

Audit Report for Water NZ's 2017/2018 National Performance Review

Final Report



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1.0 Introduction

Each year Water New Zealand (Water NZ) carries out a National Performance (NPR) of organisations providing water supply, wastewater and stormwater services across New Zealand. AECOM has been contracted to provide verification audit services for the 2017/18 NPR. This report presents the verification audit findings for the 2017/18 NPR which included the following work:

- Reviewing data return spreadsheets from organisations nominated for audits
- Carrying out audits via telephone with each nominated organisation with one exception which was Watercare where an on-site audit meeting was held
- Preparation of audit findings report.

This report documents AECOM's findings arising from the audit work. Included in Appendix A are the detailed findings from each of the organisations audited.

2.0 Methodology

2.1 Organisations Involved

AECOM undertook 12 audits. The participating organisations were:

- Central Otago District Council
- Christchurch City Council
- Hastings District Council
- Hamilton City Council
- Horowhenua District Council
- Mackenzie District Council
- Palmerston North City Council
- Tasman District Council
- Timaru District Council
- Watercare
- Wellington Water
- Wanganui District Council

All of the above organisations were audited across all three waters except for Watercare who are only responsible for water supply and wastewater in Auckland City.

2.2 Audit Personnel

The audit was undertaken by the following AECOM staff:

- Miles Wyatt - Principal Consultant, CMEngNZ, MIAM, REA, REAcap
- Brian Sharman – Technical Director, CMEngNZ, CPEng, MInstD

Both staff members have suitable experience in the water industry and have been involved in a number of previous NPR audits.

2.3 Measures Audited

A pre-defined set of measures were identified for inclusion/coverage in the telephone audits. These measures were:

Table 1 Audit Measures

Common	
Staff	CB10: Internal Staff [Number of FTEs]
	CB10a: Staff Vacancies [Number of FTEs]
	CB11: Contracted Staff [Number of FTEs]

Water Supply	
Charges	WSS7: Number of different water charging regimes [Number]
	WSS7a: Fixed Charge: Non-residential water [\$]
	WSS7b: Fixed Charge Type: Non-residential water
	WSS7c: Volumetric Charge: Non-residential water [\$/m ³]
	WSS8a: Fixed Charge: Residential water [\$]
	WSS8b: Fixed Charge Type: Residential water
	WSS8c: Volumetric Charge: Residential water [\$/m ³]
	WSS9: Average Residential Water Charge Based on 200 m ³ /yr [\$/200m ³]
Wastewater	
Overflows	WWE1a: Overflows caused by blockages [Number]
	WWE1b: Overflows caused by mechanical failures [Number]
	WWE2a: Wet weather overflows from the wastewater network [Number]
	WWE2b: Wet weather overflows from combined stormwater and wastewater networks [Number]
	WWE8a: Sewage containment design standards [AEP%/ADWF]
	WWE8b: Average calculated wet weather overflow frequency [AEP%]
	WWE9a: Overflows recorded through verbal reports [Yes/No]
	WWE9b: Overflows recorded through SCADA monitoring [Yes/No]
	WWE9c: Overflows calculated through hydraulic models [Yes/No]
	WWE9c: Overflows calculated through calibrated hydraulic models [Yes/No]
Compliance	WWE4a: Wastewater consent abatement notices [Number]
	WWE4b: Wastewater consent infringement notices [Number]
	WWE4c: Wastewater consent enforcement orders [Number]
	WWE4d: Wastewater consent successful prosecutions [Number]
Stormwater	
Discharges	SWE1a: Number of stormwater discharges from the piped network [Number]
	SWE1b: Number of stormwater discharges with resource consents [Number]
Compliance	SWE2a: Stormwater consent abatement notices [Number]
	SWE2b: Stormwater consent infringement notices [Number]
	SWE2c: Stormwater consent enforcement orders [Number]
	SWE2d: Stormwater successful prosecutions [Number]
Flooding	SWS5: Flooding Events [Number]
	SWS5a: Number of habitable floors affected [Number]
	SWS7a: Primary stormwater network capacity [AEP%]
	SWS7b: Secondary stormwater network capacity [AEP%]

2.4 Audit Process

For each measure questions were raised and conveyed to each participating organisation in writing. Questions raised were typically from both AECOM and Water NZ. Where a response to an audit measure was quite clear often this meant no questions were asked. Some organisations chose to respond in writing prior to the telephone audits. Others chose just to respond to the questions there and then during the telephone audits.

The questions raised and the documented responses to those questions are included in Appendix A. Issues, observations and commentary on the measures audited are covered in Section 3.0.

3.0 Audit Findings

Table 2 Audit Findings

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
Common		
CB10: Internal staff	<p>There were two main data sources for this measure – HR/payroll systems and organisation charts.</p> <p>The accuracy or completeness of the data values provided was generally defined or guided by how the organisation was structured. Organisations with specific business units set-up to manage 3 waters, tended to confine the numbers reported to those units and generally the numbers were taken from organisation charts. These types of organisations tended to not report support or admin type roles which were outside of the business unit. It would be doubtful though if those staff outside of the business units met the threshold of spending >50% of their time supporting 3 waters.</p> <p>Organisations that are less regimented or more traditional in their structure tended to report their numbers from their HR/payroll system which encompassed all roles.</p> <p>Watercare were the main exception since their sole business is water and wastewater so it is straightforward for them to report a total number.</p> <p>Wellington Water is very similar to Watercare in that they are solely focussed on 3 waters but an allowance has been made for staff involvement in the owner organisations.</p> <p>Organisations like Makenzie District Council are so small in terms of staff numbers they don't need a HR/payroll system or organisation chart to tell them what the numbers are.</p>	<p>As per the main audit question, provide further guidance or definition for this measure by suggesting to organisations the types of supporting functions to consider including:</p> <ul style="list-style-type: none"> - accountants - administrators - AMIS - billing - communications/public relations - customer service - GIS - human relations/training - lawyers - planning - strategy <p>The >50% threshold should still apply though.</p>

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
CB10a: Staff vacancies	The tendency was to not ask questions about this measure. The data source went hand in hand with that used for CB10. 67% or 8 of the 12 organisations have staff vacancies.	
CB11: Contracted staff	In general organisations understood and responded correctly to this measure which was made easy for a number of organisations due to the fact they contract out all their operations and maintenance to external parties and relied on those external parties to provide numbers. Most organisations were not using consultants/contractors to backfill staff positions.	As per the main audit question, provide further guidance or definition for this measure by suggesting to organisations the types of functions to consider including: <ul style="list-style-type: none"> - bulk system maintenance repairs - CCTV/condition inspections (if ongoing) - construction - distribution system maintenance repairs - engineering design renewals - lab services (sample collection/analysis) - reticulation operation - pipe/reservoir cleaning - treatment plant operation and maintenance
Water Supply		
WSS7: Number of different water charging regimes	The main issue with this measure is the interpretation of the word "regime". As an example, 3 organisations might be applying fixed charging and volumetric charging across 4 different schemes with a different fixed charge and volumetric rate for each scheme. One organisation might report a data value of: <ul style="list-style-type: none"> - 2 (2 types of charging); another - 4 (4 schemes); and another - 8 (a total of 8 different rates). Examples of all of the above permutations were evident in the organisations audited. The audit preference was to try and steer organisation towards the first interpretation i.e. the types of charging.	Provide a clear definition of what is meant by "regime" and support the definition with some actual examples. It will need to be emphasised that rates charged for different schemes will still need to be separately detailed.

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
WSS7a: Fixed Charge: Non-residential water	<p>This measure didn't really present any problems for the 12 organisations audited. Most were able to come up with a value that they felt was representative of what was being charged. For organisations with multiple schemes or urban and rural areas, there was a tendency to prefer the fixed charge being applied to properties that are city or urban based because that is where the bulk of the population is.</p> <p>Christchurch City Council did not provide a fixed charge value because they felt an average would be meaningless given that what is paid for water is based on property capital value [which varies significantly] and volume of water used.</p> <p>It was identified in answers to questions regarding this is measure, that most organisations are charging a half charge for properties that could be serviced but are not connected.</p> <p>Only one organisation (Watercare) does not apply a fixed charge and that is because all their charging is volumetric based.</p>	<p>Consider the implications of the half charging for properties that could be serviced but are not connected.</p> <p>In general the half charging is not factored into the answers to this measure so it might be useful to know how many properties fall into this category which would then help understand how significant the impact might be.</p> <p>Consider using a weighted average for organisations with different charging across multiple schemes and areas. This would mean knowing the number of properties in each scheme or area. This would be fairer than using a straight median or average value.</p>
WSS7b: Fixed Charge Type: Non-residential water	There were no issues with this measure. Where the answer was 'other' sufficient information was provided to understand the nature of the charging.	
WSS7c: Volumetric Charge: Non-residential water	<p>There were no real issues with this measure. There are some subtleties like the volumetric charging only kicks in after a certain volume of water is consumed which is generally equivalent to the fixed charged.</p> <p>Wellington Water was the only organisation to make use of the default median calculation.</p>	

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
WSS8a: Fixed Charge: Residential water	See WSS7a above. 7 organisations apply the same charge for both residential and non-residential. Christchurch City Council was able to provide a fixed charge value based on an average residential value.	See WSS7a suggestions/recommendations above.
WSS8b: Fixed Charge Type: Residential water	There were no issues with this measure.	
WSS8c: Volumetric Charge: Residential water	There were no real issues with this measure. Only 4 of the organisations audited apply volumetric charging to residential customers. 2 organisations apply volumetric charging to high end users once they exceed a limit.	Some clarity should be provided on when not to provide a data value. Mackenzie District Council has been advised in the past not to report their volumetric charge since it applies to so few customers. The same situation may exist with other organisations or may not be applied until a limit is exceeded especially if that limit is above 200m ³ /yr.
WSS9: Average Residential Water Charge Based on 200 m ³ /yr	There were no issues with this measure.	
Wastewater		
WWE1a: Overflows caused by blockages	The audit focussed on where the raw data was coming from for this measure and no issues could be identified. The only variability or dependency that could be identified is that a number of organisations are reliant on their contractors to report these overflows and potentially they may not report/record all overflows. Palmerton North City Council was the only organisation not to report a value the reason being that it is not a DIA measure so they don't put any effort into recording these types of overflows.	If the DIA is going to review and/or consider revising their mandatory non-financial performance measures, it would be worth highlighting/discussing this measure in association with WWS4c which is a DIA measure. The values for WWS4c are likely to be unsubstantiated and could be misleading whereas the values reported for WWE1a are likely to be more representative of the actual number of blockages that have occurred.

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
WWE1b: Overflows caused by mechanical failures	<p>Central Otago District Council do not distinguish between different types of overflows and causes so did not report a value - their data value for WWE1a includes all overflows.</p> <p>Palmerton North City Council did not report a value the reason being that it is not a DIA measure so they don't put any effort into recording these overflows.</p> <p>Hastings District Council queried whether overflows caused by network power outages should be reported as they are beyond the organisation's control.</p>	<p>See WWE1a suggestions/recommendations above.</p> <p>Clarify whether or not overflows caused by power outages in the electricity supplier's network should be included in the data value for this measure. Consider reporting this separately.</p>
WWE2a: Wet weather overflows from the wastewater network	<p>Central Otago District Council do not distinguish between different types of overflows and causes so did not report a value - their data value for WWE1a includes all overflows.</p> <p>Palmerton North City Council did not report a value the reason being that it is not a DIA measure so they don't put any effort into recording these overflows.</p>	<p>See WWE1a suggestions/recommendations above.</p>
WWE2b: Wet weather overflows from combined stormwater and wastewater networks	<p>Only 2 of the 12 organisations audited have combined networks – Watercare and Whanganui District Council. Both were able to report data values for this measure.</p>	

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
WWE8a: Sewage containment design standards	<p>This was probably the most problematic measure in terms of variability of responses which would make any comparison between organisations quite difficult and maybe meaningless.</p> <p>It was determined that most organisations have a design guide or code of practice in place. NZS: 4404 is being used by a number of organisations while others had developed their own code of practice.</p> <p>The overall value or benefit of this measure was questioned given that any design standard only applies to new network.</p> <p>Hamilton City Council advised that they were probably an exception in that their preference is to design based on area rather than population.</p>	<p>AECOM agree with the feedback provided by Watercare that it may be more meaningful (and more straightforward) to ask organisations to report on ADWF in terms of litres/person/day. Most organisations when questioned were able to quote what that value is.</p> <p>Then in association with the litres/person/day value, ask organisations to quote the peaking factor they apply to ADWF to determine the PWWF. Alternatively they could quote the PWWF value in litres/person/day.</p>
WWE8b: Average calculated wet weather overflow frequency	<p>While the response to this measure was more consistent, only 5 of the 12 organisation audited, provided a data value.</p>	<p>AECOM agree with the feedback provided by Watercare that it may be more meaningful to ask organisations to report on "the wet weather overflow frequency per year", where the unit is the number per engineered overflow points per year.</p> <p>The problem here is that the current measure is an Average Exceedance Probability (AEP%), such that an average overflow frequency of say 2 per year is shown as 200%, which is confusing.</p> <p>Also this assumes that there are a fixed number of points against which this is being ascertained (hence our suggestion of using engineered overflow points). If you include all overflows which occurred from manhole lids you have to be sure that the same manhole lids are used when calculating the average exceedance, otherwise you have the potential for thousands of overflow points (all the manholes) to be included in the calculation of the average, which would be nonsensical. If wet weather overflows from manhole lids are to be included this should be split into two measures:</p>

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
		<ol style="list-style-type: none"> 1. Annual average number of wet weather overflows from engineered overflow points (Average per overflow point). A supplementary question should also be included, which would put this result into context: How many engineered overflow points are there on the wastewater system? 2. Annual average number of overflows from manhole lids.
WWE9a: Overflows recorded through verbal reports	There were no issues with this measure. All 12 organisations responded "Yes".	<p>We believe that a simple "Yes / No" answer to these questions does not provide an understanding of what proportion of overflows are monitored and therefore have accurate actual records of overflow frequency and volume against the proportion where the overflow frequency and volume is ascertained by calibrated and uncalibrated modelling or where verbal reports alone are used.</p> <p>A further question could compare the theoretical overflow frequency and volume using models with actual recordings to demonstrate the accuracy of the modelling.</p>
WWE9b: Overflows recorded through SCADA monitoring	There were no issues with this measure. 10 organisations responded "Yes" and the remaining 2 "No".	
WWE9c: Overflows calculated through hydraulic models	There were no issues with this measure. 8 organisations responded "Yes" and the remaining 4 "No". The organisations that responded "No" were either currently getting models built or were planning on getting models built.	
WWE9c: Overflows calculated through calibrated hydraulic models	There were no issues with this measure. Of the 8 organisations that had models, only 2 had not calibrated their models.	

