much of this section including Figures 30, 31, 32, 35, 39, 40, 41, 44, 45, 46, 49, 52 and 53.

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.

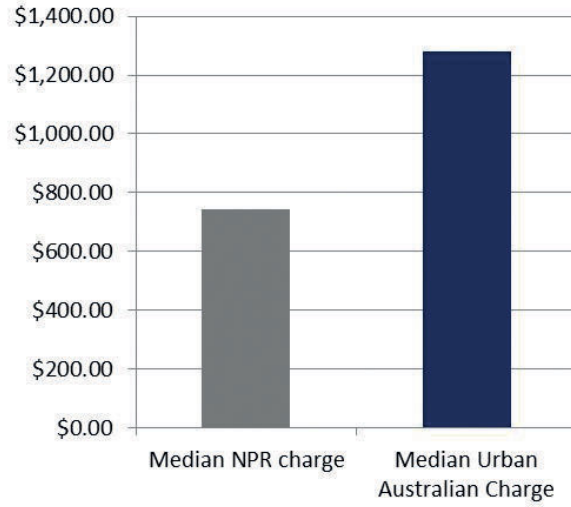
A number of participants did not list any charges associated with 3 waters provision.

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

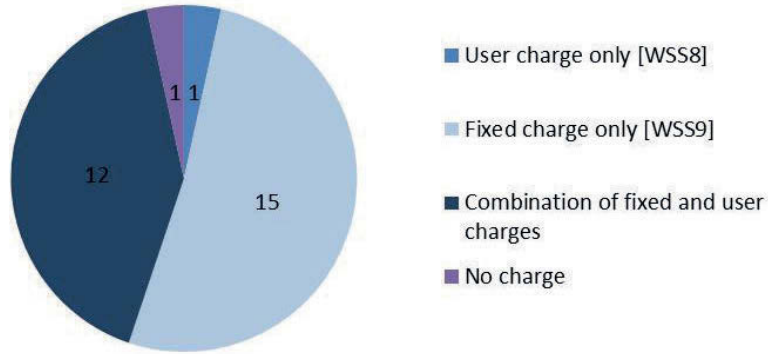
Participant	Water	Wastewater	Stormwater
Auckland Council	Service Provision contracted to Watercare.	Service Provision contracted to Watercare.	No targeted stormwater charge reported
Hutt City Council	N/A	No targeted wastewater charge reported	N/A
Upper Hutt City Council	N/A	N/A	Stormwater charge based 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

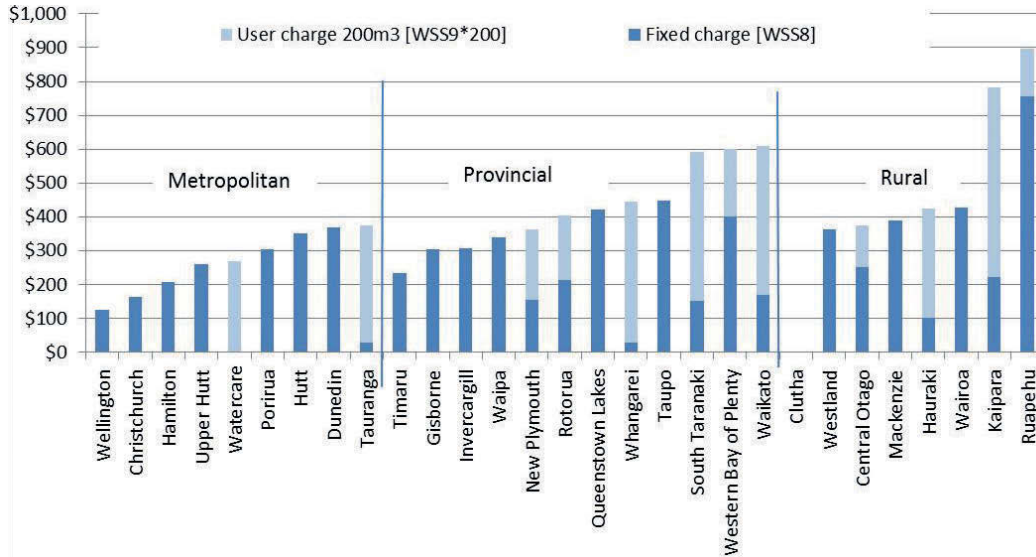
The majority of NPR respondents employ fixed charging regimes. This is in contrast to Australian urban utilities, all of whom used a combination of fixed and user based water charges (National Water Commission, 2014).

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.

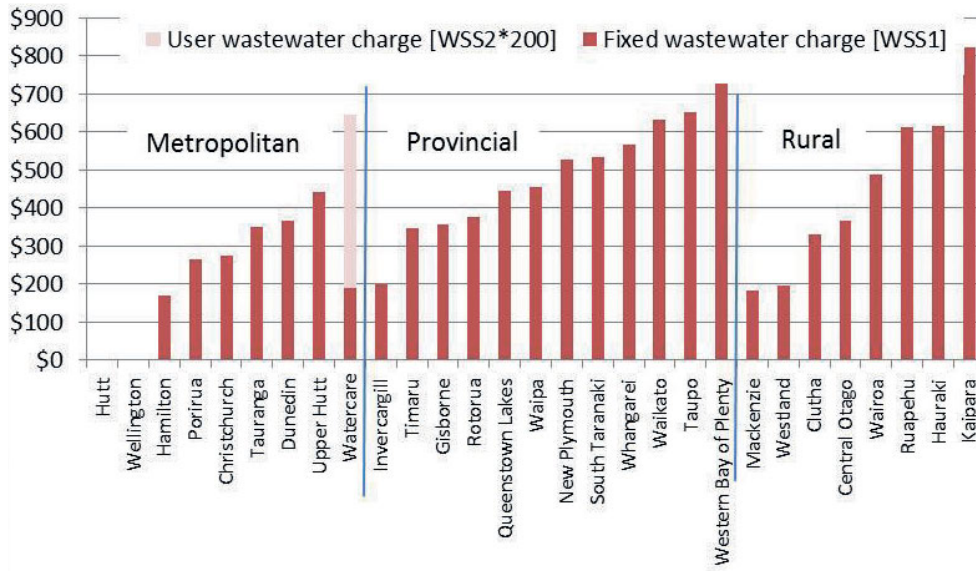
Figure 35: Water charges for a connection using 200m³ of water a year



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

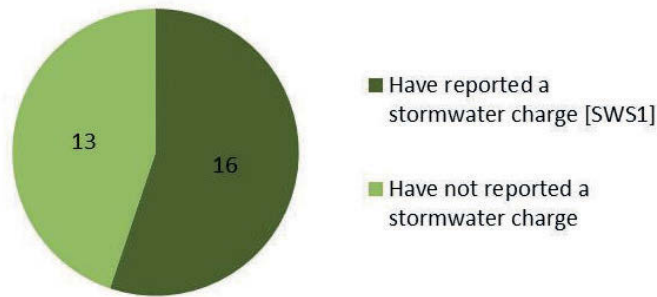
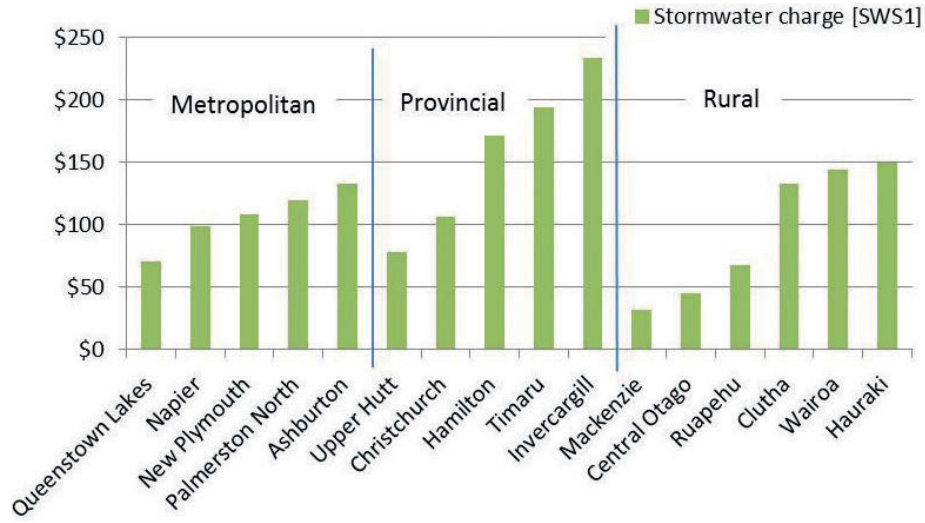


Figure 38: Stormwater charges per connection



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

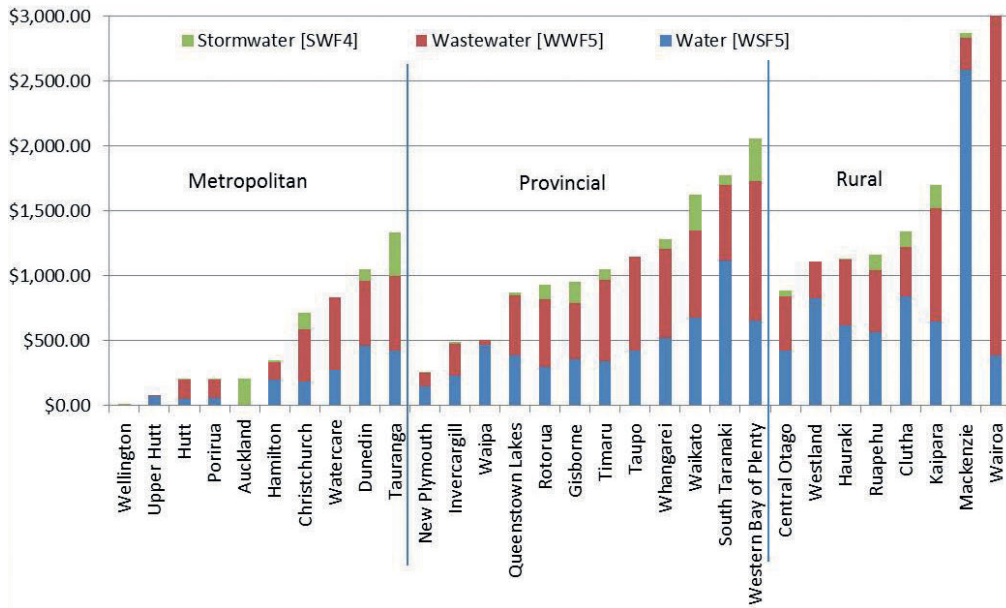
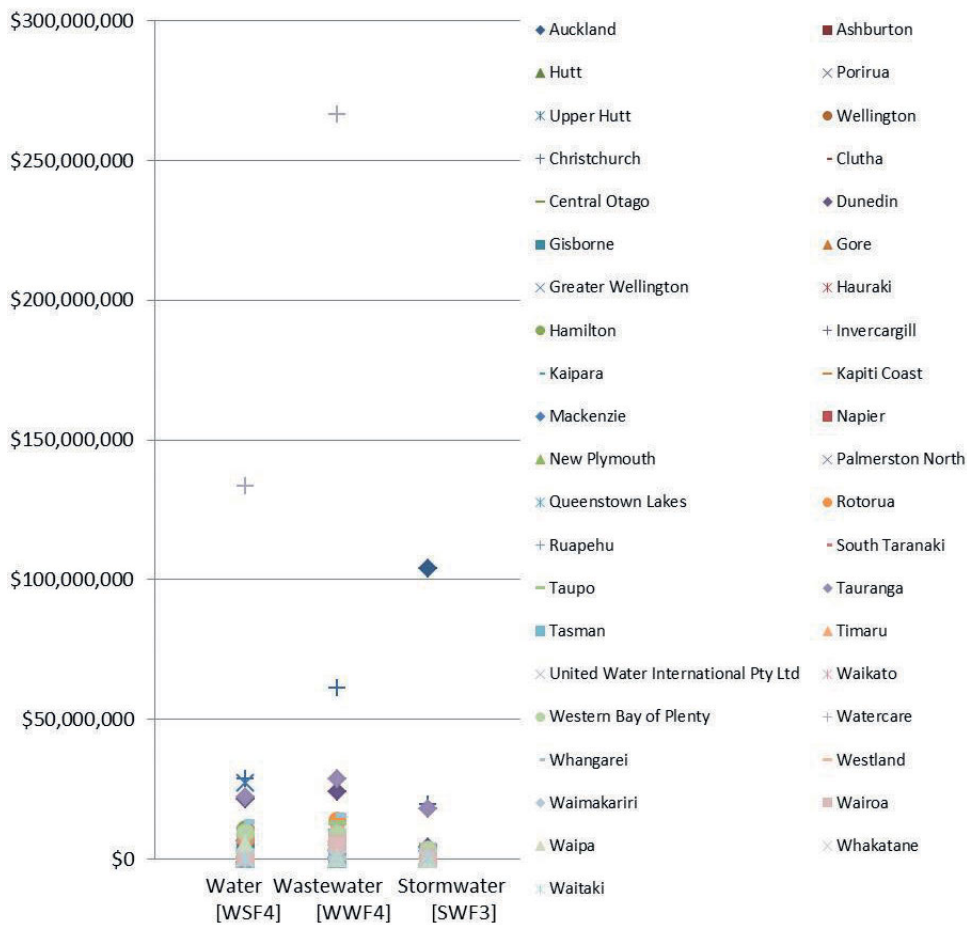