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
<p>WWE4a: Wastewater consent abatement notices</p>	<p>Of the 12 organisations audited, only one organisation reported a single abatement notice.</p> <p>The audit mainly focussed on what systems were in place for recording and reporting on abatement notices. While the systems varied, each organisation was using something, be it a purpose built cloud based tool or a spreadsheet.</p> <p>The reality is that the issuing of an abatement notice is so infrequent, if one was issued it would easily be remembered.</p>	<p>As this is a DIA measure there may be little benefit in auditing this measure again unless say there is a sudden increase in notices. The monitoring, analysis and reporting associated with wastewater consents appear to be quite regimented and well embedded in organisations.</p> <p>The impression is that Regional Councils prefer to work quite closely with organisations to ensure improvements are made and it is only if there was repeat non-compliance would the Regional Councils get heavy-handed.</p> <p>Rather than using only the number of formal abatement / infringement notices and enforcement orders and successful prosecutions to gain an understanding of performance against consents we would suggest additional questions as follows:</p> <ul style="list-style-type: none"> 1a. How many wastewater treatment plants are currently failing their consented performance and are the subject of ongoing discussions with the regulator? 1b. What percentage of the total number of wastewater treatment plant consents does this represent? 2a. How many wastewater network discharges are currently failing their consented performance and are the subject of ongoing discussions with the regulator? 2b. What percentage of the total number of wastewater network discharge consents does this represent? <p>Also, consider including a question about the number of Technical Non Compliance notices received.</p> <p>This basic approach could also be taken for the stormwater discharge consents measures.</p>

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
WWE4b: Wastewater consent infringement notices	<p>None of the 12 organisations reported the occurrence of an infringement notice.</p> <p>The audit mainly focussed on what systems were in place for recording and reporting on infringement notices. While the systems varied, each organisation was using something be it a purpose built cloud based tool or a spreadsheet.</p> <p>The reality is that the issuing of an infringement notice is so infrequent, if one was issued it would easily be remembered.</p>	See WWE4a suggestions/recommendations above.
WWE4c: Wastewater consent enforcement orders	<p>None of the 12 organisations reported the occurrence of an enforcement order.</p> <p>The audit mainly focussed on what systems were in place for recording and reporting on enforcement orders. While the systems varied, each organisation was using something be it a purpose built cloud based tool or a spreadsheet.</p> <p>The reality is that the issuing of an enforcement order is so infrequent, if one was issued it would easily be remembered.</p>	See WWE4a suggestions/recommendations above.
WWE4d: Wastewater consent successful prosecutions	<p>Of the 12 organisations audited, only one organisation reported a successful prosecution. This related to an overflow at a pumpstation which was possibly beyond their control.</p> <p>The audit mainly focussed on what systems were in place for recording and reporting on successful prosecution. While the systems varied, each organisation was using something be it a purpose built cloud based tool or a spreadsheet.</p> <p>The reality is that a successful prosecution is so infrequent, if one did happen it would easily be remembered.</p>	See WW4a suggestions/recommendations above.
Stormwater		

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
SWE1a: Number of stormwater discharges from the piped network	<p>There were no real issues with this measure. Organisations were querying either their GIS or asset management system to get a data value.</p> <p>Some organisation stated what type of discharge points were not included e.g. discharges in rural locations and discharges to open drains.</p> <p>Several organisations mainly use soakage pits, but it is unclear if these should be included or not.</p>	<p>Clarify what types of discharges should be included in the measure.</p> <p>We believe the intention here is to understand how many direct discharges there are from the public stormwater network to a receiving environment. This is not for individual or small groups of road cesspits which may discharge to soakage, but for the main formal public piped network which may discharge direct to open watercourses, drains, rivers, coastal areas and soakage in rural and / or urban areas where the quality and / or the volume of stormwater discharged may result in an environmental impact.</p>
SWE1b: Number of stormwater discharges with resource consents	<p>There were no real issues with this measure. Most organisations' consents cover multiple discharge points. Most organisations indicated they will eventually move to a global consent arrangement.</p> <p>2 organisations – Central Otago District Council and Palmerston North City Council, do not have any active stormwater consents.</p>	
SWE2a: Stormwater consent abatement notices	<p>Of the 11 organisations reporting on stormwater, only one organisation reported a single abatement notice which technically was roading related.</p> <p>The audit mainly focussed on what systems were in place for recording and reporting on abatement notices. While the systems varied, each organisation was using something be it a purpose built cloud based tool or a spreadsheet.</p> <p>The reality is that the issuing of an abatement notice is so infrequent, if one was issued it would easily be remembered.</p>	<p>See WWE4a suggestions/recommendations above.</p> <p>As this is a DIA measure there may be little benefit in auditing this measure again unless say there is a sudden increase in notices. The monitoring, analysis and reporting associated with stormwater consents appear to be quite regimented and well embedded in organisations.</p> <p>The impression is that Regional Councils prefer to work quite closely with organisations to ensure improvements are made and it is only if there was repeat non-compliance would the Regional Councils get heavy-handed.</p>

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
SWE2b: Stormwater consent infringement notices	<p>Of the 11 organisations reporting on stormwater, only one organisation reported a single infringement notice which was a freak occurrence and unlikely to be repeated.</p> <p>The audit mainly focussed on what systems were in place for recording and reporting on infringement notices. While the systems varied, each organisation was using something be it a purpose built cloud based tool or a spreadsheet.</p> <p>The reality is that the issuing of an infringement notice is so infrequent, if one was issued it would easily be remembered.</p>	See SWE2a recommendations above.
SWE2c: Stormwater consent enforcement orders	<p>Of the 11 organisations reporting on stormwater, no organisations reported any enforcement orders.</p> <p>The audit mainly focussed on what systems were in place for recording and reporting on enforcement orders. While the systems varied, each organisation was using something be it a purpose built cloud based tool or a spreadsheet.</p> <p>The reality is that the issuing of an enforcement order is so infrequent, if one was issued it would easily be remembered.</p>	See SEW2a recommendations above.
SWE2d: Stormwater successful prosecutions	<p>Of the 11 organisations reporting on stormwater, no organisations reported any successful prosecutions.</p> <p>The audit mainly focussed on what systems were in place for recording and reporting on successful prosecutions. While the systems varied, each organisation was using something be it a purpose built cloud based tool or a spreadsheet.</p> <p>The reality is that a successful prosecution is so infrequent, if one did happen it would easily be remembered.</p>	See SEW2a recommendations above.

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
SWS5: Flooding Events	<p>3 of the 11 organisations reported no (zero) flooding events.</p> <p>Flooding in road corridors tend to remain a roading issue.</p> <p>Typically organisations are reporting the same value that they report to the DIA. The definitions are the same so there shouldn't be any issues.</p> <p>One organisation did say they found the guidelines around what is a flooding event unclear.</p> <p>Some organisations also have their own definition of what constitutes a flooding event and they base their data value on this definition.</p>	<p>There probably does need to be further clarification provided on what the cause of the flooding event is given that the NPR is focussed on stormwater primary and secondary networks. It is not uncommon for flooding events to be caused by factors other than network capacity. We believe these events should be included, but separated out. Both Central Otago District Council and Mackenzie District Council mentioned the occurrence of flooding events that were not network related but resulted in habitable floors being flooded. Also consider excluding flooding as a result of rivers breaking their flood banks.</p> <p>It is also recognised that flooding from the stormwater system which does cause habitable floor flooding can be caused by issues other than capacity, e.g. blockages. We believe the real intention of this measure is to understand how many events have resulted in habitable floors being flooded and to ascertain if the capacity of the stormwater system is being exceeded by storm events. Therefore we suggest that this measure should be sub-divided into:</p> <ol style="list-style-type: none"> 1. The number of storm events that directly resulted in habitable floors being flooded; and 2. The number of non-capacity related events (although exacerbated by storms), that resulted in habitable floors being flooded.

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
SWS5a: Number of habitable floors affected	<p>3 of the 11 organisations reported no (zero) habitable floors affected.</p> <p>One underlying issue with this measure is that there is likely an underreporting of habitable floors flooded. There is a tendency for home owners to not report flooding as it will affect their property values so unless the occurrence is observed and reported by an organisation staff member, the occurrence will go unreported. Interestingly though, several organisations based their data value on the number of insurance claims from insurance companies on behalf of home owners.</p>	<p>See SWS5 suggestions/recommendations above.</p> <p>Both Central Otago District Council and Mackenzie District reported flooding events that were not network related and resulted in habitable floors being flooded. We believe that these events should be separated out.</p>
SWS7a: Primary stormwater network capacity	<p>2 of the 11 organisations did not report a value for this measure the main reason being they have very little stormwater network infrastructure in place.</p> <p>Of the 9 organisations that did report values, 7 reported values that were immediately comparative with one another. The other 2 organisations reported a range of values and reported a data value of 'Various'. Based on the Definition Guidelines both organisations should have reported the data values that are applicable to residential areas.</p> <p>It was determined that most organisations have a design guide or code of practice in place. NZS: 4404 is being used by a number of organisations while others had developed their own code of practice.</p>	

	Issues, Observation and Commentary on Audit Measures	Suggestions/Recommendations
SWS7b: Secondary stormwater network capacity	<p>As with SWS7a, 2 of the 11 organisations did not report a value for this measure the main reason being they have very little stormwater network infrastructure in place.</p> <p>The data values reported by the other 9 organisations were all immediately comparative with one another.</p> <p>It was determined that most organisations have a design guide or code of practice in place. NZS: 4404 is being used by a number of organisations while others had developed their own code of practice.</p>	

4.0 Summary

4.1 Audit Process

This year was the first year that audits were conducted by telephone. In general this approach worked well but where it worked best was when organisations responded in writing to the audit questions prior to the telephone calls. This meant less time was spent on note taking and more time spent on further understanding or exploring the answers previously provided.

The option was taken to visit Watercare's office and undertake the audit onsite. Their office is close to the AECOM's office and the opportunity allowed Brian Sharman to attend the audit which was very useful because of his combined knowledge of Watercare and the water supply and wastewater networks in Auckland City.

Prior to seeing the original data returns it was hoped that a reasonably generic set of audit questions could be applied to each of the organisations being audited. To some extent this was the case but each audit measure for each organisation still had to be examined, in particular the organisation comments which often prompted organisation specific questions.

4.2 Audit Measures

The pre-defined set of measures that were used for the audit was an interesting and useful mix. When the data responses for the 12 organisations were reviewed, only one of the measures (CB10a - Staff Vacancies) generated very few questions.

As a result of the audits, a number of data changes (and additions) were made and generally these came about as a result of better understanding the definitions behind the measures through discussion with the auditor.

A number of measures such as WSS7 (Number of different water charging regimes), WWE8a (Sewage containment design standards) and WWE8b (Average calculated wet weather overflow frequency) were problematic and should be repeated in the next NPR audit. WWE8a and WWE8b may need to be redefined and if so should be audited anyway.

The compliance measures for wastewater and stormwater did not reveal any useful insights mainly because there is currently very little non-compliance. These measures relate to a regulated environment and are included in the DIA reporting organisations undertake so there is probably little value in including them in future audits. The one exception might be if there is a sudden spike in the level of non-compliance in which case it would be beneficial to include the measures. Some additional compliance questions/measures have been suggested and if these are taken on-board then they should be audited.