Figure 40: Total revenue for water wastewater and stormwater services



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

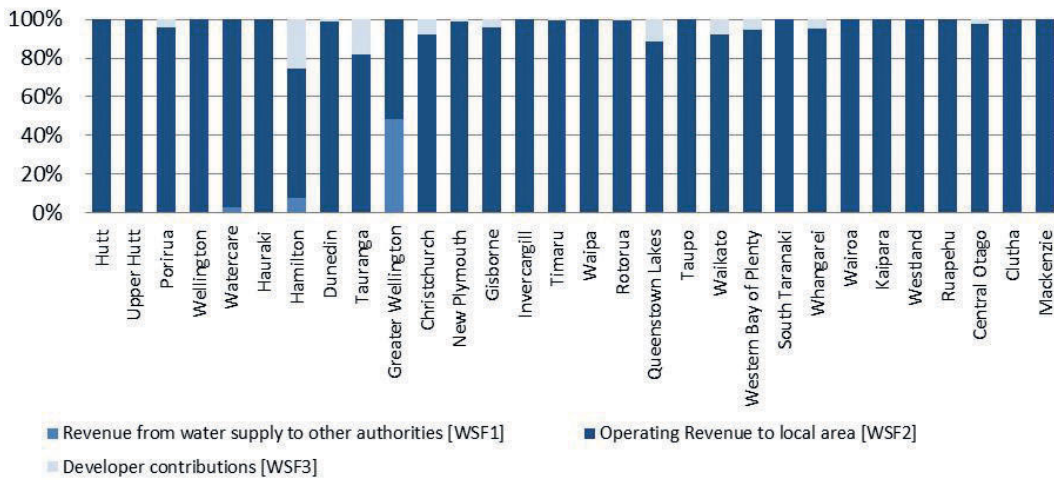


Figure 42: Sources of revenue for wastewater infrastructure

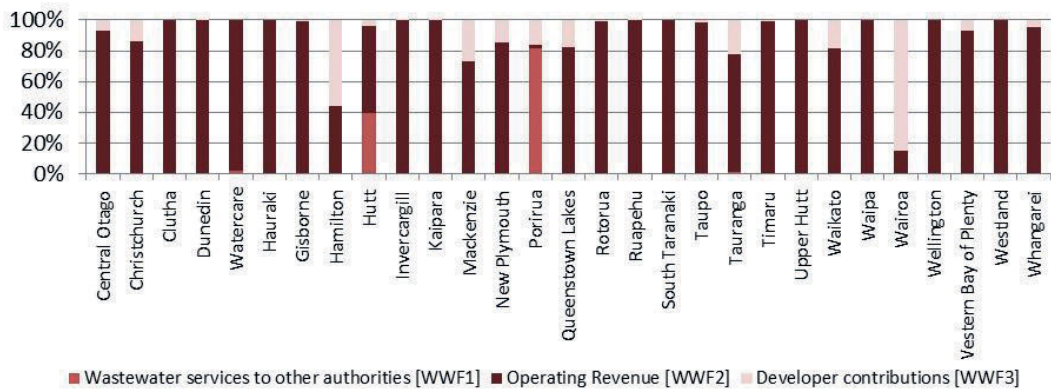
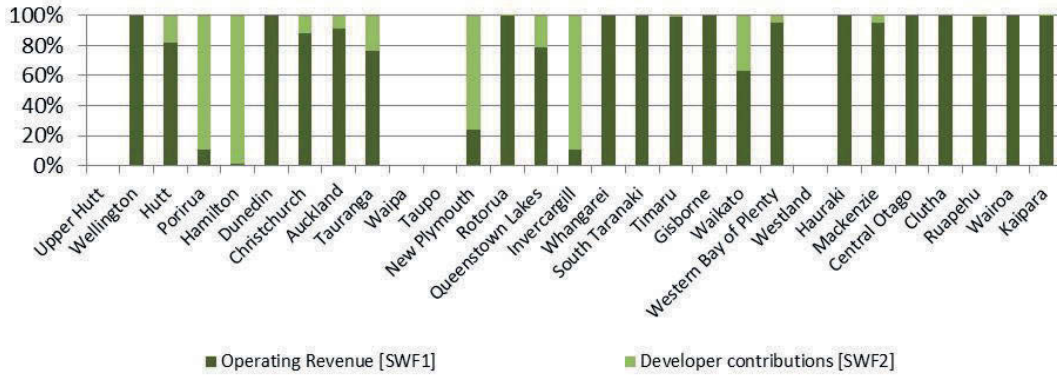


Figure 43: Sources of revenue for stormwater infrastructure



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.

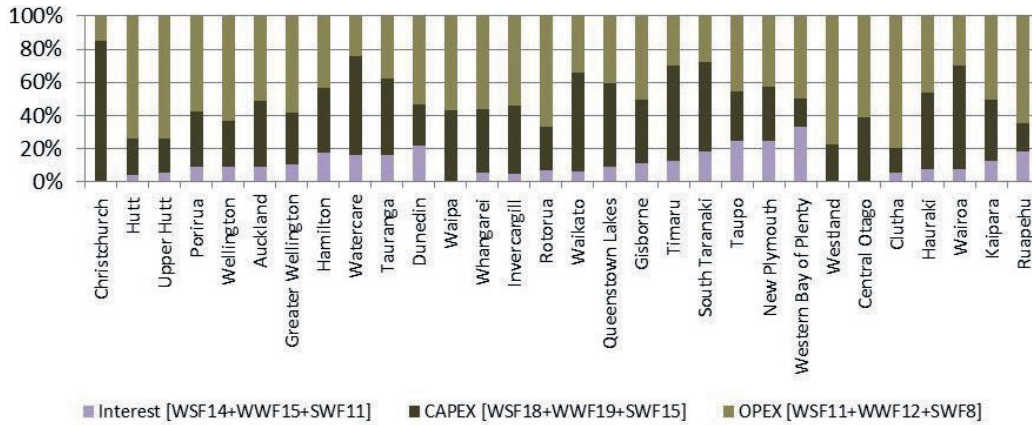
Table 8: Total expenditure of NPR participants

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).

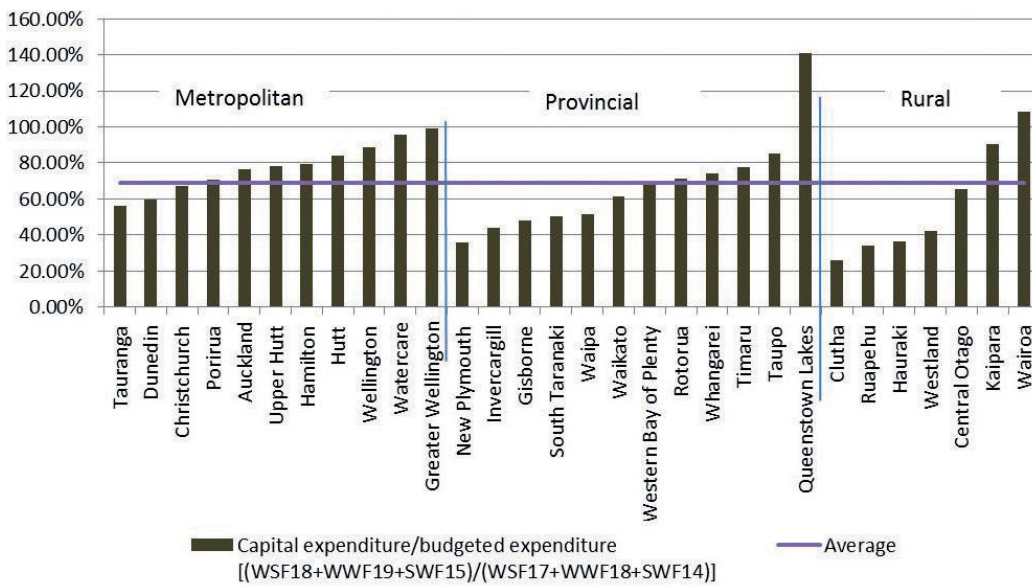
Figure 44: Proportion of 3 waters expenditure by major cost category



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

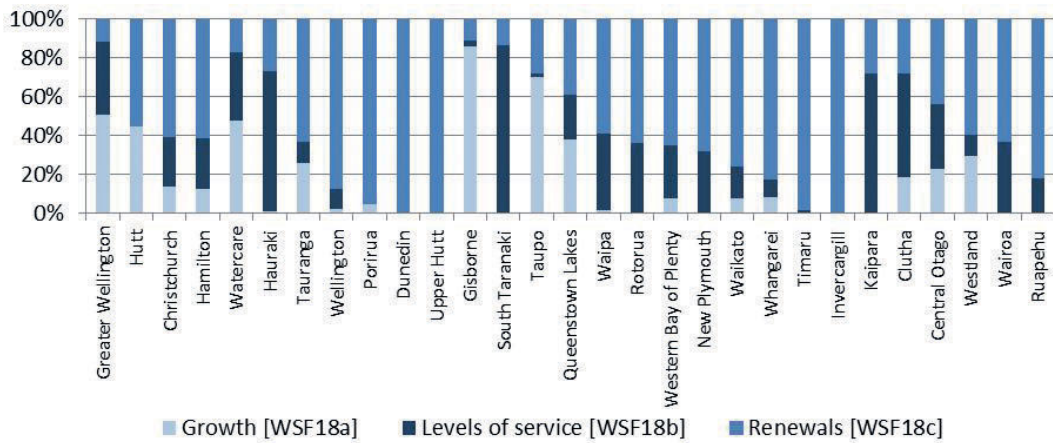


Figure 47: Purpose of capital expenditure on wastewater

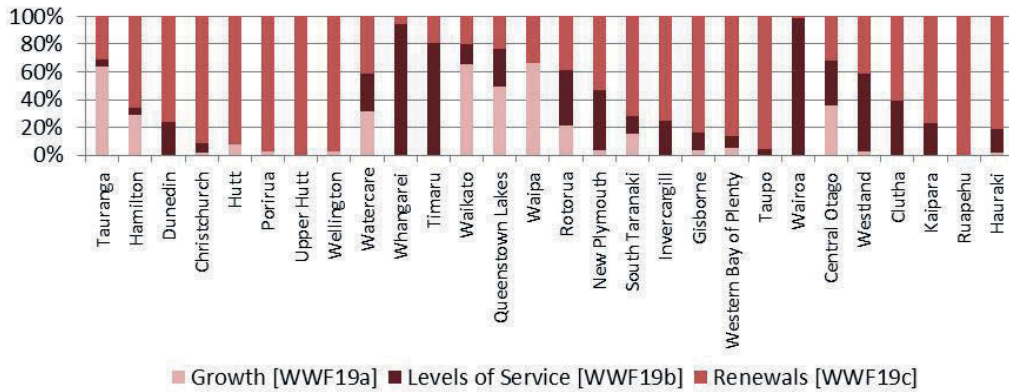
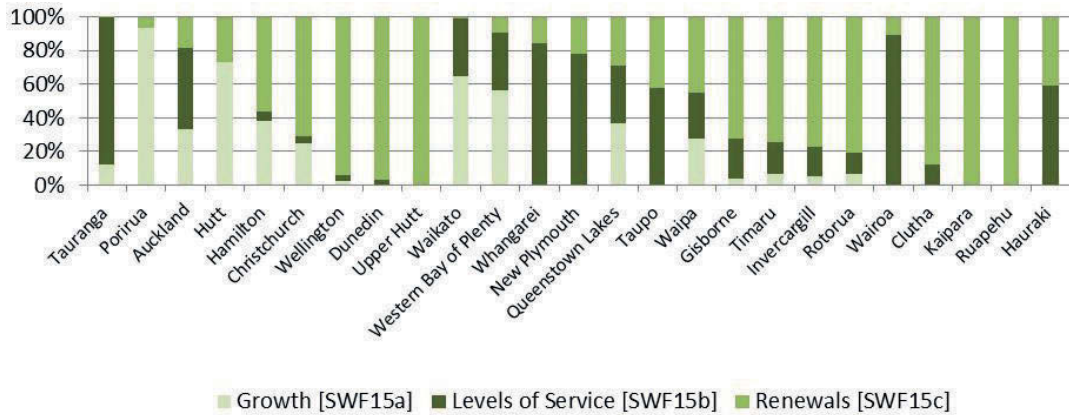


Figure 48: Purpose of capital expenditure on stormwater



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

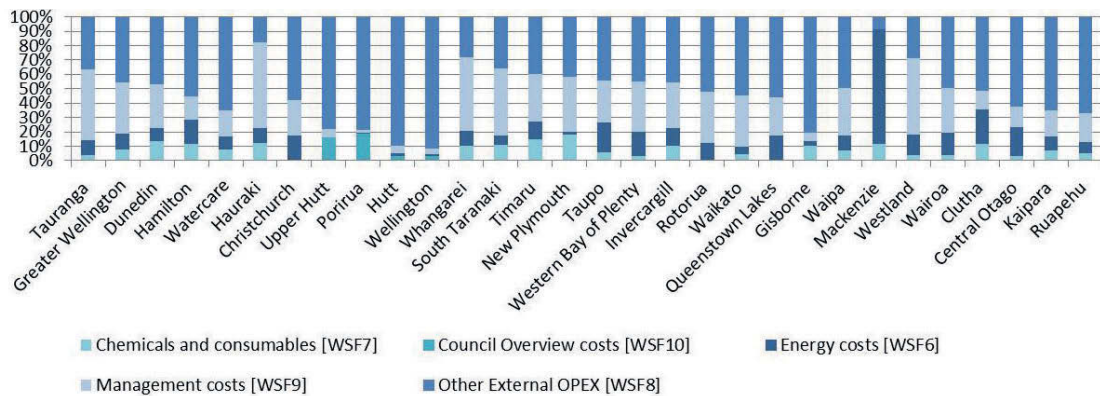


Figure 50: Purpose of operational expenditure on wastewater

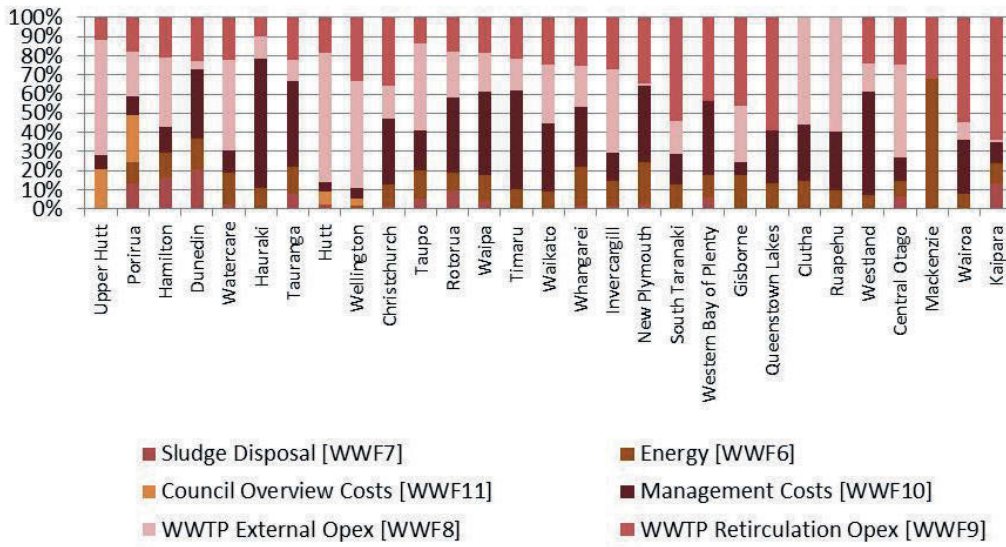
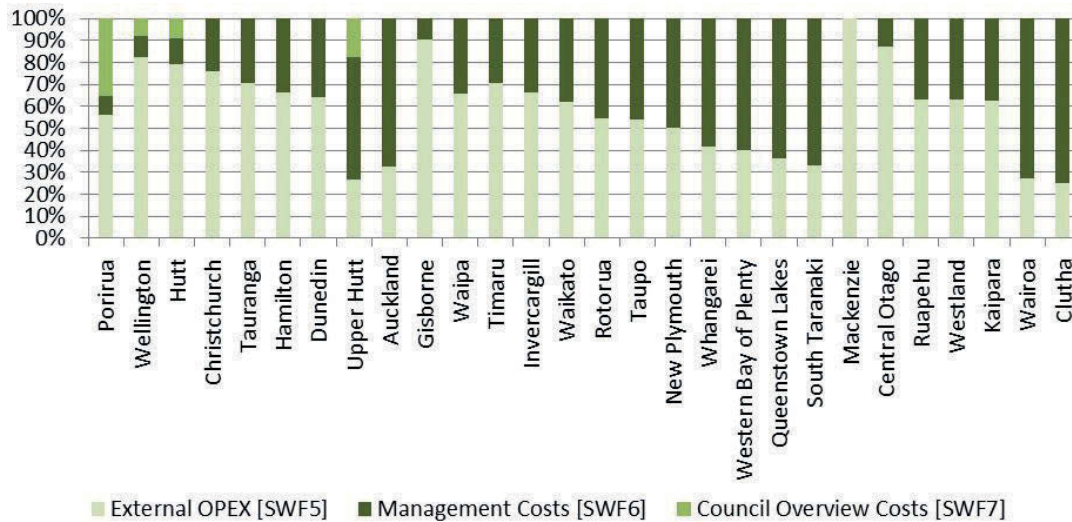


Figure 51: Purpose of operational expenditure on stormwater



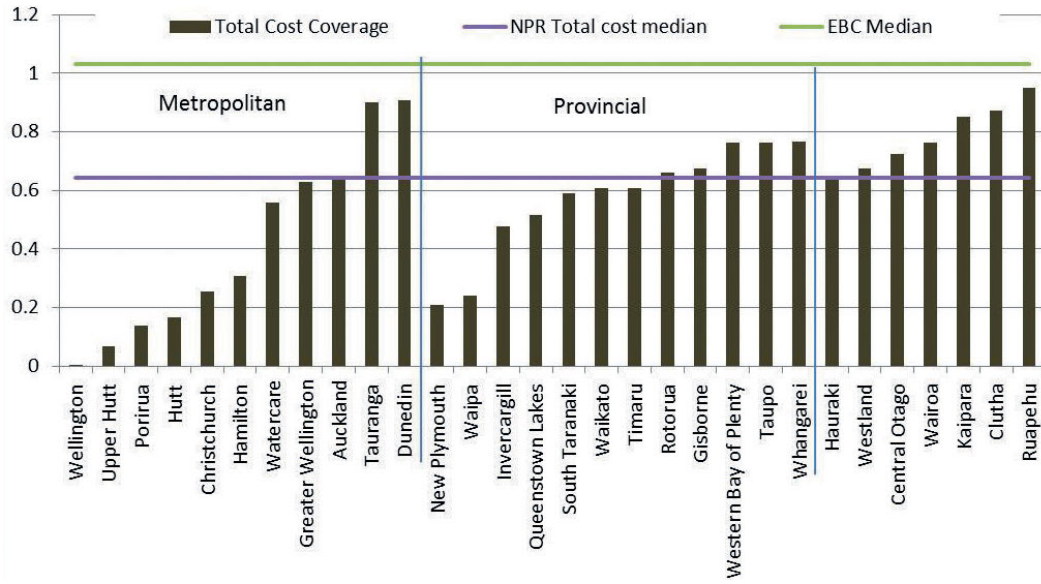
3.4 Cost Coverage

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:

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

Figure 52: Total cost coverage for 3 waters infrastructure

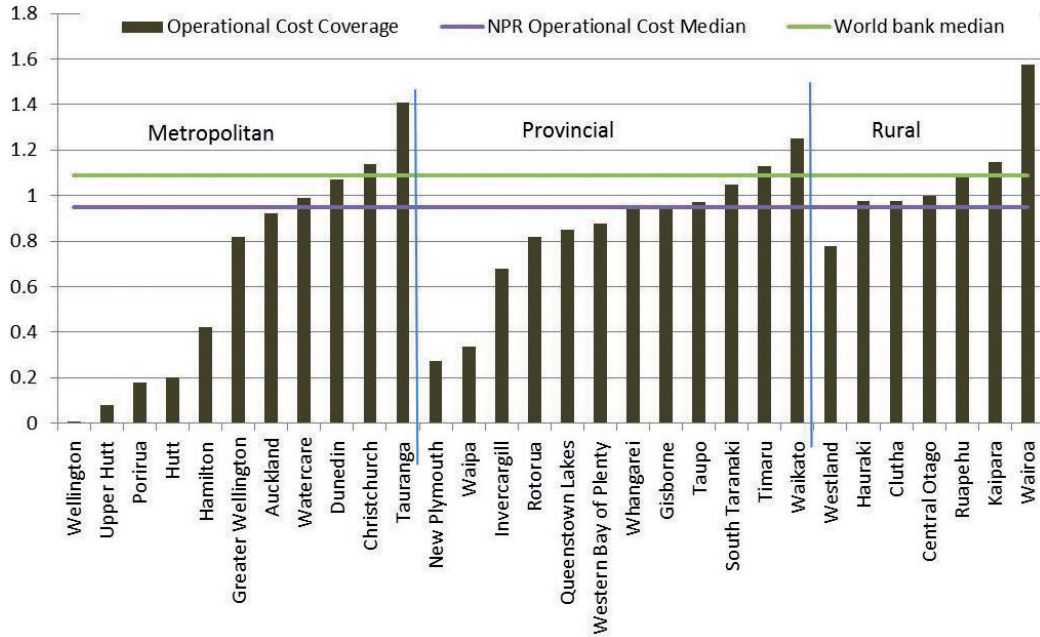


Cost coverage ratios are also employed by the World Bank using operational metrics. The World Bank metric includes depreciation costs, but not capital costs and so does not account for a utilities ability to finance building or renew assets. The metric aids a more accurate year on year comparison of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

$$\text{Operational Cost Coverage} = \frac{\text{Total Revenue [WSF4+WWF4+SWF3]}}{(\text{Interest [WSF14+WWF15+SWF11]} + \text{Depreciation [WSF13+WWF14+SWF10]} + \text{OPEX [WSF11+WWF12+SWF8]})}$$

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.

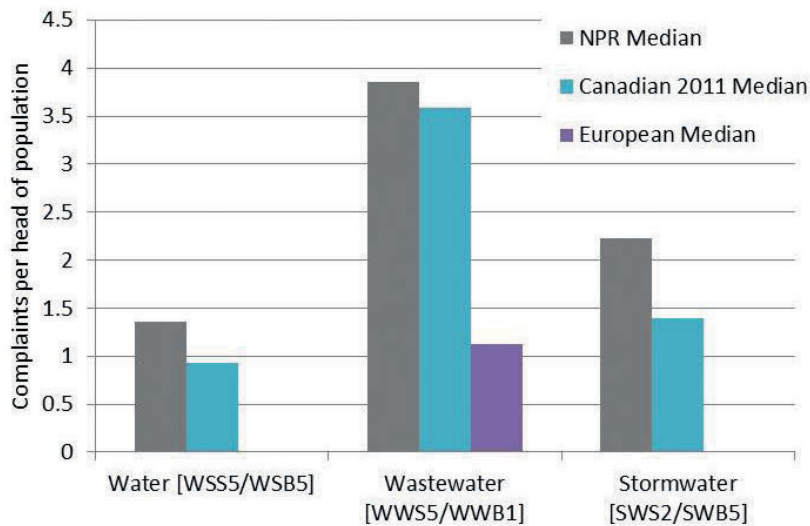
Detailed guidelines on complaints recording has been developed by the United Kingdom Local Government Ombudsman (Local Government Ombudsman, 2009). The guidelines provide advice to assist authorities establish an internal definition that distinguishes between complaints, service requests and service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

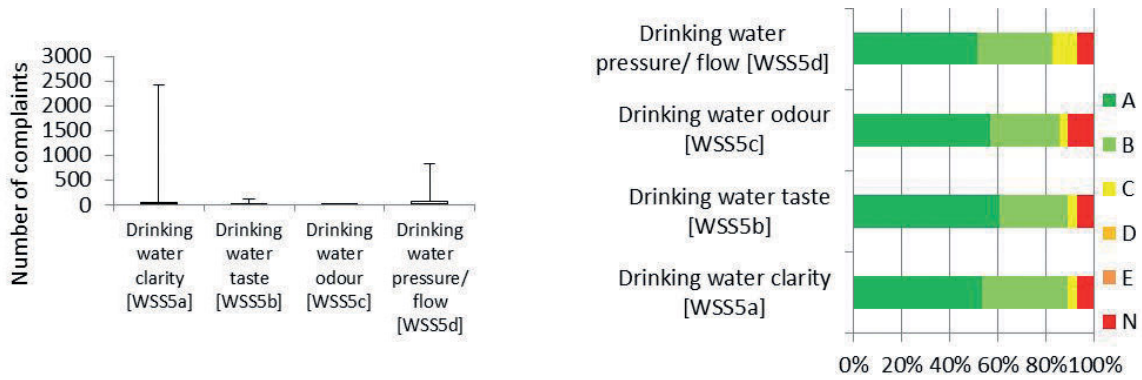
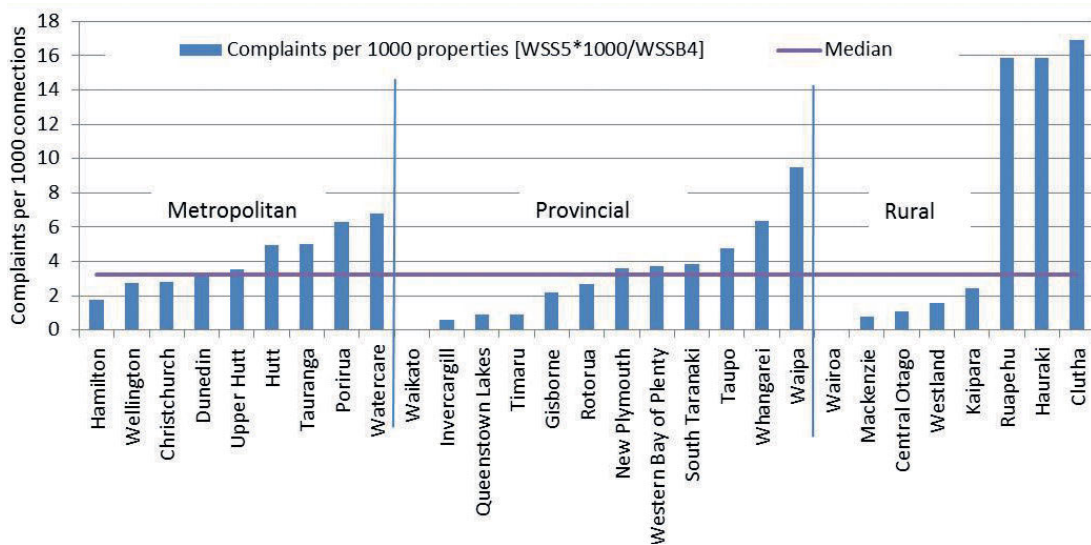


Figure 56: Number of water complaints per 1000 properties



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

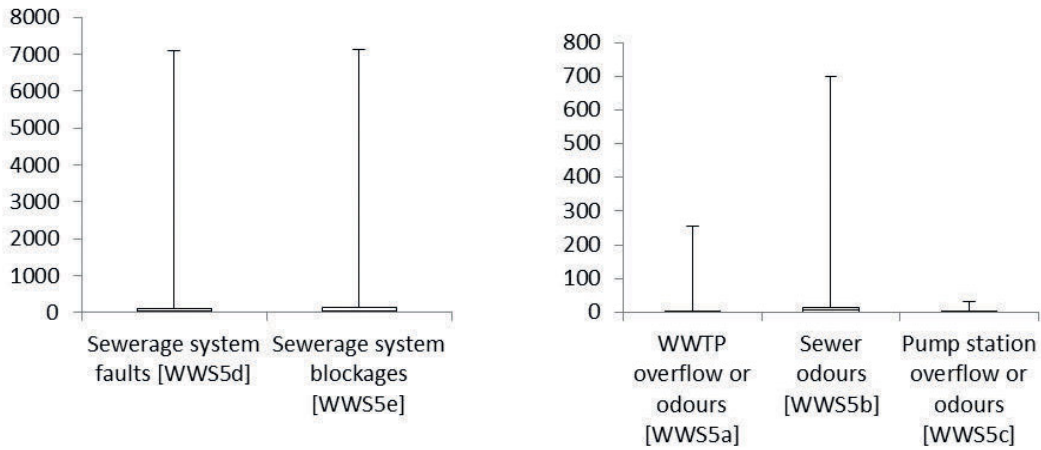


Figure 58: Confidence in wastewater complaint data

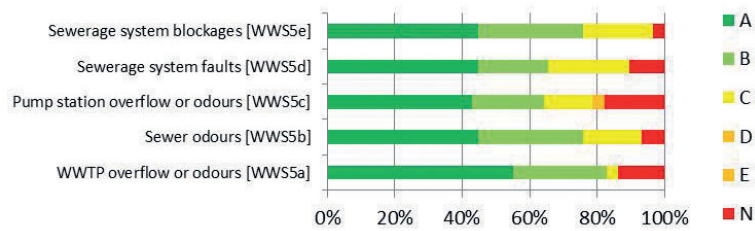
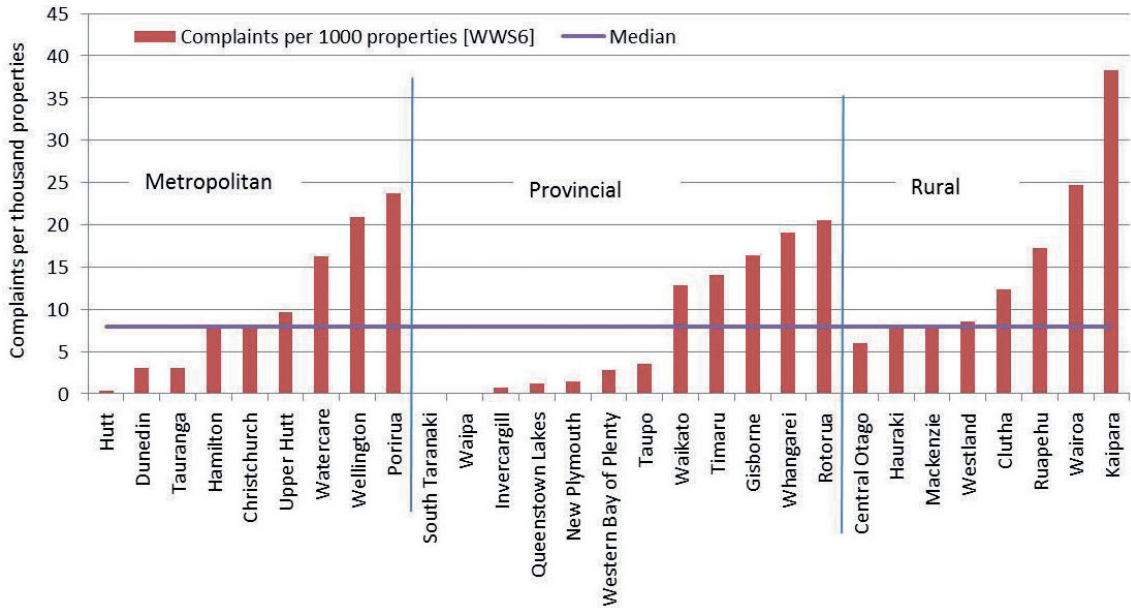