4.3 Outcomes

The NPR audit has resulted in a number of suggestions/recommendations for Water NZ to consider. The bulk of the suggestions/recommendations relate to providing more clarity and/or added detail to the definitions behind some of the measures.

Some rethought is suggested for WWE8a (Sewage containment design standards) and WWE8b (Average calculated wet weather overflow frequency) and the outcome could be that these measures get separated into multiple measures.

As mentioned above, the compliance measures which are DIA measures and come under scrutiny anyway, are probably not worth including in future audits. The same logic could be applied to any other NPR measures which are also DIA measures i.e. unless there are obvious inconsistencies, omissions, significant changes in values from the previous year or redefinition of the measures, consider not including these measures in future audits.

5.0 Disclaimer

This report is based on information provided by participating organisations, supported by telephone audits (and one site audit) to address a series of questions asked about a subset of specific measures. Often the outcome of the audits was follow-up updates from organisations and in some cases the provision of additional supporting information.

AECOM has used its reasonable endeavours to ensure that the telephone audits and the associated conversations and outcomes are transposed accurately into this report. No responsibility is assumed for any inaccuracies in transposing by AECOM.

AECOM has not physically verified the information provided by the participating organisations (unless specifically noted otherwise) and we assume no responsibility and make no representations with respect to the adequacy, accuracy or completeness of such information.

AECOM does not accept any liability, whether directly or indirectly, for any liability or loss suffered or incurred by any party placing any reliance on this report, in part or in full. Any party that relies on the detailed findings in Appendix A does so entirely at its own risk.

Appendix A

Detailed Findings

Appendix A Detailed Findings

Table 3 Central Otago District Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	CODC Responses
CB10	Internal staff	FTE	10.7	<p>What are the roles that make up the 10.7? Which, if any, of the following supporting functions have been included in the figure?</p> <ul style="list-style-type: none"> - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators <p>If any, how have their functions been apportioned between water services and other parts of the business?</p>	<p>Staff numbers include:</p> <ul style="list-style-type: none"> - infrastructure staff 5 - accountants (water billing) - 1.2 - management - 3 - IT/asset data staff - 1.5
CB10a	Staff vacancies	FTE	0	No question.	
CB11	Contracted staff	FTE	20	<p>Are there any contractors or consultants backfilling positions or roles in the office? Which, if any, of the following types of roles have been included:</p> <ul style="list-style-type: none"> - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning <p>How was the contribution of contractors not working full time on annual contracts apportioned?</p>	<p>This is the staff number for Fulton Hogan who are contracted to operate and maintain the reticulation and treatment plants for CODC. There are no contractors backfilling internal staff roles.</p>

Code	Measure	Units	Data	AECOM/Water NZ Questions	CODC Responses
WSS7	Number of different water charging regimes	Number	2.00	Are there 2 charging regimes - UAG and volumetric?	Yes, there are 2 regimes. There may be a 3rd regime that Todd will enquire about - there are still some unmetered residential properties in Roxburgh which may be paying a charge on top of the UAG.
WSS7a	Fixed Charge: Non-residential water	\$	323.46	Is this charge applied to properties that could be serviced but are not connected?	Yes, properties that could be serviced but are not connected pay the full UAG.
WSS7b	Fixed Charge Type: Non-residential water	Selection	Uniform Annual general charge	No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3	0.6	Are all non-residential customers metered?	Yes, all non-residential properties are metered.
WSS8a	Fixed Charge: Residential water	\$	323.46	Is this charge applied to properties that could be serviced but are not connected?	Yes, properties that could be serviced but are not connected pay the full UAG.
WSS8b	Fixed Charge Type: Residential water	Selection	Uniform Annual general charge	Is there still UAG charging for all residential customers?	Yes.
WSS8c	Volumetric Charge: Residential water	\$/m3	0.6	Are all residential customers metered?	Yes, except for Roxburgh. Meters are currently being installed and are probably about 12 months away from being finished.
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	443.46	No question.	
WWE1a	Overflows caused by blockages	Number	28	How have these overflows been reported/recorded by the Contractor?	Overflows are recorded in the MagiQ customer service request module.
WWE1b	Overflows caused by mechanical failures	Number		There haven't been any pump station failures resulting in overflows?	All overflows, no matter what the cause, are currently just recorded as overflows and is the number reported against WWE1a. There may be some descriptive text that records the cause.
WWE2a	Wet weather overflows from the wastewater network	Number		How have these overflows been reported/recorded by the Contractor?	Any wet weather overflows will be included in the number reported against WWE1a.

Code	Measure	Units	Data	AECOM/Water NZ Questions	CODC Responses
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	n/a	No combined network.	
WWE8a	Sewage containment design standards	AEP%/ADWF		Is there a design guide of code of practice that specifies ADWF and PWWF values that need to be factored into design? If not, what information is provided to consultants/developers for new works?	CODC uses NZS: 4404.
WWE8b	Average calculated wet weather overflow frequency	AEP%		Is there a design guide or code of practice that specifies how many overflows to allow for in the design?	CODC uses NZS: 4404.
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	Do customers phone in and report overflows? If so where are they recorded?	Overflows from verbal reports are recorded in the MagiQ customer service request module.
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	Is SCADA not being used to monitor overflows?	Yes, alerts are sent to contractor staff on call.
WWE9c	Overflows calculated through hydraulic models	Yes/No	No	No models? Have consultants done any modelling?	Only one town - Cromwell, is currently modelled.
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	No	No models? Have consultants done any modelling?	Only one town - Cromwell, is currently modelled.
WWE4a	Wastewater consent abatement notices	Number	0	No data? Where/how would it be recorded if there has been an abatement notice?	Staff cannot recall any notices or orders etc. If there were any notices etc. they would likely be recorded in the MagiQ customer service request module. CODC are looking at implementing a consenting system/database.
WWE4b	Wastewater consent infringement notices	Number	0	No data? Where/how would it be recorded if there has been an infringement notice?	
WWE4c	Wastewater consent enforcement orders	Number	0	No data? Where/how would it be recorded if there has been an enforcement order?	
WWE4d	Wastewater consent successful prosecutions	Number	0	No data? Where/how would it be recorded if there has been a successful prosecution?	
SWE1a	Number of stormwater discharges from the piped network	Number	76	How certain is it that all discharges are in the GIS?	As certain as can be. The bulk of stormwater drainage from properties in the district goes to soakage pits. Stormwater discharges from pipe networks are mainly roading related.

Code	Measure	Units	Data	AECOM/Water NZ Questions	CODC Responses
SWE1b	Number of stormwater discharges with resource consents	Number		Does this mean there are no consents or the information is unknown? If there are no consents, will they be required in the future? Did you find this suggestion sufficiently clear, or, could you suggest how it could be improved?	There are no active consents. Consents will likely be required in the future but will be mainly roading related.
SWE2a	Stormwater consent abatement notices	Number	0	Is this 0 because there are no consents? If there are consents, where/how would it be recorded if there has been an abatement notice?	Yes, 0 because there are no consents. If there were any notices etc. they would likely be recorded in the MagiQ customer service request module. CODC are looking at implementing a consenting system/database.
SWE2b	Stormwater consent infringement notices	Number	0	Is this 0 because there are no consents? If there are consents, where/how would it be recorded if there has been an infringement notice?	
SWE2c	Stormwater consent enforcement orders	Number	0	Is this 0 because there are no consents? If there are consents, where/how would it be recorded if there has been an enforcement order?	
SWE2d	Stormwater successful prosecutions	Number	0	Should this be 0? If there are consents, where/how would it be recorded if there has been a successful prosecution?	
SWS5	Flooding Events	AEP%	5	How have these flooding events been reported/recorded by the Contractor? Have nuisance flooding events occurred that have not been reported (e.g. road corridors etc)	CODC found the guidelines around what is a flooding event unclear. The number reported is based on events that CODC consider 'flood' worthy. Runoff from roads typically drains to mud tanks - these are getting old and starting to fail and are causing some road flooding. Road flooding would be considered a roading problem.
SWS5a	Number of habitable floors affected	AEP%	8	How was this value reported/recorded?	This value is not recorded anywhere and is an estimate from the significant event that occurred in Roxburgh. What happened in Roxburgh wasn't necessarily a council issue and was probably more of a roading/NZTA issue.
SWS7a	Primary stormwater network capacity	Number		Is there a design guide of code of practice that specifies a value?	CODC uses NZS: 4404.

Code	Measure	Units	Data	AECOM/Water NZ Questions	CODC Responses
SWS7b	Secondary stormwater network capacity	Number		Is there a design guide of code of practice that specifies a value?	CODC uses NZS: 4404.

Table 4 Christchurch City Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	CCC Responses
CB10	Internal staff	FTE	130.7	No question.	
CB10a	Staff vacancies	FTE	8	No question.	
CB11	Contracted staff	FTE	121	Is the 21 staff carrying out operations and maintenance activities? If the 21 are filling office roles then what is the number of staff involved in operations and maintenance - are they included in the 130.7?	The 21 are in office roles. Of the 130.7 - 48 are in the ops and maintenance area (with 2 of those on fixed term contract - but these two are included in the 21). Data value now includes CityCare numbers - CityCare do all the mechanical maintenance at treatment plants and pumpstations.
WSS7	Number of different water charging regimes	Number	4	Should the data value be '2' as other measures indicate there is a targeted rate and a volumetric charge?	The correct answer is 4 for residential properties - one full targeted rate for a connected property, a half targeted rate for a non-connected property, and a fixed charge for a property on a restricted supply. For high users (commercial or industrial) they pay by volume with a rebate up to the value of what they would pay as a full targeted rate.
WSS7a	Fixed Charge: Non-residential water	\$	0	Is it too difficult to calculate an average as has been done for residential? Is there a part charge for properties that are serviceable but are not currently connected?	Yes - as the average would be meaningless given that what is paid for water is based on property capital value and volume of water used. Yes - non-connected properties also pay a half of the full targeted rate.
WSS7b	Fixed Charge Type: Non-residential water	Selection	Targeted Rate	No question.	

Code	Measure	Units	Data	AECOM/Water NZ Questions	CCC Responses
WSS7c	Volumetric Charge: Non-residential water	\$/m3	0.94	No question.	
WSS8a	Fixed Charge: Residential water	\$	202.99	Is there a part charge for properties that are serviceable but are not currently connected?	Yes as answer above (WSS7a) and the calculated average will include these non-connected properties (but the number of non-connected properties will be small). Some red zone properties are still occupied and paying rates but the cost of servicing those properties is way in excess of the rates charges.
WSS8b	Fixed Charge Type: Residential water	Selection	Targeted Rate	No question.	
WSS8c	Volumetric Charge: Residential water	\$/m3	0	No question.	
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	202.99	No question.	
WWE1a	Overflows caused by blockages	Number	98	Where has the data value come from? Is 17/1390023 a document reference number?	CCC keeps a spreadsheet of all overflows (17/1390023 is the document reference number). This is the basis of all reporting to ECan and all the overflow data put up on the web site. Sighted spreadsheet.
WWE1b	Overflows caused by mechanical failures	Number	52	Where has the data value come from? Is 17/1390023 a document reference number? What justifies the classification of 'highly reliable'?	
WWE2a	Wet weather overflows from the wastewater network	Number	5	Where has the data value come from? Is 17/1390023 a document reference number? What justifies the classification of 'highly reliable'?	
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	0	No combined network.	
					That is correct - someone made the right decision in 1878!

Code	Measure	Units	Data	AECOM/Water NZ Questions	CCC Responses
WWE8a	Sewage containment design standards	AEP%/ADWF	50.00%	Is this documented in design guide or code of practice?	The Infrastructure Design Standard IDS - (available on CCC web site) details sewer design flows for 100% containment, based on average sewer flows, a peak to average ratio and a storm peaking factor. For new infrastructure "design" aims at full containment while wet weather overflow consenting is "aiming" to initially achieve a 50% AEP across the whole city (no more than 1 overflow per six months) so "upgrade" design aims to achieve this as a minimum first step. Link to document provided.
WWE8b	Average calculated wet weather overflow frequency	AEP%	180.00%	No question.	Previous calibrated model predicted 200% so very close to reality.
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	Where are these reports recorded - in a customer service request system?	Yes these will be recorded as a "sewer fault" (the iron thing in the middle of the road is leaking) would be called in by a customer (mainly dry weather overflows). Wet weather overflows are notified via the contracted flow and overflow monitoring system.
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	Yes	If WWE9d is "Yes" then should this also be "Yes"?	Wet weather overflow consent compliance is determined through use of the calibrated model and long-time series rainfall data. The volume, flow rate and frequency of actual wet weather overflows are measured through flow monitoring at each overflow site. We do not measure volumes of dry weather overflows but will often make an estimate (educated guess) of the volume. Data value changed.
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	Yes	No question.	A re-calibration exercise is currently underway - there are 50 temporary flow monitoring devices in place along with the 20 permanent devices.