Figure 59: Number of wastewater complaints per 1000 properties



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

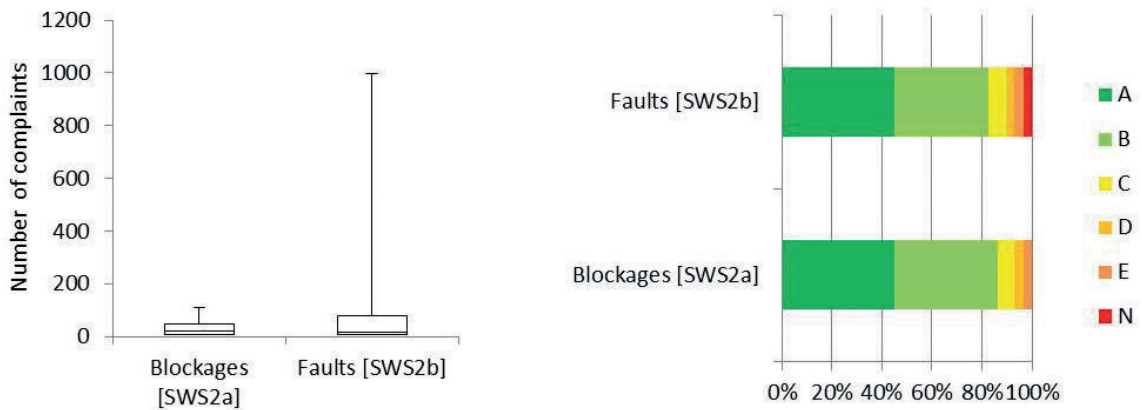
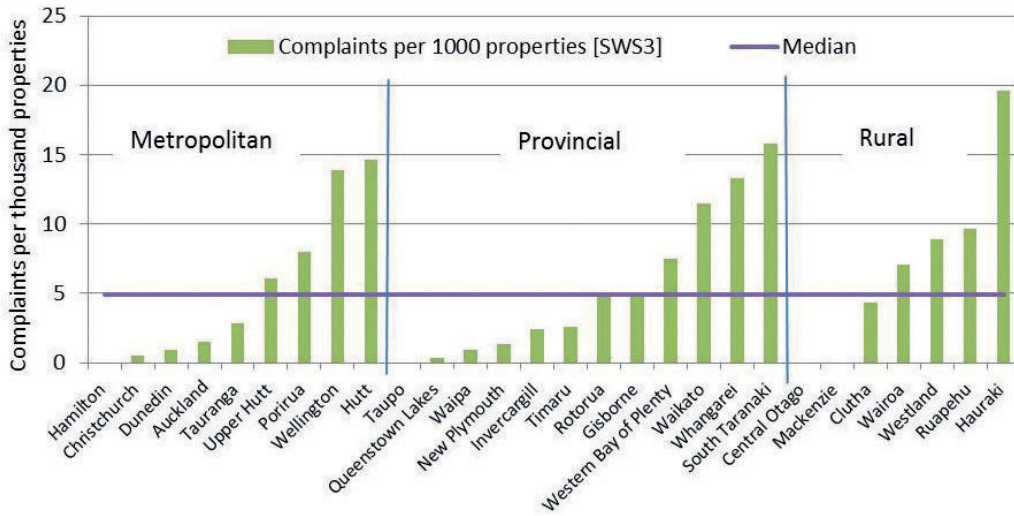


Figure 61: Number of stormwater complaints per 1000 properties



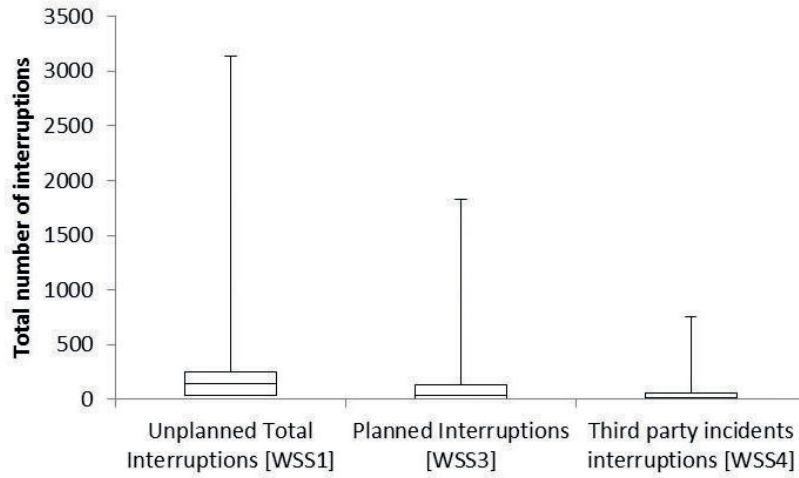
4.2 Water supply interruptions

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

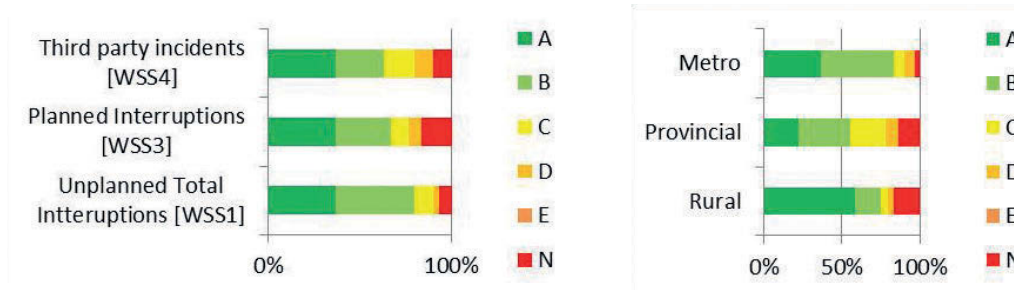
Interruption statistics	Unplanned Total Interruptions [WSS1]	Planned Interruptions [WSS3]	Third party incidents interruptions [WSS4]
Median	139.5	35	15.5
Upper quartile	36.5	6.75	1.75
Maximum	3137	1832	751
Minimum	0	0	0
Lower quartile	252.25	129.75	54

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.

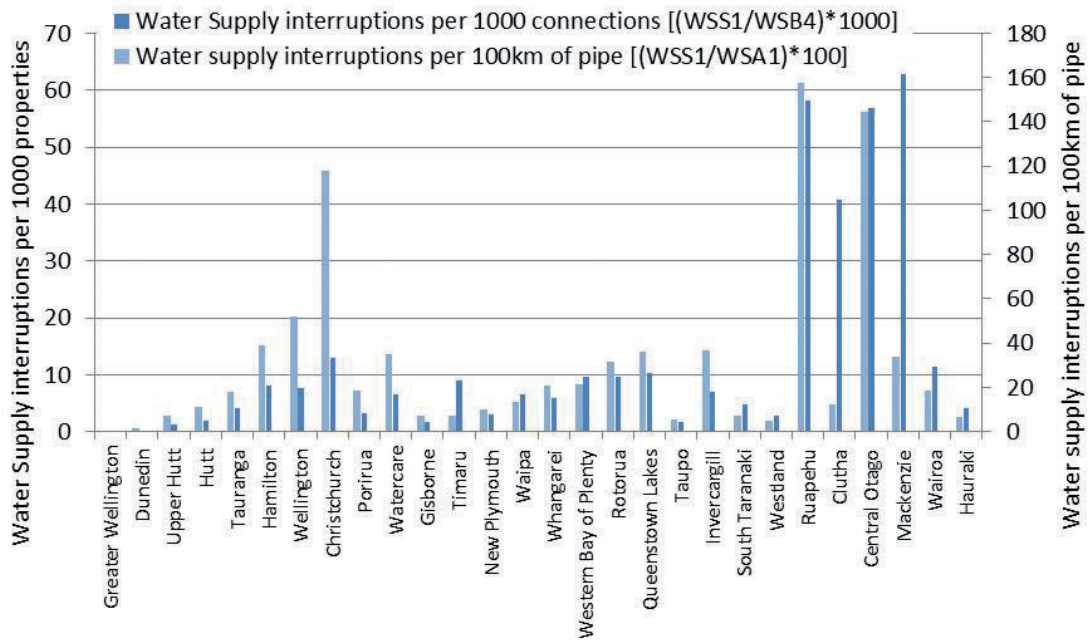
Figure 63: Data confidence of interruptions by council sector and interruption type



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.

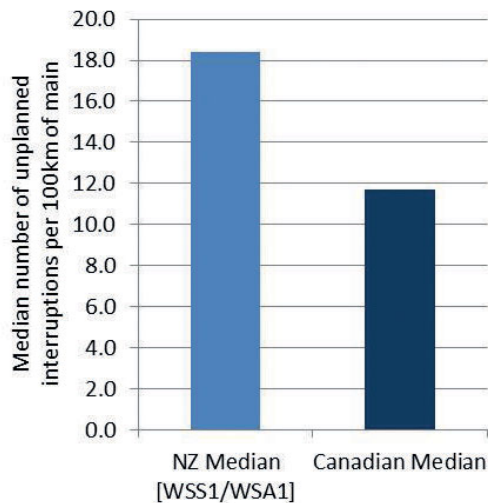
Comparing unplanned water supply interruptions per head of population with unplanned interruptions per kilometre of mains illustrates the difference that normative factors play in assessing relative performance. These differences are important to note when attempting to draw conclusions about relative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

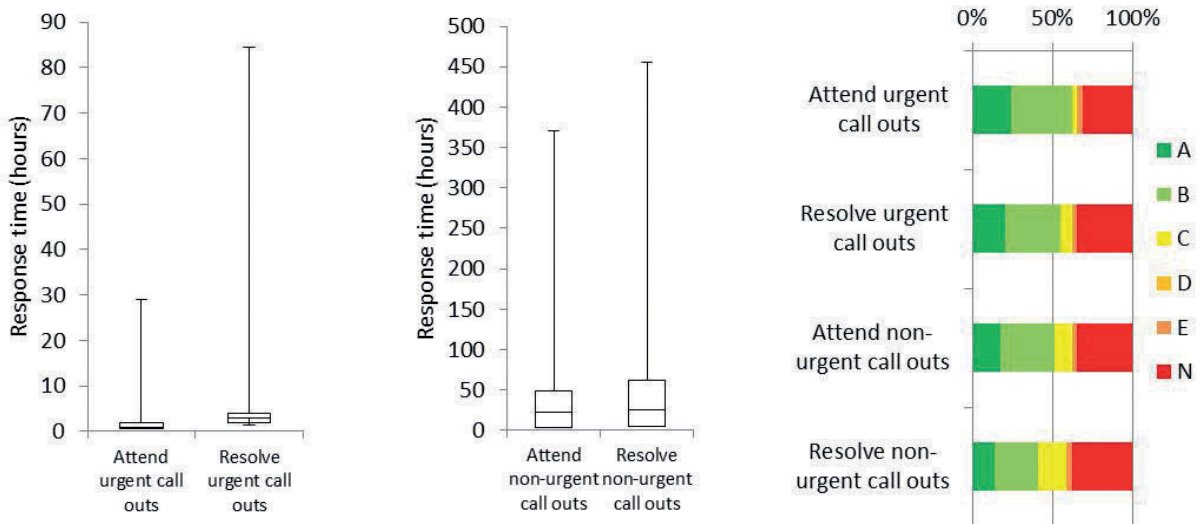
This section contains information on fault response attendance and resolution times and data confidence. These metrics are a requirement for DIA non-financial reporting (Department of Internal Affairs, 2014). Data confidence ratings illustrate that a number of NPR participants do not currently have response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