Code	Measure	Units	Data	AECOM/Water NZ Questions	CCC Responses
WWE4a	Wastewater consent abatement notices	Number	0	Does this mean someone went back through the fortnightly emails for the 2017/18 year or are the findings recorded somewhere that can be easily searched or reported on?	The data comes from an automatically generated email (fortnightly) from ECan that lists all consents CCC holds and all non-compliances that are graded into different categories. Filed in Trim (document management system) Folder09/1853. Information is compiled in a spreadsheet which was sighted.
WWE4b	Wastewater consent infringement notices	Number	0	Does this mean someone went back through the fortnightly emails for the 2017/18 year or are the findings recorded somewhere that can be easily searched or reported on?	
WWE4c	Wastewater consent enforcement orders	Number	0	Does this mean someone went back through the fortnightly emails for the 2017/18 year or are the findings recorded somewhere that can be easily searched or reported on?	
WWE4d	Wastewater consent successful prosecutions	Number	0	Does this mean someone went back through the fortnightly emails for the 2017/18 year or are the findings recorded somewhere that can be easily searched or reported on?	
SWE1a	Number of stormwater discharges from the piped network	Number	4172	No question.	All discharges are mapped.
SWE1b	Number of stormwater discharges with resource consents	Number	4172	The data value indicates that all discharges are consented. Is this correct?	Yes - CCC has an Interim Global SW Discharge Consent covering all discharges. We are in the process of application for the new consent that will authorise all discharges on a longer term basis.
SWE2a	Stormwater consent abatement notices	Number	0	Does this mean someone went back through the fortnightly emails for the last year or is the findings recorded somewhere that can be easily searched or reported on?	The data comes from an automatically generated email (fortnightly) from ECan that lists all consents CCC holds and all non-compliances that are graded into different categories. Filed in Trim (document management system) Folder09/1853. Sighted spreadsheet.
SWE2b	Stormwater consent infringement notices	Number	0	Does this mean someone went back through the fortnightly emails for the last year or is the findings recorded somewhere that can be easily searched or reported on?	

Code	Measure	Units	Data	AECOM/Water NZ Questions	CCC Responses
SWE2c	Stormwater consent enforcement orders	Number	0	Does this mean someone went back through the fortnightly emails for the last year or is the findings recorded somewhere that can be easily searched or reported on?	
SWE2d	Stormwater successful prosecutions	Number	0	Does this mean someone went back through the fortnightly emails for the last year or is the findings recorded somewhere that can be easily searched or reported on?	
SWS5	Flooding Events	AEP%	1	Would this not be formally recorded somewhere?	Yes this is formally recorded in the Annual Performance Report to the Executive Leadership Team and then on to Council. I will find the correct reference.
SWS5a	Number of habitable floors affected	AEP%	13	Would this not be formally recorded somewhere?	
SWS7a	Primary stormwater network capacity	Number	20.00%	Is the 20% applied across the whole primary network or is it an average?	The IDS (and Waterways and Wetland Guide) requires the design of the primary system must cater for the more frequent rainfall events including the 20% AEP storm. The secondary system must convey over-design events without inundation hazard to house floors and building platforms at least to the 2% AEP storm, including occasions when there are blockages in the primary drainage system. Link to document provided.
SWS7b	Secondary stormwater network capacity	Number	2.00%	Is the 2% applied across the whole secondary network or is it an average value?	

Table 5 Hamilton City Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	HCC Responses
CB10	Internal staff	FTE	116	Which, if any, of the following supporting functions have been included in the figure? - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators	Supporting functions with 'No' are organisation wide resources - accountants - No (ad hoc- Finance dept.) - lawyers - No (ad hoc external) - human relations/training - No (ad hoc internal + service providers) - communications/public relations - No (ad hoc Comms) - planning - Yes - strategy - Yes - administrators - Yes City Waters includes engineering, operations, asset management and capital delivery functions. Shared Services includes sampling, solid waste and trade waste and provides services to Waipa and Waikato District Councils. Compliance includes monitoring of consents and trade waste compliance. City Delivery is an internal contracting unit. Business Support provides administration support.
CB10a	Staff vacancies	FTE	9	No question.	
CB11	Contracted staff	FTE	4.25	Which of the following types of services have been included: - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning	- lab services (sample collection/analysis) - No - construction - Yes (City Delivery- internal contract for % of renewals program) - reticulation operation - No - treatment plant operation - No - distribution system maintenance repairs - Yes (City Delivery- Internal contract for % maintenance activities) - engineering design renewals - Yes (Assets team - Minor capex and renewals (plants)) - pipe/reservoir cleaning - No

Code	Measure	Units	Data	AECOM/Water NZ Questions	HCC Responses
WSS7	Number of different water charging regimes	Number	3	Why "Less reliable"? It seems reasonably clear what the 3 regimes are.	Agreed, change to Reliable, free text box, not drop down, probably wrong copy and paste by reporter.
WSS7a	Fixed Charge: Non-residential water	\$	\$220 - 6 monthly minimum \$110 - 3 monthly minimum	Will it be \$440 for 12 months?	Yes.
WSS7b	Fixed Charge Type: Non-residential water	Selection	Other (include detail in comments field)	No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3	1.82	No question.	
WSS8a	Fixed Charge: Residential water	\$	216.77	No question.	
WSS8b	Fixed Charge Type: Residential water	Selection	General rate	No question.	
WSS8c	Volumetric Charge: Residential water	\$/m3	0	No question.	

Code	Measure	Units	Data	AECOM/Water NZ Questions	HCC Responses
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	216.77	<p>Do you feel using this average value as a benchmark for water charges is a fair reflection of your three different pricing schemes?</p> <p>Could/should this question be structured differently to accommodate the three different regimes?</p>	<p>The benchmark is correct as both a fixed figure and an average. Only one of the three pricing schemes mentioned prior are not related to residential (unmetered and rated @ \$216.77), the other two are related to non-residential and therefore do not feature in an averaged calculation.</p> <p>For us this was not really an issue, however, some grey area may exist in terms of cross boundary charging at a fixed volumetric rate when the residential/non-residential % use of that water is not known to HCC.</p>
WWE1a	Overflows caused by blockages	Number	482	Is Opal3 some sort of scorecard type system? If so where does the actual data come from?	<p>Opal3 is a cloud based Key Performance Indicator reporting tool. It holds our Monitors (such as 10-Year Plan non-financial KPI's, Connected Scorecard, Social Media hits etc.) which have any number of KPI's attached. Customised reports can be pulled from Opal3 with the click of a button and they can be embedded into any reporting mechanism to increase data transparency and accessibility.</p> <p>A report is run from IPS and then results are entered in Opal 3.</p>
WWE1b	Overflows caused by mechanical failures	Number	8	Is Opal3 some sort of scorecard type system? If so where does the actual data come from?	See above.

Code	Measure	Units	Data	AECOM/Water NZ Questions	HCC Responses
WWE2a	Wet weather overflows from the wastewater network	Number	315	Is Opal3 some sort of scorecard type system? If so where does the actual data come from? Any particular reason for the reduction especially given that 2017/18 was a reasonably wet year?	<p>See above.</p> <p>Council's approved LTP KPIs and any other performance management/reporting requirements can be developed and loaded in Opal3. This enables the different departments of HCC to:</p> <ul style="list-style-type: none"> • Reduce the need of using spreadsheets to capture data from across the organisation; • Assign responsible owners to each KPI/performance parameter and permission to edit it can be delegated out; • Provide an audit history and locks down data after a reporting period has closed to keep data integrity; • Use workflows for sign off on the data by the appropriate person; and • Produce customised reports and dashboards. <p>It operates in the following manner:</p> <ol style="list-style-type: none"> 1. Assignment to individuals who are responsible for entering data monthly, quarterly, annually etc. 2. They receive an email notification when data is due 3. Manager is notified to approve the data (if needed) 4. Run a report and view dashboard <p>Last year's data value was just based on the number of customer complaints which is not an accurate indicator of the number of overflows. This year each complaint was investigated to determine if it was an actual overflow.</p>
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	0	No combined network.	
WWE8a	Sewage containment design standards	AEP%/ADWF	AEP is not utilised, see comments	What ADWF and PWWF values are used in the design/model?	ADWF is based on 200L/person/day with a peaking factor of 5. HCC's preference is to design based on area rather than population.

Code	Measure	Units	Data	AECOM/Water NZ Questions	HCC Responses
WWE8b	Average calculated wet weather overflow frequency	AEP%	110.00%	What is the number of overflows that are allowed for in the design/model?	Where overflows can happen, the overflow frequency for each site is 1.1.
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	Where are these reports recorded - in a customer service request system?	Correct, system is IPS (Infor Public Sector).
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	Yes	No question.	
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	Yes	No question.	Should be Yes.
WWE4a	Wastewater consent abatement notices	Number	1	Is the consent always complied with or are you aware of any breaches of consent conditions that have not resulted in any of the compliance actions listed here? What was the nature of the abatement notice?	No, for the most part the consent is fully complied with; on occasions there will be minor non compliances which generally do not attract enforcement actions (WWE4a-d). Monitoring and reporting is daily or weekly etc. depending on the priority level and consent conditions. The regional council does a yearly review and audit. 1 rising main failure in Malcolm Street, Riverlea, Hamilton. Municipal wastewater had been discharged from the ruptured sewer main and this had found its way to the road surface and flowed into a stormwater catchpit.
WWE4b	Wastewater consent infringement notices	Number	0	What sort of document/system is used to record abatement notices?	All compliance matters/correspondence between WRC and HCC is in writing, formally. Once correspondence is received by HCC it is registered for action in HCC's document management system Content Manager (CM). WRC also has a document management system. All subsequent correspondence is also registered in CM. Furthermore, items such as abatement notices (and anything that affects full compliance) is captured in HCC's performance management systems, i.e. Opal 3 and is searchable and measurable via the reporting tool Enterprise.
WWE4c	Wastewater consent enforcement orders	Number	0	What sort of document/system is used to enforcement notices?	
WWE4d	Wastewater consent successful prosecutions	Number	0	What sort of document/system is used to record successful prosecutions?	

Code	Measure	Units	Data	AECOM/Water NZ Questions	HCC Responses
SWE1a	Number of stormwater discharges from the piped network	Number	105	Can they not be queried in your GIS?	There are 105 outlets which discharge onto the Waikato River.
SWE1b	Number of stormwater discharges with resource consents	Number	105	Does the consent cover the entire stormwater network? What was the additional stormwater consent related to? Do you see the number of stormwater consents growing in future years?	The CSDC (Comprehensive Stormwater Discharge Consent 2011) authorises the following: Divert & discharge urban stormwater runoff & associated contaminants at multiple locations to land & all surface waters, & use discharge structures, in the general vicinity of Hamilton urban area. The stormwater diversion and discharge activities authorised by this consent relate to the Hamilton City Council municipal stormwater network ("stormwater network") as constructed at the commencement of this consent. The other 3 are not "stormwater network", they are the wastewater treatment plant, water treatment plant, and closed landfill, which have their own specific guidelines and conditions for obvious reasons.
SWE2a	Stormwater consent abatement notices	Number	0	Are you aware of regular monitoring being undertaken to check consent compliance? Is the consent always complied with or are you aware of any breaches of consent conditions that have not resulted in any enforcement action? Could you guess what threshold would need to be reached for any of the compliance actions listed here to be triggered? What sort of document/system is used to record abatement notices?	Yes, there is a significant amount of monitoring that is undertaken as per resource consent requirements, all done under the umbrella of monitoring plans that are approved by WRC. HCC are then audited annually by WRC on all category 1 consents such as the CSDC, wastewater discharge consent, and water take consent (amongst others). See WWE4a. No, these decisions are usually decided by WRC (with some consultation with HCC). Will discuss more when we discuss. See WWE4b. WRC use a letter of direction which is a lower form of enforcement.
SWE2b	Stormwater consent infringement notices	Number	0	What sort of document/system is used to record infringement notices?	See response for SWE2a above.

Code	Measure	Units	Data	AECOM/Water NZ Questions	HCC Responses
SWE2c	Stormwater consent enforcement orders	Number	0	What sort of document/system is used to enforcement notices?	
SWE2d	Stormwater successful prosecutions	Number	0	What sort of document/system is used to record successful prosecutions?	
SWS5	Flooding Events	AEP%	4	What limits the reliability - is it the fact that some events might not get recorded?	<p>Not necessarily, generally flooding events are reported by ratepayers, Customer Services will capture inputs related on what they are being told i.e. not all "flooding events" reported by ratepayers are actually flooding events (see definition below).</p> <p>HCC's LTP performance measures are worded as follows:</p> <p>Measure 1- What we will measure: The number of flooding events* that occur within the city.</p> <p>*Definition- A flooding event means an overflow of stormwater from a territorial authority's stormwater system that enters a habitable floor (any part of a building used for residential activities - excludes floor space used solely for the purposes of an entrance, passageway, toilet, bathroom, laundry, garage or storeroom).</p> <p>Measure 2- What we will measure: For each flooding event, the number of habitable floors affected (measured as x/1000 properties).</p>
SWS5a	Number of habitable floors affected	AEP%	1	No question.	
SWS7a	Primary stormwater network capacity	Number	Various	Question for Water NZ to decide what value (if any) gets utilised in the benchmarking.	Residential represents the largest number of properties so utilise 50%?
SWS7b	Secondary stormwater network capacity	Number	1.00%	No question.	

Table 6 Hastings District Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
CB10	Internal staff	FTE	20	<p>What was done to determine the data value? Which, if any, of the following supporting roles have been included in the figure?</p> <ul style="list-style-type: none"> - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators <p>If any, how have their functions been apportioned between water services and other parts of the business?</p>	The data value was taken from the organisation chart which is regularly updated. The data value only covers the 3 waters team and data services team who contribute 100% of the time. The 3 waters team covers planning, delivery, operations and compliance. No administration type people are included.
CB10a	Staff vacancies	FTE	3	<p>What was done to determine the data value?</p>	The data value was taken from the organisation chart which is regularly updated.
CB11	Contracted staff	FTE	36	<p>Are there any contractors or consultants backfilling positions or roles in the office? Which, if any, of the following types of roles have been included:</p> <ul style="list-style-type: none"> - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning <p>If any, how have their functions been apportioned between water services and other parts of the business?</p>	The 27 staff are CityCare staff who contribute 100% to 3 waters. This includes lab services. Professional services are outsourced to Stantec which include 9 dedicated staff.
WSS7	Number of different water charging regimes	Number	2.00	<p>Did the format of this question make sense to you? WSS7c indicates there is volumetric charging so this would imply there are 2 charging regimes - fixed and volumetric. Are there any targeted rates for any specific areas?</p>	<p>Agreed there are 2 charging regimes. About 1,011 properties (567 residential and 444 non-residential - 4%) which are classified as high usage, are metered and charged volumetrically once their usage exceeds a certain limit. There is one targeted rate per SUIP.</p>

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
WSS7a	Fixed Charge: Non-residential water	\$	355.18	Is there a half charge for properties that could be connected but are not?	Yes there is a half charge for properties that could be serviced but are not connected.
WSS7b	Fixed Charge Type: Non-residential water	Selection	Targeted Rate	No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3	0.45	No question.	
WSS8a	Fixed Charge: Residential water	\$	279.47	Is there a half charge for properties that could be connected but are not?	Yes there is a half charge for properties that could be serviced but are not connected.
WSS8b	Fixed Charge Type: Residential water	Selection	Targeted Rate	No question.	
WSS8c	Volumetric Charge: Residential water	\$/m3	0	Are the residential properties that are metered charged volumetrically?	Residential properties that are metered are charged volumetrically once they exceed a certain limit.
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	279.47	No question.	Yes there is a half charge for properties that could be serviced but are not connected.
WWE1a	Overflows caused by blockages	Number	18	How reliable is the recording/identification of blockages in the AMIS?	Dependent on contractor.
WWE1b	Overflows caused by mechanical failures	Number	1	Is it actually known if there have been any overflows caused by mechanical failures e.g. pump failures? Is there a plan to make any changes so these types of overflows can be identified?	There was 1 overflow which was caused by a power outage.
WWE2a	Wet weather overflows from the wastewater network	Number	4	How accurate is the recording/identification of these overflows in the AMIS? It is not uncommon for some overflows to not be reported/recorded.	Dependent on contractor.
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	0	No combined network.	
WWE8a	Sewage containment design standards	AEP%/ADWF	3:1	Why "less reliable"? Does the standard vary across parts of the network?	Based on NZS: 4404. Older parts of the network won't be to the same standard.

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
WWE8b	Average calculated wet weather overflow frequency	AEP%		Are there any plans to improve the understanding of wet weather overflows e.g. through development of hydraulic models?	Yes, through modelling.
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	Where are these reports recorded - in a customer service request system?	Verbal complaints recorded in customer service request system.
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	No	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	Yes	Have consultants done modelling on your behalf?	Yes.
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	Yes	Have consultants done modelling on your behalf?	Yes.
WWE4a	Wastewater consent abatement notices	Number	0	Is regular monitoring being undertaken to check consent compliance? Is the consent always complied with or are you aware of any breaches of consent conditions that have not resulted in any enforcement action? Could you guess what threshold would need to be reached for any of the enforcement actions listed here to be triggered? Where/how would it be recorded if there has been an abatement notice?	Regular monitoring is undertaken and reported to the regional council. Reporting is reviewed by Stantec. Consents are always complied with. Threshold question best answered by regional council. Wastewater consent compliance information is currently recorded in spreadsheets and documents etc. but will be put into Infrastructure Data which is an online system run by a company called Lutra.
WWE4b	Wastewater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice?	
WWE4c	Wastewater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	
WWE4d	Wastewater consent successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	
SWE1a	Number of stormwater discharges from the piped network	Number	256	What was the source of information for this data value?	The source for the data value was Hansen or IPS which is HDC's asset management system. The data value only relates to consented discharges in the urban area. Unconsented discharges or discharges in rural areas are not included.

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
SWE1b	Number of stormwater discharges with resource consents	Number	14	<p>Does this mean that there are only 14 consented discharges (or that there are 14 consents covering multiple discharges)?</p> <p>If not all stormwater discharges are covered, why are some selected and not others?</p> <p>Did you find this suggestion sufficiently clear, or, could you suggest how it could be improved?</p> <p>Do you expect that other stormwater discharge consents would be required in the future?</p> <p>What information points to knowing there are 14 consented stormwater discharges (is there some system or method for recording consents)? Are there any expired resource consents that need renewing?</p>	<p>There are only 14 consents which cover multiple discharge points. The used to be a lot more consents but they were surrendered and merged with network consents.</p> <p>All stormwater consent information is being put into Infrastructure Data which is an online system run by a company called Lutra.</p>
SWE2a	Stormwater consent abatement notices	Number	0	<p>What is the nature of monitoring to check consent compliance?</p> <p>Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any enforcement action?</p> <p>Where/how would it be recorded if there has been an abatement notice?</p>	<p>Normally yes. Not aware of any breaches that have not resulted in any enforcement action.</p>
SWE2b	Stormwater consent infringement notices	Number	1	<p>What was the nature of the infringement notice issued?</p>	<p>Red dye was put in a CBD fountain for breast cancer awareness week - at the time it was thought to be a vegetable dye but turned out to be a spraying dye which is a contaminant. When the fountain was drained it was thought the water was going into the wastewater network but it went into the stormwater network. The contractor doing the work was not the normal maintenance contractor.</p>
SWE2c	Stormwater consent enforcement orders	Number	0	<p>Where/how would it be recorded if there has been an enforcement order?</p>	<p>This would be managed by the asset manager.</p>
SWE2d	Stormwater successful prosecutions	Number	0	<p>Where/how would it be recorded if there has been a successful prosecution?</p>	<p>This would be managed by the asset manager.</p>

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
SWS5	Flooding Events	AEP%	0	Have nuisance flooding events occurred that have not been reported (e.g. road corridors etc)	Nuisance flooding events are looked at.
SWS5a	Number of habitable floors affected	AEP%	0	No question.	
SWS7a	Primary stormwater network capacity	Number	20.00%	Is this documented in a design guide or code of practice? Is the 20% applied across the whole primary network or is it an average?	HDC have an engineering code of practice which specifies 20% for new/greenfields development.
SWS7b	Secondary stormwater network capacity	Number	2.00%	Is this documented in a design guide or code of practice? Is the 2% applied across the whole secondary network or is it an average value?	HDC have an engineering code of practice which specifies 2% for new/greenfields development.

Table 7 Horowhenua District Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
CB10	Internal staff	FTE	12	How does the payroll system categorise staff which then enables you to identify them as being involved solely in the delivery of 3 waters services? Which, if any, of the following supporting functions have been included in the figure? - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators If any, how have their functions been apportioned between water services and other parts of the business?	The data value is taken from an org chart and relates only to the number of internal HDC staff that are part of an alliance with Downer. Data value now includes 3 AM staff.
CB10a	Staff vacancies	FTE	2	The assumption is the org chart is up to date. Is this correct?	The org chart is up to date. These vacancies are alliance vacancies which could be filled by someone wanting to be employed by HDC or Downer.

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
CB11	Contracted staff	FTE	25.5	<p>Are these contracted staff involved in the operations and maintenance of 3 waters? Which, if any, of the following types of roles have been included:</p> <ul style="list-style-type: none"> - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning <p>If any, how have their functions been apportioned between water services and other parts of the business?</p>	The data value is taken from an org chart and relates only to the number of Downer staff that are part of an alliance with HDC.
WSS7	Number of different water charging regimes	Number	3.00	<p>Did the format of this question make sense to you? Would you suggest other ways we could have structured the question to accommodate your stepped tariff prices? Does availability mean rating units that could be connected but for some reason are not?</p>	<p>Yes. No.</p> <p>Availability means within 100m of a water main. For wastewater it is 30m.</p>
WSS7a	Fixed Charge: Non-residential water	\$	401.1	Why not an average? Are the bulk of non-residents charged 401.1?	Bulk of users charged 401.1.
WSS7b	Fixed Charge Type: Non-residential water	Selection	Targeted Rate	No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3	0.755	No question.	
WSS8a	Fixed Charge: Residential water	\$	401.1	Charges the same as non-residential?	All users charged the same. Adjoining properties owned by one person only receive one charge.
WSS8b	Fixed Charge Type: Residential water	Selection	Targeted Rate	No question.	
WSS8c	Volumetric Charge: Residential water	\$/m3	0.755	Charges the same as non-residential?	Yes.

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	459.39	Do you feel using this average value as benchmark for water charges is a fair reflection of your pricing scheme?	30% of users in Foxton Beach and 70% in the rest of the district. The median might be unfairly weighted towards Foxton Beach so possibly a weighted average calculation might be fairer. Value changed from median (\$498.25) to \$459.39 based on 70%x\$401.1 + 30%*\$595.40.
WWE1a	Overflows caused by blockages	Number	8	How are these overflows reported/recorded?	Overflows are recorded in Authority (HDC's CSR system) and in Hansen based on field reports from maintenance contractors which are PDF's and attached to work orders. The 2 sources of information are cross-checked/validated for inclusion in the Annual report.
WWE1b	Overflows caused by mechanical failures	Number	0	How are these overflows reported/recorded?	
WWE2a	Wet weather overflows from the wastewater network	Number	4	How are these overflows reported/recorded?	
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	0	No combined network.	
WWE8a	Sewage containment design standards	AEP%/ADWF		What is the data value? Does this mean average wet to dry weather overflow of 2 is used? (the default value specified in the standard)	ADWF is 250l/person/day and a PWWF of 5 x ADWF is used.
WWE8b	Average calculated wet weather overflow frequency	AEP%		Would the calibrated hydraulic model not provide an answer here?	AEP% is 200%.
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	Are there overflows in the maintenance staff reports which are not recorded in a system?	All overflows are recorded.
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	Yes	If WWE9d is "Yes" then should this also be "Yes"?	Yes.
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	Yes	No question.	

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
WWE4a	Wastewater consent abatement notices	Number	0	Is regular monitoring being undertaken to check consent compliance? Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any of the compliance actions listed here? Could you guess what threshold would need to be reached for any of the enforcement actions listed here to be triggered? Where/how would it be recorded if there has been an abatement notice?	Any notification is by phone call, email and then finally a written notice. The written notice is recorded in HDC's record management system. The notice is also logged in a reporting system used for the annual report. HDC provide monitoring data to Horizons for assessment and reporting.
WWE4b	Wastewater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice?	HDC are not always compliant but Horizons prefer to work with HDC to resolve any issues rather than take action. There would have to be a very significant breach for them to take action e.g. a significant discharge of raw sewerage directly to a water receiving environment.
WWE4c	Wastewater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	
WWE4d	Wastewater consent successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	
SWE1a	Number of stormwater discharges from the piped network	Number	34	How are the discharge points categorised in the GIS (are they specific features)? Is there likely to be more than 34 discharge points? Does a stormwater hydraulic model exist?	
SWE1b	Number of stormwater discharges with resource consents	Number	1	Does this mean that there is just one consented discharge (or are there are multiple discharges covered by one consent)? If this is the only stormwater discharge covered by a consent, why is this discharge consented and not others? Did you find this suggestion sufficiently clear, or, could you suggest how it could be improved? Do you expect that other stormwater discharge consents would be required in the future? What information points to knowing there is just 1 consented stormwater discharge? Are there any expired resource consents that need renewing?	There is 1 consented discharge at Foxton beach.

Code	Measure	Units	Data	AECOM/Water NZ Questions	HDC Responses
SWE2a	Stormwater consent abatement notices	Number	0	Are you aware of regular monitoring being undertaken to check consent compliance? Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any enforcement action? Could you guess what threshold would need to be reached for any of the compliance actions listed here to be triggered?	Any notification is by phone call, email and then finally a written notice. The written notice is recorded in HDC's record management system. The notice is also logged in a reporting system used for the annual report. HDC provide monitoring data to Horizons for assessment and reporting.
SWE2b	Stormwater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice?	HDC are not always compliant but Horizons prefer to work with HDC to resolve any issues rather than take action. There would have to be a very significant breach for them to take action e.g. a significant discharge of raw sewerage directly to a water receiving environment.
SWE2c	Stormwater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	
SWE2d	Stormwater successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	
SWS5	Flooding Events	AEP%	0	Would it be formally recorded anywhere if there had been a flooding event? Have nuisance flooding events occurred that have not been reported (e.g. road corridors etc.).	
SWS5a	Number of habitable floors affected	AEP%	0	Would it be formally recorded anywhere if habitable floors had been affected?	The data is recorded in field reports from maintenance contractors.
SWS7a	Primary stormwater network capacity	Number	Various	Question for Water NZ to decide what value (if any) gets utilised in the benchmarking.	Residential represents the largest number of properties so utilise 10%?
SWS7b	Secondary stormwater network capacity	Number	1.00%	This measure relates to where secondary overflow paths are available so is 1% correct?	The 1% does apply to overland flow paths.