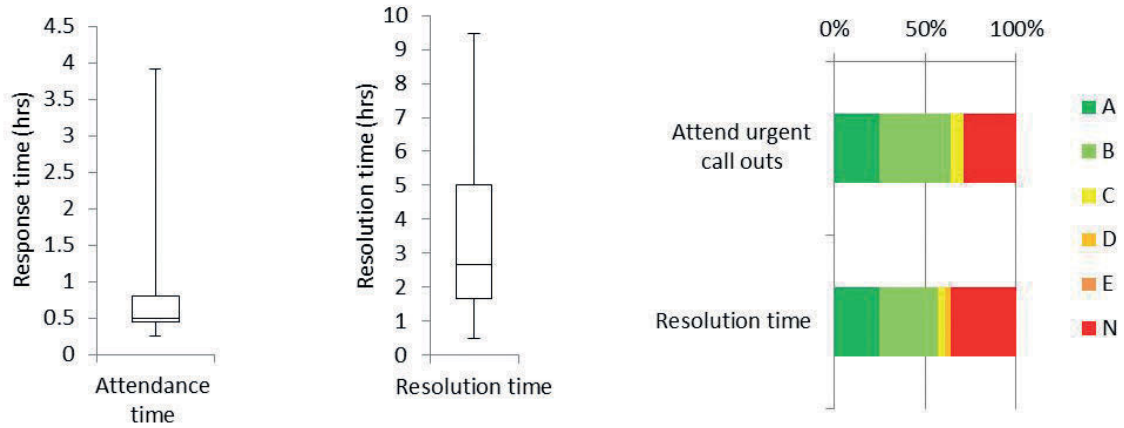


4.3.2 WASTEWATER RESPONSE TIMES

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

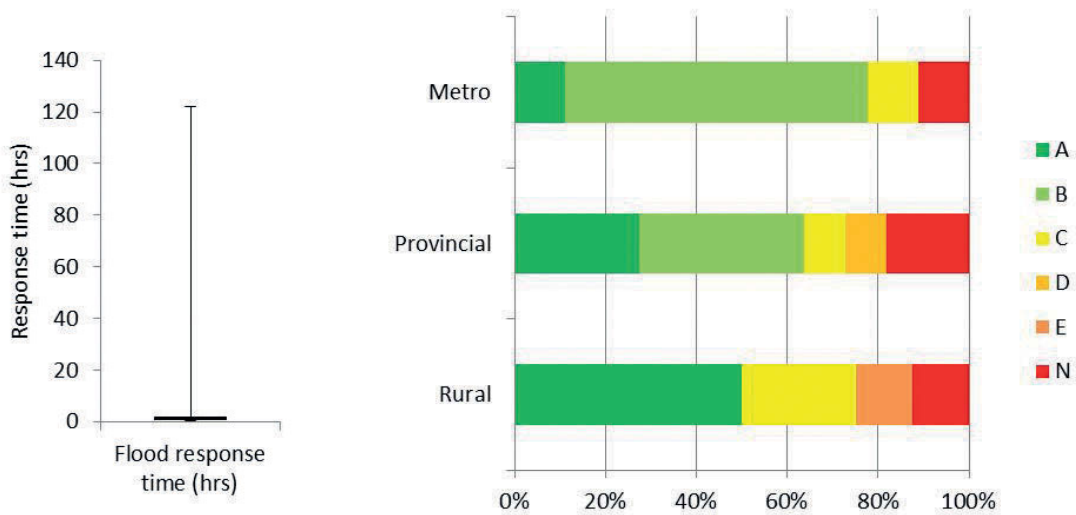


4.3.3 STORMWATER RESPONSE TIMES

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.

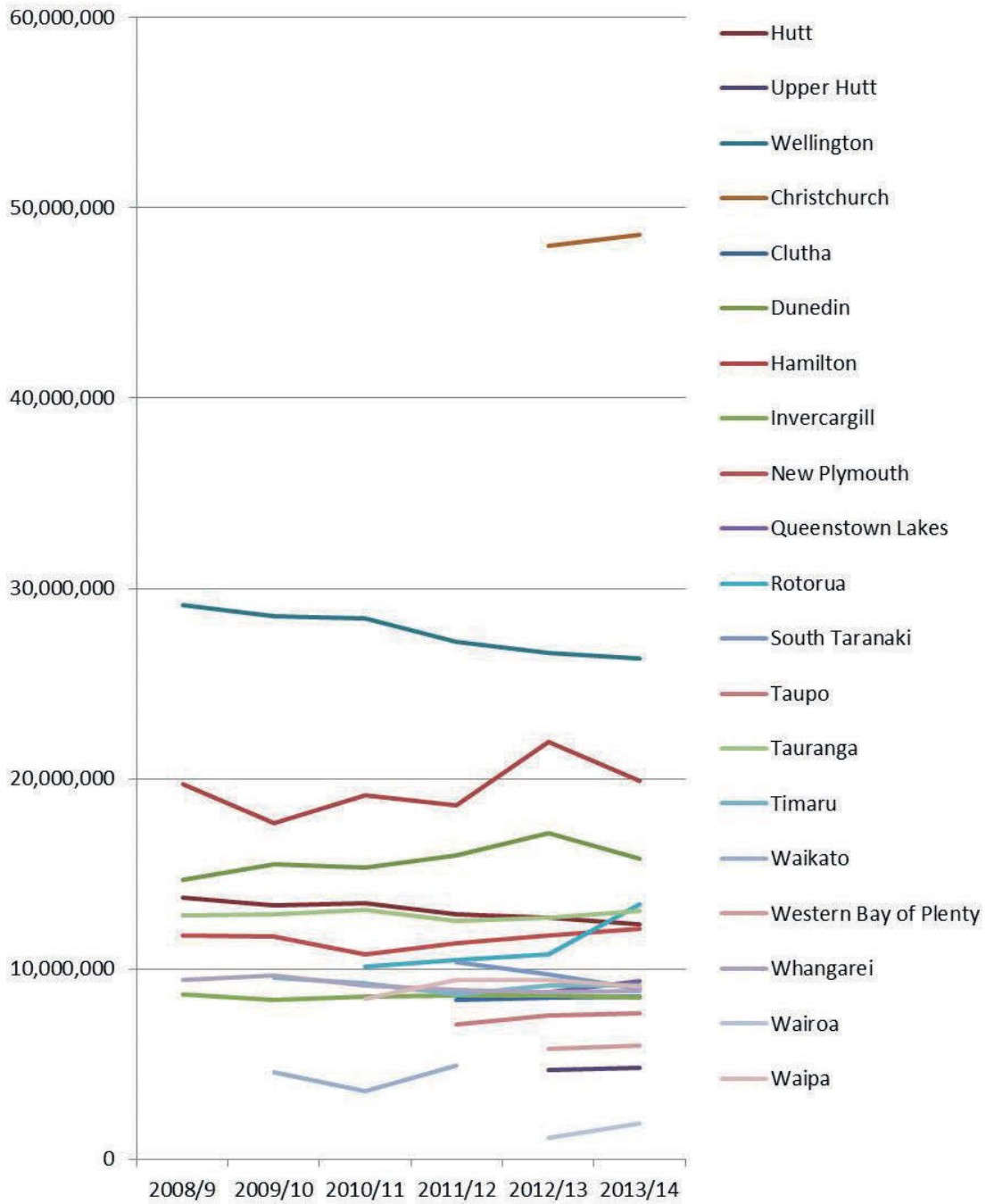
Residential water use is high relative to most international benchmarks. 231 litres per person per day was the median water use amongst NPR participant residential customers. This is higher than median residential water use volumes in Pacific and World Bank benchmarking exercises and on par with Canada.

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

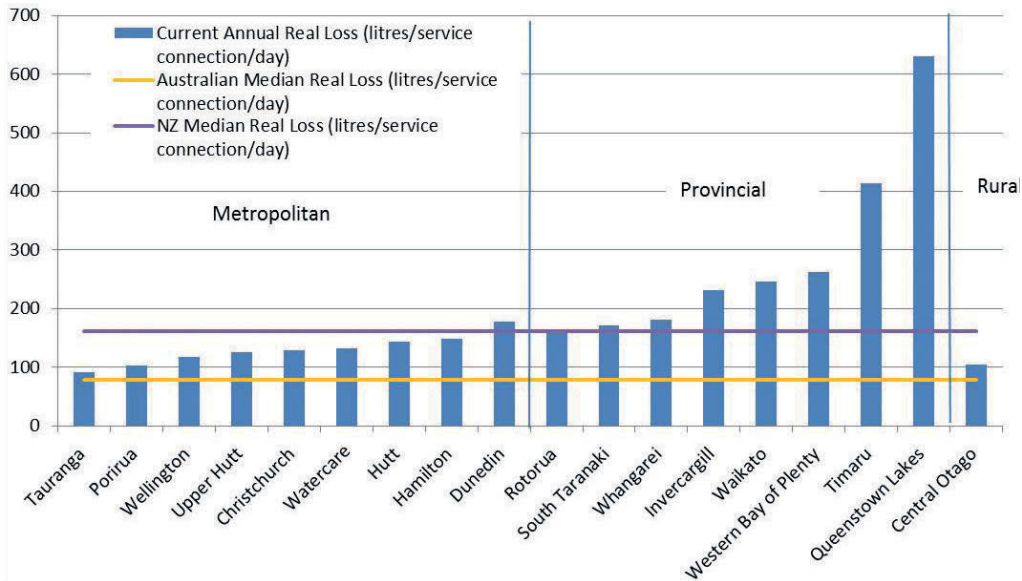
70.7 million cubic meters was the total water lost in NPR participants networks. Sources of water loss include unbilled and unauthorised consumption, and leakage from mains, service reservoirs and connections.