Table 8 Mackenzie District Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	MDC Responses
CB10	Internal staff	FTE	2	<p>Is the second resource full time on 3 waters or are they a shared resource? Which, if any, of the following supporting functions have been included in the figure?</p> <ul style="list-style-type: none"> - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators <p>If any, how have their functions been apportioned between water services and other parts of the business?</p>	1 of the 2 FTE's is full time and the other FTE is made up of 2 part time staff.
CB10a	Staff vacancies	FTE	0	No question.	
CB11	Contracted staff	FTE	6	<p>Are these contracted staff involved in the operations and maintenance of 3 waters? Which, if any, of the following types of roles have been included:</p> <ul style="list-style-type: none"> - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning <p>How was the contribution of contractors not working full time on annual contracts apportioned?</p>	5 of the 6 contracted FTE's are full time - include an admin person, plant operator and 3 tradespeople. Several part time people make up the other 1 FTE. Unsure what the lab services staff numbers would be but all other roles (except engineering) are covered by the 6 FTE's.
WSS7	Number of different water charging regimes	Number	2.00	No question.	
WSS7a	Fixed Charge: Non-residential water	\$		No question.	

Code	Measure	Units	Data	AECOM/Water NZ Questions	MDC Responses
WSS7b	Fixed Charge Type: Non-residential water	Selection		No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3		No question.	
WSS8a	Fixed Charge: Residential water	\$	355.73	No change from 2016/17 - is this correct? Is the 355.73 an average of the combined townships or is the charge the same for each township? Is there a part charge for properties that could be serviced but are not connected?	No change from last year. Rate is the same for all townships except Allandale as indicated. Properties that could be serviced but are not connected are charged a much lower rate (less than half).
WSS8b	Fixed Charge Type: Residential water	Selection	Uniform Annual general charge	Is there still a UAG charge?	Yes.
WSS8c	Volumetric Charge: Residential water	\$/m3	0	Are the meters that are installed just used for monitoring?	Meters are installed for known high users and a volumetric charge is applied when a certain volume is exceeded. MDC have reported this charge previously but were asked by Water NZ to not report it as it applies to only a small numbers of customers.
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	355.73	No question.	
WWE1a	Overflows caused by blockages	Number	17	No question.	
WWE1b	Overflows caused by mechanical failures	Number	0	No question.	
WWE2a	Wet weather overflows from the wastewater network	Number	1	Does "reliable" mean some overflows may not get recorded?	MDC have such a small system that it is very easy to keep a handle on what is happening.
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	0	No combined network.	
WWE8a	Sewage containment design standards	AEP%/ADWF		Is there a design guide or code of practice? If so what does it specify for ADWF and PWWF? If not, what guidance is given to developers or consultants when new pipes are being built?	Use NZS 4404:2010 Land development and subdivision infrastructure.

Code	Measure	Units	Data	AECOM/Water NZ Questions	MDC Responses
WWE8b	Average calculated wet weather overflow frequency	AEP%		No question.	
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	Are the verbal reports recorded in NCS?	Verbal reports are recorded in the NCS customer service module.
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	No	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	No	Have consultants done modelling on your behalf?	MDC have not done any modelling previously but are now in the process of organising OPUS to undertake some modelling.
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	No	Have consultants done modelling on your behalf?	
WWE4a	Wastewater consent abatement notices	Number	0	Is regular monitoring being undertaken to check consent compliance? Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any of the compliance actions listed here? Could you guess what threshold would need to be reached for any of the enforcement actions listed here to be triggered? Where/how would it be recorded if there has been an abatement notice?	MDC have very small wastewater systems - there are only 4 consents which are for 4 treatment ponds. MDC undertake monitoring and then provide the data to ECAN who then review the data and take any necessary action. ECAN undertake site visits to each of the consented ponds. If a notice is issued it is in the form of a letter which would be kept on file.
WWE4b	Wastewater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice?	
WWE4c	Wastewater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	
WWE4d	Wastewater consent successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	
SWE1a	Number of stormwater discharges from the piped network	Number	16	What lead to the increase from 11 to 16?	The increase is due to a combination of new discharge points and better recording of existing discharge points.

Code	Measure	Units	Data	AECOM/Water NZ Questions	MDC Responses
SWE1b	Number of stormwater discharges with resource consents	Number	6	<p>Does this mean that there are just six consented discharge (or that there are multiple discharges covered by one consent)?</p> <p>If there are only 6 discharges covered by consents, why are some discharges consented and not others?</p> <p>Did you find this suggestion sufficiently clear, or, could you suggest how it could be improved?</p> <p>Do you expect that other stormwater discharge consents would be required in the future?</p>	Some consents do cover multiple discharge points but there is no consenting in Fairlie so there are a number of discharge points that are unconsented. This will likely change with global consents being considered.
SWE2a	Stormwater consent abatement notices	Number	0	<p>Are you aware of regular monitoring being undertaken to check consent compliance?</p> <p>Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any enforcement action?</p> <p>Could you guess what threshold would need to be reached for any of the compliance actions listed here to be triggered?</p> <p>Where/how would it be recorded if there has been an abatement notice?</p>	<p>MDC have very small stormwater systems. Tekapo has 5 consents - 1 of these consents is with a developer and has yet to be handed over to MDC. Twizel has 2 consents which are a hangover from when the town was a project site. Fairlie does not have any stormwater consents. Looking at moving to global consents either for each township or the whole district. As with wastewater, MDC undertake monitoring and then provide the data to ECAN who then review the data and take any necessary action. ECAN undertake site visits to each of the discharge points. If a notice is issued it is in the form of a letter which would be kept on file.</p>
SWE2b	Stormwater consent infringement notices	Number	0	Where/how is it recorded that there has been 1 infringement notice?	
SWE2c	Stormwater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	
SWE2d	Stormwater successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	
SWS5	Flooding Events	AEP%	1	<p>Have nuisance flooding events occurred that have not been reported (e.g. road corridors etc)?</p> <p>Is this just recalled from memory?</p>	<p>The 1 flooding event is recorded in NCS which matches what can be recalled. The flooding event was actually caused by a farmer and was not because of any network issues. Flooding events are so infrequent that any event can easily be recalled. Any flooding in road corridors is a roading issue.</p>

Code	Measure	Units	Data	AECOM/Water NZ Questions	MDC Responses
SWS5a	Number of habitable floors affected	AEP%	2	Where is this information recorded?"	The information is recorded in NCS.
SWS7a	Primary stormwater network capacity	Number		Would this be documented in a design guide or code of practice?	The stormwater systems are very small so it is quite easy to make a judgement call on pipe sizes etc. Stormwater in Tekapo drains downhill into the lake so it is just a case of working with developers to ensure they get the design correct. Stormwater drainage in Twizel makes use of soakpits. The stormwater system in Fairlie is more conventional, it is an old network and there is no growth.
SWS7b	Secondary stormwater network capacity	Number		Would this be documented in a design guide or code of practice?	

Table 9 Palmerston North City Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	PNCC Responses
CB10	Internal staff	FTE	38	<p>Does this number include staff doing operations and maintenance? Overall the staff numbers (including vacancies) have reduced to 62% of the level in 2016/17. Is this reduction correct?</p> <p>How does the payroll system categorise staff which then enables you to identify them as being involved solely in the delivery of 3 waters services?</p> <p>Which, if any, of the following supporting functions have been included in the figure?</p> <ul style="list-style-type: none"> - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators <p>If any, how have their functions been apportioned between water services and other parts of the business?</p>	<p>The 38 includes all operations/officer staff currently involved in the delivery of 3 water services. PNCC has been going through a restructure so it is clearly understood what the numbers are.</p> <p>The 38 does not include any admin type roles. It does include asset management (planning and strategy).</p>

Code	Measure	Units	Data	AECOM/Water NZ Questions	PNCC Responses
CB10a	Staff vacancies	FTE	2	No question.	
CB11	Contracted staff	FTE	1	Which, if any, of the following types of roles have been included: - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning How was the contribution of contractors not working full time on annual contracts apportioned?	We don't keep a record of any information to do with contractors in our payroll system. I'm unsure where the figure from the previous year has come from. We have one FTE of contracted staff (I think Garth and Reiko officially do half a week each – although I'm sure it's more) and that we aren't counting the lab. Goodness only knows where we got 10 from last time, we must have been estimating all of our consultant time.
WSS7	Number of different water charging regimes	Number	3.00	What are the 3 regimes? The information below suggests there are 2 regimes - targeted and volumetric. Did the format of this question make sense to you? Would you suggest other ways we could have structured the question to accommodate your different charges?	1. We charge one target rate per rating unit for non-residential properties (low users) 2. We charge one target rate per separately used or inhabited portion (SUIP) of residential properties (i.e. 2 flats = 2 x charge) 3. We charge a target rate base charge plus volumetric (m3) used for high non-residential users.
WSS7a	Fixed Charge: Non-residential water	\$	273	Is there a part charge for properties that can be serviced but are not connected?	Yes it is equivalent of half the \$ value of the connected target rate (\$136 for 2017/18).
WSS7b	Fixed Charge Type: Non-residential water	Selection	Other (include detail in comments field)	What is the greatest number of users - low or high volumes?	For non-residential we have twice as many on volumetric (high users) than we do on target rate (low users)
WSS7c	Volumetric Charge: Non-residential water	\$/m3	1.173	No question.	
WSS8a	Fixed Charge: Residential water	\$	273	Is there a part charge for properties that can be serviced but are not connected?	Yes it is equivalent of half the \$ value of the connected target rate (\$136 for 2017/18).

Code	Measure	Units	Data	AECOM/Water NZ Questions	PNCC Responses
WSS8b	Fixed Charge Type: Residential water	Selection	Targeted Rate	Is there a low and high volume rate for residential?	No, but as mentioned above this is charged by SUIP so a property can have multiple charges Meters can be installed for high residential users but this is rarely enforced.
WSS8c	Volumetric Charge: Residential water	\$/m3	0	No question.	
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	273	No question.	
WWE1a	Overflows caused by blockages	Number		Quite surprised given PNCC has an AMS quite capable of recording this type of information.	Not recorded as it is not required by the DIA. K-base records overflows. Blockage is recorded by IPS work order but a match must be made to assess the number. The value is calculable but confidence is low but because DIA does not require the measure it is not recorded.
WWE1b	Overflows caused by mechanical failures	Number		Is the SCADA system not capable of recording these failures?	Not recorded as it is not required by the DIA. The SCADA system will know about mechanical failures such as pump failures but it does not monitor for associated overflows.
WWE2a	Wet weather overflows from the wastewater network	Number		Quite surprised given PNCC has an AMS quite capable of recording this type of information.	Not calculated as it is not required by the DIA.
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number		No combined network?	No combined network.
WWE8a	Sewage containment design standards	AEP%/ADWF		Is there a design guide or code of practice? If so what does it specify for ADWF and PWWF? If not, what information is provided to consultants on developers for sizing new pipes?	Design guide is included in the Council's Engineering Standards for Land Development. This does not include a containment standard. From the ESLD our sewer residential design flows are stated as DWF of 250L/person/day and WWF of 1000L/person/day. But we have no stated wastewater containment standard.
WWE8b	Average calculated wet weather overflow frequency	AEP%		Is there a design guide or code of practice? If so what does it specify?	Not calculated.

Code	Measure	Units	Data	AECOM/Water NZ Questions	PNCC Responses
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	Where do customer complaints about overflows get recorded?	Into our K-Base record system.
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	No	Have any consultants done modelling for PNCC?	Just received final calibrated model for WW network.
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	No	Have any consultants done modelling for PNCC?	Just received final calibrated model for WW network.
WWE4a	Wastewater consent abatement notices	Number	0	Is the consent always complied with or are you aware of any breaches of consent conditions that have not resulted in any of the compliance actions listed here? Could you guess what threshold would need to be reached for any of the enforcement actions listed here to be triggered? Where/how would it be recorded if there has been an abatement notice?	Information relating to consents is recorded in a RC monitoring database. An abatement notice was issued by Horizons in 2010 but was withdrawn one month later. PNCC provide monitoring data to Horizons for review an action. Horizons will not take action on preliminary data findings. Horizons prefer to work with PNCC to resolve any compliance issues.
WWE4b	Wastewater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice?	
WWE4c	Wastewater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	
WWE4d	Wastewater consent successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	
SWE1a	Number of stormwater discharges from the piped network	Number	383	What was the source for the data value - GIS?	Council's Infor IPS system.
SWE1b	Number of stormwater discharges with resource consents	Number		Does this mean there are no consents for the stormwater network, or it is not known how many consents are held? If so, please provide us with an idea of what makes this a difficult to question to answer.	Managed by RC monitoring. There are no consents on any stormwater discharges.

Code	Measure	Units	Data	AECOM/Water NZ Questions	PNCC Responses
SWE2a	Stormwater consent abatement notices	Number	1	The response to the question implies there are consents in place. What was the nature of the abatement notice?	Roading team had an abatement notice. Technically not W&W as it was related to construction and discharge into the stormwater network.
SWE2b	Stormwater consent infringement notices	Number	0	Are you aware of regular monitoring being undertaken to check consent compliance? Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any enforcement action? Could you guess what threshold would need to be reached for any of the compliance actions listed here to be triggered?	Managed by RC monitoring. There are no consents on any stormwater discharges.
SWE2c	Stormwater consent enforcement orders	Number	0	No question.	
SWE2d	Stormwater successful prosecutions	Number	0	No question.	
SWS5	Flooding Events	AEP%	1	Have nuisance flooding events occurred that have not been reported (e.g. road corridors etc)	No.
SWS5a	Number of habitable floors affected	AEP%	3	Were these council owned properties? Is so does PNCC not record flooding of privately owned buildings?	No, these are claims to made to PNCC by insurance companies on behalf of private property owners.
SWS7a	Primary stormwater network capacity	Number	10%	Is this documented in a design guide or code of practice? Is the 10% applied across the whole primary network or is it an average?	This is according to NZS 4404 - Land development and subdivision infrastructure. The AEP percentages are a target for future development / upgrades. Historic legacy issues mean that we often have a much lower level of service.
SWS7b	Secondary stormwater network capacity	Number	1.00%	Is this documented in a design guide or code of practice? Is the 1% applied across the whole secondary network or is it an average value?	

Area	Area ratio	Approximate / estimated AEP level of service for primary system	Approximate / estimated AEP level of service for secondary system
Palmerston North main area north of Manawatu River	75 %	10 % (1 : 10)	1 % (1 : 100)
Palmerston North low lying areas and next to stopbanked streams	15 %	50 % (1 : 2)	5 % (1 : 20)
Palmerston North south of Manawatu River	10 %	10 % (1 : 10)	1 % (1 : 100)
Linton	N/A	20 % (1 : 5)	2 % (1 : 50)
Bunmythorpe	N/A	20 % (1 : 5)	2 % (1 : 50)
Longburn	N/A	20 % (1 : 5)	2 % (1 : 50)
Ashurst	N/A	20 % (1 : 5)	2 % (1 : 50)

Table 10 Tasman District Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	TDC Responses
CB10	Internal staff	FTE	18	<p>Are these all permanent staff? Which, if any, of the following supporting functions do these staff perform?</p> <ul style="list-style-type: none"> - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators <p>If any, how have their functions been apportioned between water services and other parts of the business?</p>	<p>18 staff are all permanent. The number does not include lawyers, HR/training and comms/public relations staff.</p> <p>1 FTE is included to cover IT and Customer Service staff.</p>
CB10a	Staff vacancies	FTE	0	No question.	
CB11	Contracted staff	FTE	26	<p>No consultants or contractors backfilling any positions? Which, if any, of the following types of roles have been included:</p> <ul style="list-style-type: none"> - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning <p>How was the contribution of contractors not working full time on annual contracts apportioned?</p>	<p>26 staff are all external contractors devoted 100% to 3 waters. The number excludes lab analysis staff and engineering design renewals staff.</p>
WSS7	Number of different water charging regimes	Number	7.00	I wonder if '6' should be '7' because of the volumetric charging as well.	Discussed and agreed the data value should be 7 but really comes down to what is the overall definition of a charging regime.

Code	Measure	Units	Data	AECOM/Water NZ Questions	TDC Responses
WSS7a	Fixed Charge: Non-residential water	\$	332.74	Is it correct to apply the urban supply value? Is this the most dominant value? Is there a part charge for properties that can be serviced but are not connected?	Yes, urban supply represents 80% of the total number of customers. There is no part charge for undeveloped properties that could be serviced.
WSS7b	Fixed Charge Type: Non-residential water	Selection	Targeted Rate	No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3	2.17	Is it correct to apply the urban supply value? Is this the most dominant value?	Yes, urban supply represents 80% of the total number of customers.
WSS8a	Fixed Charge: Residential water	\$	332.74	Is there a part charge for properties that can be serviced but are not connected?	No.
WSS8b	Fixed Charge Type: Residential water	Selection	Targeted Rate	No question.	
WSS8c	Volumetric Charge: Residential water	\$/m3	2.17	Is it correct to apply the urban supply value? Is this the most dominant value?	Yes, urban supply represents 80% of the total number of customers.
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	766.74	No question.	All urban supply properties are metered. All rural properties are on restricted supply.
WWE1a	Overflows caused by blockages	Number	12	Did someone go back through the Contractor reports for the 2017/18 year?	Yes, someone read through the reports and extracted the numbers.
WWE1b	Overflows caused by mechanical failures	Number	0	Did someone go back through the Contractor reports for the 2017/18 year?	
WWE2a	Wet weather overflows from the wastewater network	Number	12	Did someone go back through the Contractor reports for the 2017/18 year?	
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	0	No combined network.	
WWE8a	Sewage containment design standards	AEP%/ADWF	6xDWF	The data value relates to the network?	The data value relates to the gravity network.
WWE8b	Average calculated wet weather overflow frequency	AEP%		No question.	
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	Where are these reports recorded - in a customer service request system?	Yes, recorded in a customer service request system (NCS).

Code	Measure	Units	Data	AECOM/Water NZ Questions	TDC Responses
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	No	Have any consultants done modelling for Tasman?	No modelling is currently being done. Looking at getting a model built for Motueka.
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	No	Have any consultants done modelling for Tasman?	No modelling is currently being done. Looking at getting a model built for Motueka.
WWE4a	Wastewater consent abatement notices	Number	0	Are consents always complied with or are you aware of any breaches of consent conditions that have not resulted in any of the compliance actions listed here? Could you guess what threshold would need to be reached for any of the enforcement actions listed here to be triggered?	TDC have a consenting module in NCS which is used to manage all associated information including the receipt of notices etc. TDC do breach their consent conditions but the breaches are more of a technical/administrative nature i.e. late providing reports etc.
WWE4b	Wastewater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice?	The limits for consent conditions are typically a rolling median so do exceed the limits occasionally.
WWE4c	Wastewater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	Horizons are usually happy if TDC show or prove that they are doing something about any non-compliance.
WWE4d	Wastewater consent successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	A likely threshold would be if there was significant impact on public health or to the environment or repetitive non-compliance. TDC make every effort to keep everyone informed which limits the consequences.
SWE1a	Number of stormwater discharges from the piped network	Number	114	Is this documented knowledge or can the GIS be queried to find the discharge points?	Counted pipe outlets draining to a water body such as the sea. There might be some outlets missing.

Code	Measure	Units	Data	AECOM/Water NZ Questions	TDC Responses
SWE1b	Number of stormwater discharges with resource consents	Number	9	Does this mean that there is just nine consented discharges (or that there are multiple discharges covered by one consent)? If there are only selected stormwater discharges covered by consents, why are some discharges consented and not others? Did you find this suggestion sufficiently clear, or, could you suggest how it could be improved? Do you expect that other stormwater discharge consents would be required in the future?	TDC is working on a global consent to cover all discharges. The 9 consents relate to isolated subdivisions and cover discharge into the normal stormwater network so are not normal stormwater discharge consents. Note for Water NZ - should these consents be included? TDC used to have a lot more consented discharges but then the rules changed and they didn't bother renewing the consents.
SWE2a	Stormwater consent abatement notices	Number	0	Where/how would it be recorded if there has been an abatement notice?	Notices would come in the form of a letter. All notices are recorded in NCS consenting module. Notices are also filed in scheme files. Staff report to Council every 6 weeks on consenting issues.
SWE2b	Stormwater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice?	
SWE2c	Stormwater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	
SWE2d	Stormwater successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	
SWS5	Flooding Events	AEP%	1	Have nuisance flooding events occurred that have not been reported (e.g. road corridors etc)	This flooding event relates to the habitable floor event and was a rain event.
SWS5a	Number of habitable floors affected	AEP%	1	What about non-council owned houses? Where would it be recorded if there had been habitable floors affected in privately owned houses?	This resulted from a claim against TDC by an insurance company on behalf of a private property owner. A customer complaint was not made for this event.
SWS7a	Primary stormwater network capacity	Number	5.00%	Is this documented in a design guide or code of practice? Is the 5% applied across the whole primary network or is it an average?	Have a TDC Engineering Standard. Applies across the whole district but is mainly for subdivisions. It is being updated and the 5% for the primary network will change to 10%.
SWS7b	Secondary stormwater network capacity	Number	1.00%	Is this documented in a design guide or code of practice? Is the 1% applied across the whole secondary network or is it an average value?	

Table 11 Timaru District Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	TDC Responses
CB10	Internal staff	FTE	25	<p>What was done to determine the data value?</p> <p>Which, if any, of the following supporting functions have been included in the figure?</p> <ul style="list-style-type: none"> - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators <p>If any, how have their functions been apportioned between water services and other parts of the business?</p>	<p>This is the staff number in the Drainage and Water Unit - includes strategy and administrative staff who are fulltime in the unit. Any other corporate type roles are not included as their contribution would be minimal - well below the 50% threshold specified.</p>
CB10a	Staff vacancies	FTE	0	<p>What was done to determine the data value?</p>	<p>The Drainage and Water Unit is relatively small and it is clearly known that there are no vacancies.</p>
CB11	Contracted staff	FTE	16	<p>Are there any contractors or consultants backfilling positions or roles in the office?</p> <p>Which, if any, of the following types of roles have been included:</p> <ul style="list-style-type: none"> - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning <p>How was the contribution of contractors not working full time on annual contracts apportioned?</p>	<p>This is the number of CityCare staff who are involved fulltime on the maintenance contract for TDC's reticulation. Staff roles include the Branch Manager, administrative staff and servicemen - does not include any lab staff.</p> <p>There are no contractors backfilling vacant staff positions but TDC might have 1 for next year's NPR.</p>
WSS7	Number of different water charging regimes	Number	5.00	<p>Are the rates different between Te Moana and Downlands?</p>	<p>The rates are different for Te Moana and Downlands. Including Orari the data value is actually a 5. Orari has tanks but only charges for units.</p>

Code	Measure	Units	Data	AECOM/Water NZ Questions	TDC Responses
WSS7a	Fixed Charge: Non-residential water	\$	297	Is there a part charge for properties that can be serviced but are not connected?	Yes, there is a half charge for properties that could be serviced but are not connected.
WSS7b	Fixed Charge Type: Non-residential water	Selection	Uniform Annual general charge	No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3	0.6	Are all non-residential customers metered?	No, only high use non-residential customers are metered.
WSS8a	Fixed Charge: Residential water	\$	297	Should a median value be applied here? Is there a part charge for properties that can be serviced but are not connected?	Urban residential customers make up a dominant proportion of the total number of customers hence the rate of \$297 has been applied. Yes, there is a half charge for properties that could be serviced but are not connected.
WSS8b	Fixed Charge Type: Residential water	Selection	Uniform Annual general charge	No question.	
WSS8c	Volumetric Charge: Residential water	\$/m3	0.6	Are all residential customers metered?	Only a small number of residential customers are metered who have been identified as high users.
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	297	Should a median value be applied here?	No, see response to WSS8a above.
WWE1a	Overflows caused by blockages	Number	26	How are these overflows reported/recorded?	These overflows are reported by the contractor and recorded in Hansen/IPS. TDC query and extract the data from IPS into an Excel spreadsheet.
WWE1b	Overflows caused by mechanical failures	Number	0	How are these overflows reported/recorded?	The data is extracted from operational records - SCADA is not integrated with Hansen/IPS yet.
WWE2a	Wet weather overflows from the wastewater network	Number	39	Any reason for the significant increase in overflows from 4 to 39?	The significant increase was due to two major weather events during the year - went very close to civil defence status for one of the events (SH1 was closed).
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number		No combined network.	

Code	Measure	Units	Data	AECOM/Water NZ Questions	TDC Responses
WWE8a	Sewage containment design standards	AEP%/ADWF	20.00%	Is the same standard applied across the entire network (i.e. no differentiation for commercial ww. Residential)?	Residential is 20% and industrial/commercial is 10%. This is specified in the District Plan.
WWE8b	Average calculated wet weather overflow frequency	AEP%	20.00%	Confused as WWE9c&d possibly implies there is no model.	There are models. Note for Water NZ - the measure descriptions states average whereas the data value is asking for the median value. This applies to other measures as well.
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	No question.	
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	Yes	No recording of overflows or no models?	TDC have models but they are not calibrated - data value changed to Yes.
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	No	No recording of overflows or no models?	Models are not currently calibrated.
WWE4a	Wastewater consent abatement notices	Number	0	Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any of the compliance actions listed here? Could you guess what threshold would need to be reached for any of the enforcement actions listed here to be triggered? Where/how would it be recorded if there has been an abatement notice?	TDC has one ocean outfall - the consent has trigger values. They are allowed to exceed a certain number of triggers and then once that number is exceeded, they have to take actions. Data is collected for a number of water takes associated with wastewater and sent to ECAN for analysis and reporting.
WWE4b	Wastewater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice?	Notices and orders etc. would be recorded in Hansen/IPS.
WWE4c	Wastewater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	A threshold point would be if there were repetitive exceedances of a certain number of triggers and TDC were not taking any necessary actions to overcome the exceedances.
WWE4d	Wastewater consent successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	
SWE1a	Number of stormwater discharges from the piped network	Number	381	Is the data source GIS?	The data source is Hansen/IPS.