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)

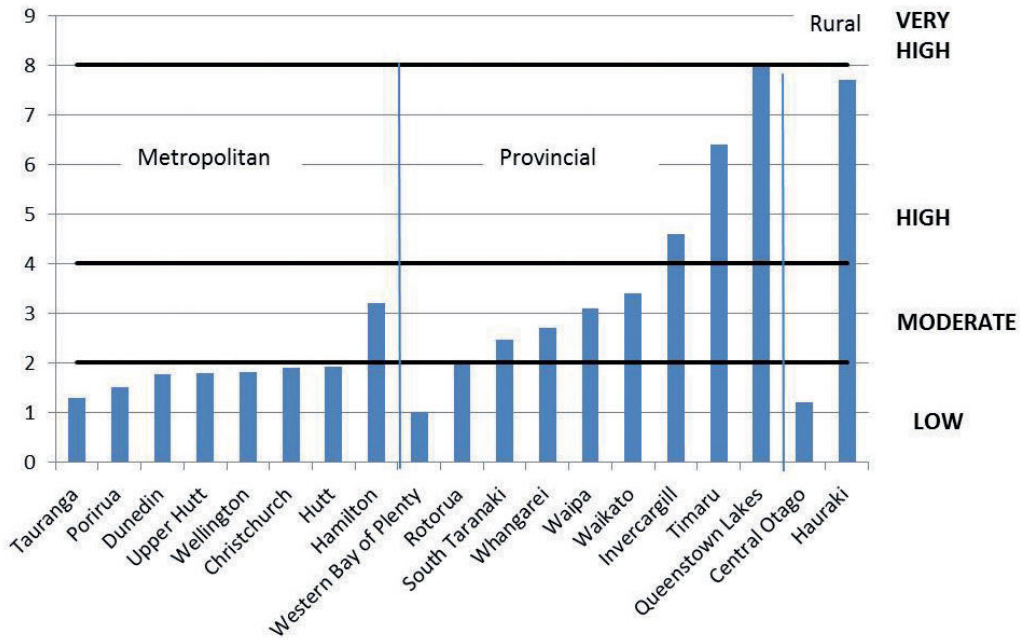


The Infrastructure Leakage Index (ILI) provides an overview of leakage management at the current average operating pressure by dividing current annual real losses by unavoidable annual real losses. It may be used for overview of comparison between utilities. The European Commission reference document “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

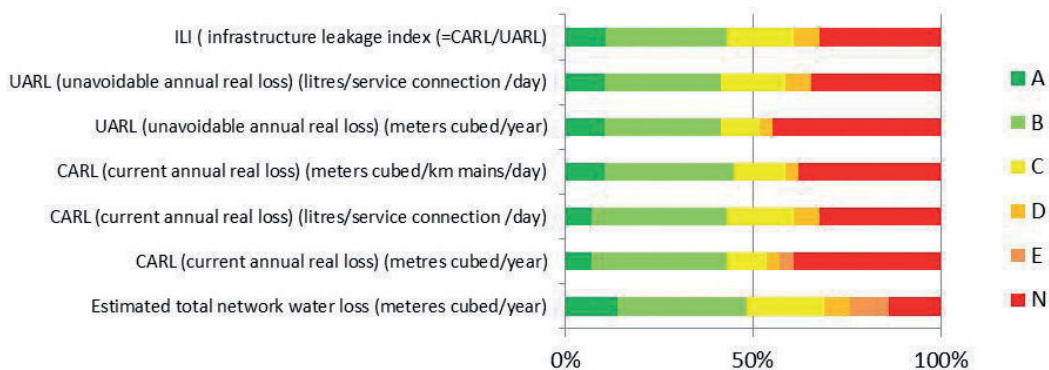


Percentage water loss figures are another metric often used in international reports and are required for DIA reporting. The NPR has not reported on percentage water loss as it has been shown to be less meaningful for comparing performance of different networks, particularly where average water consumption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

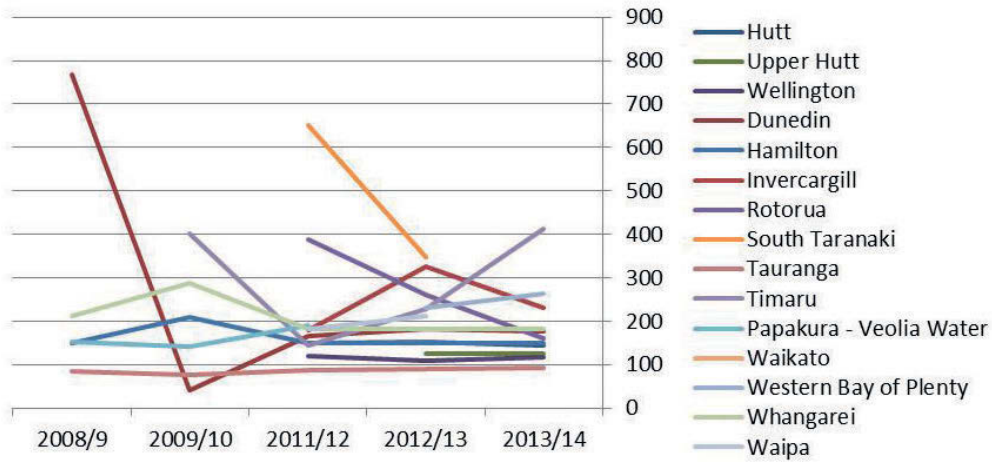
Most councils have estimated total water loss however the efficiency with which water loss is being managed is less widely assessed. The efficiency of water loss can be managed using any of the other indicators included in performance measure WSE1 and shown in Figure 72: Water loss data confidence rating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

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

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

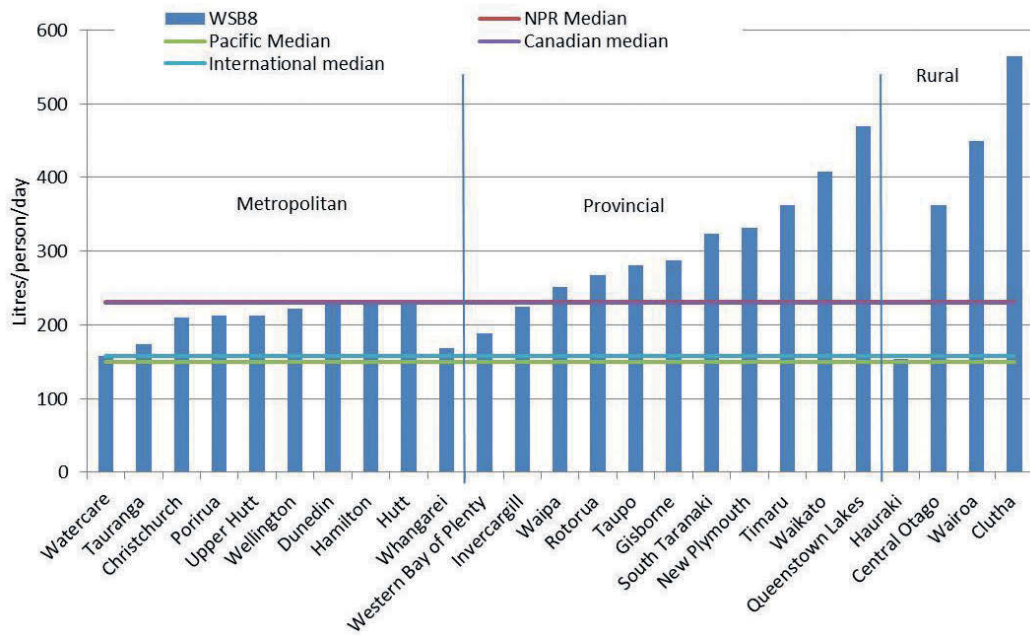
The limitations with the calculation point to the need for improved understanding of the split between residential and non-residential uses and water end uses amongst residential households.

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)

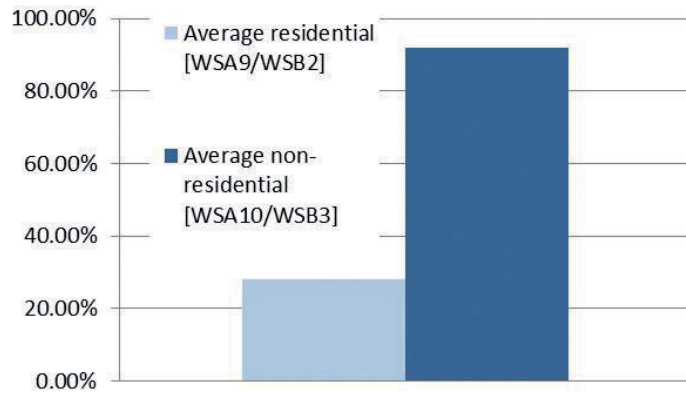
Figure 74: Residential water consumption (litres/population/day)



5.3 Metering

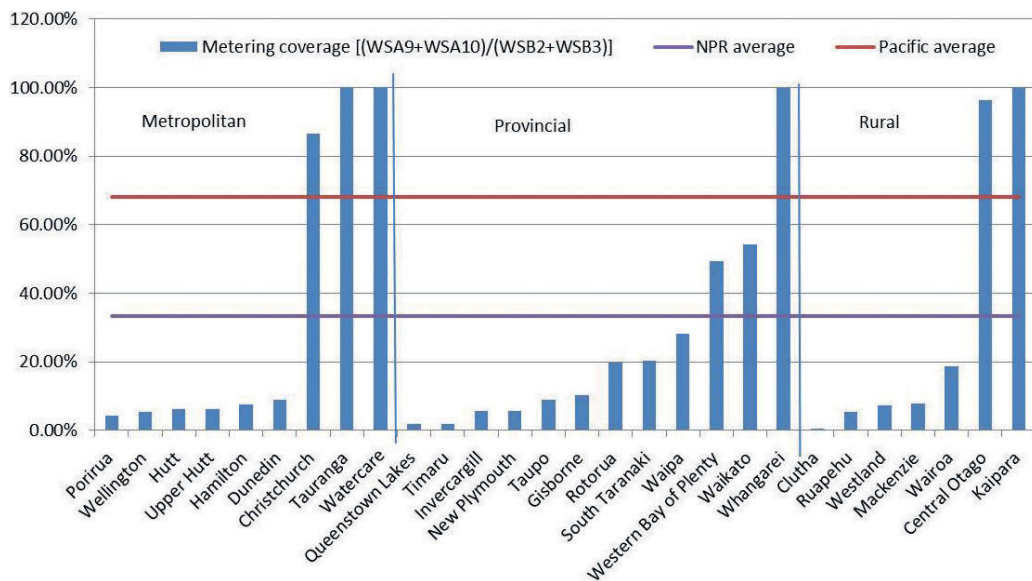
Water metering is widespread amongst non-residential properties but not yet common for residential properties.

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

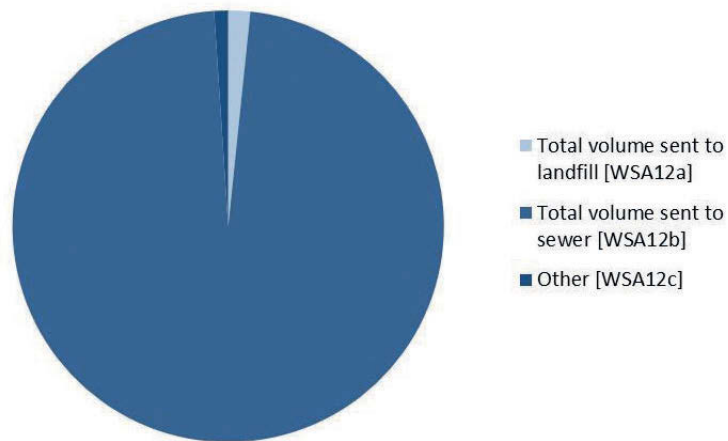
Water sludge is produced as a bi-product of the water treatment process. Most commonly sludges were disposed of to landfill, with a small amount being disposed to sewer or via:

- 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

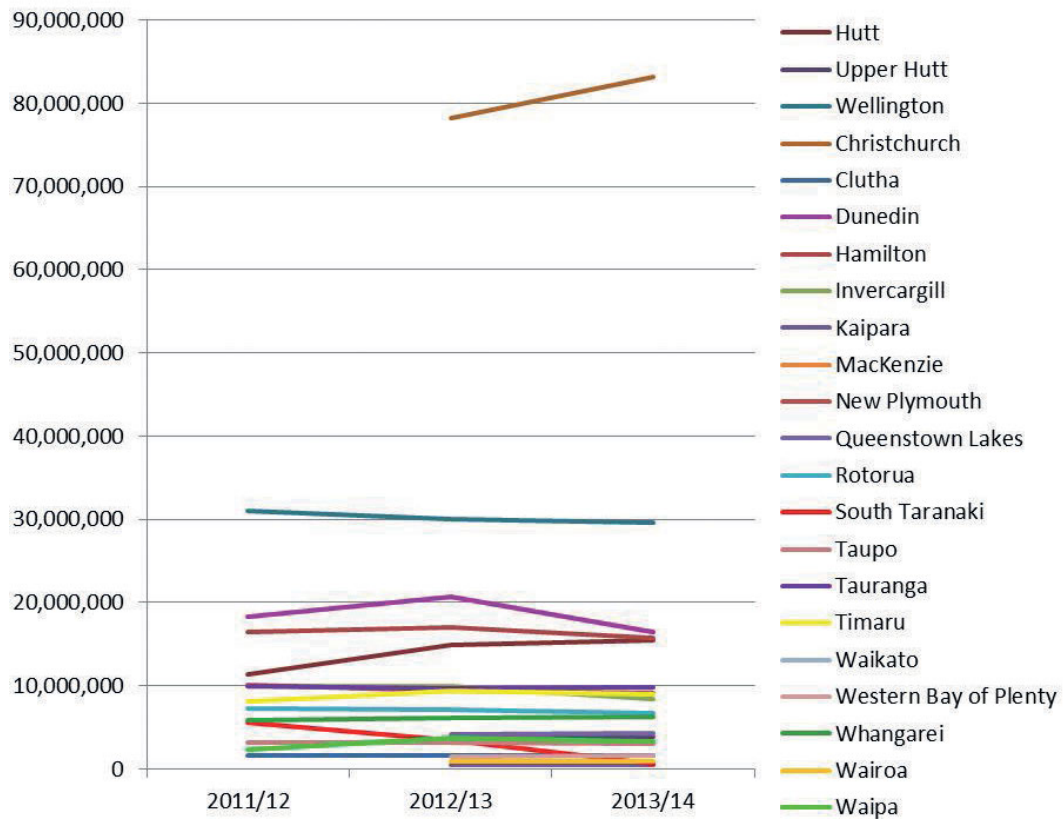
KEY OBSERVATIONS:

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

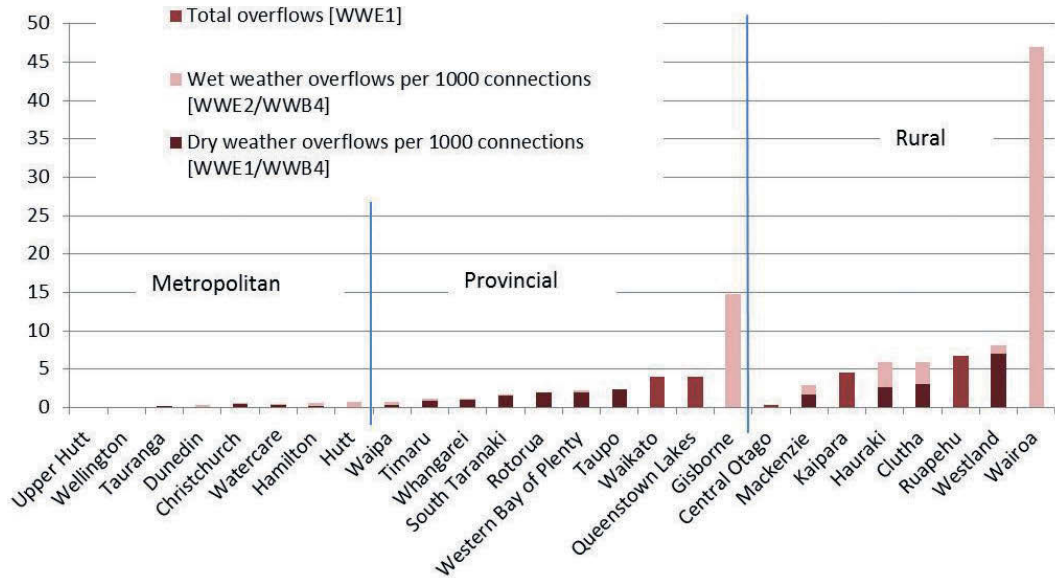
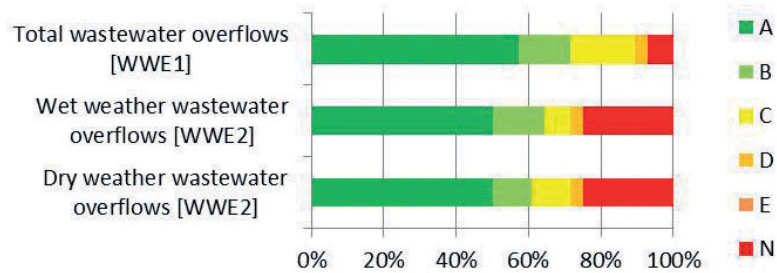


Figure 80: Data confidence for wastewater overflows



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

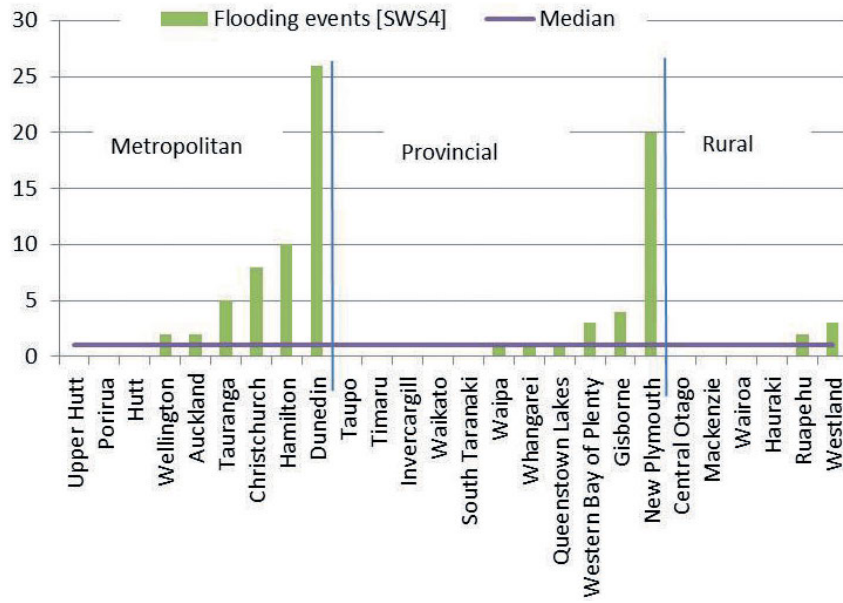
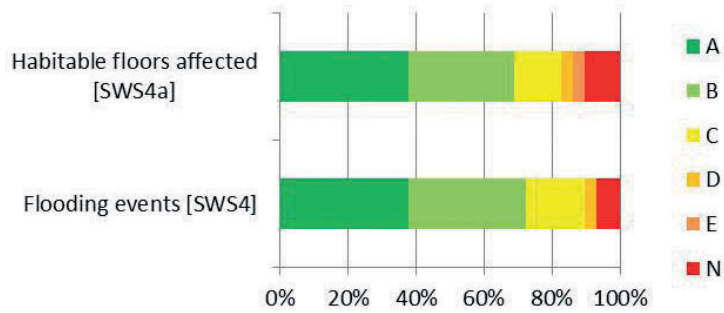


Figure 83: Flooding event data confidence



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 were 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 is 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 WSEc, WSEd, WSEe: Current annual real loss (m ³ /km/day)	Total network loss includes apparent losses 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 WSS3 Planned interruptions WSS4 Third party incidents	Sun of WSS1, WSS3 and WSS4 provides an indication of continuity of supply. Requested as separate mea

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 WSS13d Resolution for non-urgent call outs	The NPR has no qualitative assessment of responses other than response times
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 of 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 WW5b sewer odours WW5c pump station overflows	Includes WTP and 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
<i>Background Info</i>			
WSB1	Total Water Serviced Population	Total <u>residential</u> population serviced by a reticulated water supply	Nu
WSB2	Total Water Serviced Properties - Residential	Total number of <u>residential</u> properties serviced by a reticulated water supply	Nu
WSB3	Total Water Serviced Properties – Non-Residential	Total number of <u>non-residential</u> 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
<i>Asset Quantities</i>			
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?	%
<i>Environmental</i>			
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
<i>Social</i>			
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
WSS6	Water Quality Complaints Frequency	Drinking water pressure or flow	Nu
		“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
<i>Financial</i>			
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 <u>serviced</u> 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 (<i>discounted for revenue from sale of bulk water, if any, to other local authorities</i>) 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 <u>serviced</u> 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 <u>serviced</u> property in the reporting year	\$/property

WASTEWATER			
Code	Measure	Description	Units
<i>Background Info</i>			
WWB1	Total Wastewater Serviced Population	Total <u>residential</u> population served by a reticulated wastewater system	Nu
WWB2	Total Wastewater Serviced Properties – Residential	Total number of <u>residential</u> properties served by a reticulated wastewater system	Nu
WWB3	Total Wastewater Serviced Properties – Non-residential	Total number of <u>non-residential</u> 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
<i>Asset Quantities</i>			
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?	%
<i>Environmental</i>			
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	Total 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)	%
<i>Social</i>			
WWS1	Fixed Wastewater Charge	The <u>fixed charge</u> (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 Usage	The average <u>residential</u> 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
<i>Financial</i>			
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 <u>serviced</u> 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 <u>wastewater treatment</u>	\$

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 (<i>discounted for any revenue from the provision of wastewater services to other local authorities</i>) 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 <u>serviced</u> property in the reporting year	\$/property

STORMWATER			
Code	Measure	Description	Units
<i>Background Info</i>			
SWB5	Total Stormwater Serviced Population	Total <u>residential</u> population serviced by a reticulated stormwater system	Nu
SWB1	Total Stormwater Serviced Properties – Residential	Total number of <u>residential</u> properties served by a reticulated stormwater system	Nu
SWB2	Total Stormwater Serviced Properties – Non-residential	Total number of <u>non-residential</u> 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
<i>Asset Quantities</i>			
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	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	%
<i>Environmental</i>			
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
<i>Social</i>			
SWS1	Stormwater Charge	Average annual targeted stormwater charge (GST included) for a <u>residential</u> 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
<i>Financial</i>			
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 <u>serviced</u> 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 <u>serviced</u> 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 <u>relating to the “Total Stormwater Serviced Area”</u>	\$
		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 Depreciation	Book value of asset added in the financial year.	Nu
SWF19	Actual Capital Expenditure per Property – SW	Actual Capital Expenditure per <u>serviced</u> property in the reporting year	\$/property

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