Code	Measure	Units	Data	AECOM/Water NZ Questions	TDC Responses
SWE1b	Number of stormwater discharges with resource consents	Number	1	Does this mean that there is just one consented discharge (or that there are multiple discharges covered by one consent)? If this is the only stormwater discharge covered by a consent, why is this discharge consented and not others? Did you find this suggestion sufficiently clear, or, could you suggest how it could be improved? Do you expect that other stormwater discharge consents would be required in the future?	There is 1 consent which covers 3 discharge points in a particular area. TDC is looking at separate consents for different parts of the district. An alternative way of approaching this issue may be to ask how many discharges are consented.
SWE2a	Stormwater consent abatement notices	Number	0	Are you aware of regular monitoring being undertaken to check consent compliance? Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any enforcement action? Could you guess what threshold would need to be reached for any of the compliance actions listed here to be triggered?	The 3 discharge points are monitored. There is self-reporting of noncompliances but would be meaning less if compared across councils. Notices and orders etc. would be recorded in Hansen/IPS. A threshold point would be if TDC continued to ignore requests from ECAN to take necessary actions or make improvements.
SWE2b	Stormwater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice?	
SWE2c	Stormwater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order?	
SWE2d	Stormwater successful prosecutions	Number	0	Where/how would it be recorded if there has been a successful prosecution?	
SWS5	Flooding Events	AEP%	1	Would it be formally recorded anywhere if there had been a flooding event? Have nuisance flooding events occurred that have not been reported (e.g. road corridors etc)	Flooding events are record in Hansen/IPS and the CRM. Flooding events do occur in road corridors but they are treated as a roading problem.
SWS5a	Number of habitable floors affected	AEP%	4	Would it be formally recorded anywhere if habitable floors had been affected?	Habitable floors affected should be recorded in Hansen/IPS and the CRM but it is known that not all occurrences get reported.

Code	Measure	Units	Data	AECOM/Water NZ Questions	TDC Responses
SWS7a	Primary stormwater network capacity	Number	20.00%	Is this documented in a design guide or code of practice? Is the 20% applied across the whole primary network or is it an average?	Documented in the District Plan - only applies where there is a stormwater system.
SWS7b	Secondary stormwater network capacity	Number	2.00%	Is this documented in a design guide or code of practice? Is the 2% applied across the whole secondary network or is it an average value?	The 2% is applied district wide. The value is stated in the building code. The secondary networks are not that well defined - only certain catchments have been modelled. The District Plan is being updated.

Table 12 Watercare

Code	Measure	Units	Data	AECOM/Water NZ Questions	Watercare Responses
CB10	Internal staff	FTE	904	Which, if any, of the following supporting roles have been included in the figure? - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators If any, how have their functions been apportioned between water services and other parts of the business?	Watercare has employees in all of these categories. If their function is solely related to only water or wastewater, their costs are allocated as such. If their function covers water and wastewater, their costs are apportioned based on the split of water and wastewater revenue. Capitalised labour costs are allocated to capex projects on a time basis.
CB10a	Staff vacancies	FTE	81	No question.	

Code	Measure	Units	Data	AECOM/Water NZ Questions	Watercare Responses
CB11	Contracted staff	FTE	192	<p>Are there any contractors or consultants backfilling positions or roles in the office?</p> <p>Which, if any, of the following types of roles have been included:</p> <ul style="list-style-type: none"> - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning <p>How was the contribution of contractors not working full time on annual contracts apportioned?</p>	<p>Yes to the first question.</p> <p>There will be contracted staff in all of these categories. All contracted staff have been included as 1 FTE each. Note that the data does not include staff employed by our two operations and maintenance contractors. Their staff are not contracted by Watercare directly, rather, we have a single contract with each provider. For comparative purposes, AECOM asked that we try to obtain the number of staff employed by these contractors on Watercare's operations. We have been advised there are 192 FTEs in total.</p> <p>Note that Watercare also has its own maintenance services division. The staff employed are included in measure CB10.</p>
WSS7	Number of different water charging regimes	Number	1	No question.	
WSS7a	Fixed Charge: Non-residential water	\$	n/a	No question.	
WSS7b	Fixed Charge Type: Non-residential water	Selection		No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3	\$1.480	No question.	
WSS8a	Fixed Charge: Residential water	\$		No question.	
WSS8b	Fixed Charge Type: Residential water	Selection		No question.	
WSS8c	Volumetric Charge: Residential water	\$/m3	\$1.480	No question.	
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	\$296	No question.	
WWE1a	Overflows caused by blockages	Number	106	Surprised this measure cannot be reported. What is the difficulty?	Data updated. Local network only.

Code	Measure	Units	Data	AECOM/Water NZ Questions	Watercare Responses
WWE1b	Overflows caused by mechanical failures	Number	30	Would SCADA indicate overflows caused by mechanical failures?	We suggest "mechanical" be replaced by "plant" for clarity e.g. power failure is not mechanical, notwithstanding that the definition includes "power outages". Exclude power outages that are caused by the external supplier.
WWE2a	Wet weather overflows from the wastewater network	Number	866	Are there efforts in place to start recording the number of wet weather overflows (from the entire network, not just the transmission network)? Could the overflow modelling being undertaken for the SafeSwim campaign be used to provide an estimated figure?	2017/18 data covers our transmission and local networks. It includes overflows detected by telemetry devices and those notified by members of the public or network maintenance staff. It excludes overflows due to blockages. 2016/17 data is Transmission network only.
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	343	Could the overflow modelling being undertaken for the SafeSwim campaign be used to provide an estimated figure, even if it is not possible to monitor all overflow sites?	2017/18 data covers our transmission and local networks. It includes overflows detected by telemetry devices and those notified by members of the public or network maintenance staff. It excludes overflows due to blockages. There are approximately 15,000 wastewater connections to the combined networks. The overflows per 1,000 connections on the combined network are notably higher than on the separated networks. 2016/17 data is Transmission network only.
WWE8a	Sewage containment design standards	AEP%/ADWF	6.67 X ADWF	Where have the 180L and 1200L figures in the comments come from? The current code of practice dated 2015 mentions figures 225L and 1500L. Doesn't alter the peaking factor though.	The Auckland Code of Practice for Land Development and Subdivision was updated in July 2018. The date of May 2015 in our original comment should have read July 2018 (now amended). Table 5.11 in the standard sets out a peaking factor of 6.7 and wastewater flow 180 lpd. $180 \times 6.7 = 1206$. Discussed with AECOM 24 Oct18. AECOM will recommend an alternative measure. Agreed that lpd and peaking factor are more relevant measures than AEP% and ADWF for wastewater. The 180L and 1200L figures only relate to residential.

Code	Measure	Units	Data	AECOM/Water NZ Questions	Watercare Responses
WWE8b	Average calculated wet weather overflow frequency	AEP%	1.7	Your email correspondence suggested changes to this question. Please clarify with auditors Watercare's preferred definition.	AEP% = 83%. We think a better measure would be "the wet weather overflow frequency per year", where the unit is the number per engineered overflow point per year, in which case our answer is 1.7. Discussed with AECOM 24 Oct18. AECOM will recommend an alternative measure. Agreed that average number of wet-weather overflows per engineered overflow point per discharge location is a more relevant measure than AEP% for wastewater.
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	No question.	
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	Yes	I thought most of the network has been modelled. Is this not correct?	Answer changed to "Yes", but not all catchments have been modelled.
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	Yes	I thought most of the network has been modelled. Is this not correct?	Answer changed to "Yes", but not all catchments have been modelled.
WWE4a	Wastewater consent abatement notices	Number	0	Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any of the enforcement actions listed here? Could you guess what threshold would need to be reached for any of the enforcement actions listed here to be triggered? Where would the data come from that informs the scorecard?	<ol style="list-style-type: none"> Watercare uses a Compliance Management System (CMS) database containing every consent condition for each consent. Each consent has an "owner" who is required to update the CMS monthly, noting the level of compliance (auditable) with each condition, which is then approved by the relevant facility manager. CMS is the data source for a monthly consent compliance declaration by management to the Watercare Board. The declaration sets out the operative consents and conditions. It also sets out where there has been non-compliance, noting the degree of non-compliance using a rating scale used by Auckland Council. A Watercare Scoreboard, available and updated on
WWE4b	Wastewater consent infringement notices	Number	0	Where would the data come from that informs the scorecard?	
WWE4c	Wastewater consent enforcement orders	Number	0	Where would the data come from that informs the scorecard?	
WWE4d	Wastewater consent successful prosecutions	Number	0	Where would the data come from that informs the scorecard?	

Code	Measure	Units	Data	AECOM/Water NZ Questions	Watercare Responses
					<p>our website monthly, reports discharge consent compliance in accordance with the DIA Non-financial Performance Measures Rules 2013, the same measures as WWE4a to WWE4d on this survey.</p> <p>4. Non-compliance (and mitigation) is proactively reported to Auckland Council on occurrence.</p> <p>5. Auckland Council prepares a consent compliance report annually.</p>

Table 13 Wellington Water

Code	Measure	Units	Data	AECOM/Water NZ Questions	Wellington Water Responses
CB10	Internal staff	FTE	194	Does this include staff in each of the councils that still own the infrastructure? If not, do you have a sense of how many water related roles still exist in these councils?	Council staff are not included. A best guess would be 1.5FTE per council to give a total of 6.
CB10a	Staff vacancies	FTE	9	Does this include staff numbers in each of the councils that still own the infrastructure?	No.
CB11	Contracted staff	FTE	413	Which, if any, of the following types of roles have been included: - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning How was the contribution of contractors not working full time on annual contracts apportioned?	The data value has been increased by 13 to allow for lab staff that work on Wellington Water sampling. All other roles are included in the total. Didn't understand the last question about contribution.
WSS7	Number of different water charging regimes	Number	8.00	Should the data value be 2 - targeted rate and volumetric?	Number of charging regimes is 8 - there are 4 different fixed charges and 4 different volumetric rates.

Code	Measure	Units	Data	AECOM/Water NZ Questions	Wellington Water Responses
WSS7a	Fixed Charge: Non-residential water	\$	373.37	Is there a part charge for properties that could be serviced but are not connected?	There is a half charge for properties that could be serviced but are not connected.
WSS7b	Fixed Charge Type: Non-residential water	Selection	Other (include detail in comments field)	No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3	2.03	No question.	
WSS8a	Fixed Charge: Residential water	\$	378.74	Is there a part charge for properties that could be serviced but are not connected?	There is a half charge for properties that could be serviced but are not connected.
WSS8b	Fixed Charge Type: Residential water	Selection	Targeted Rate	No question.	
WSS8c	Volumetric Charge: Residential water	\$/m3	0	No question.	
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	378.74	No question.	
WWE1a	Overflows caused by blockages	Number	10	What was the source of information for this data value?	These data values are sourced from the performance measure database which is populated with information taken from maintenance contractor reports. There are 3 different maintenance contractors. Some manholes are monitored as well.
WWE1b	Overflows caused by mechanical failures	Number	5	What was the source of information for this data value?	
WWE2a	Wet weather overflows from the wastewater network	Number	199	What was the source of information for this data value?	
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	N/A	No combined network.	Definitely no combined network.
WWE8a	Sewage containment design standards	AEP%/ADWF	4	Is the document a design guide or code of practice?	There is a regional standard which applies to all 4 councils which was signed off back in 2012. The standard is currently being updated.
WWE8b	Average calculated wet weather overflow frequency	AEP%	See the comment	Would the models indicate what the theoretical overflow frequency is?	As per comments - 1 overflow every 3-6 months.

Code	Measure	Units	Data	AECOM/Water NZ Questions	Wellington Water Responses
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	No question.	
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	Yes	No question.	
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	Yes	No question.	
WWE4a	Wastewater consent abatement notices	Number	0	Are consents always complied with or are you aware of any breaches of consent conditions that have not resulted in any of the compliance actions listed here? Could you guess what threshold would need to be reached for any of the enforcement actions listed here to be triggered? How does data get into the performance measure database?	Wellington Water collects all the data and supplies it to WRC who carry out a review and report back to Wellington Water on compliance or non-compliance. WRC appear to be under resourced so there can be delays in the reporting. Information is translated from the reporting into the performance measure database. Sometimes there is non-compliance e.g. a flow discharge exceeds the consented limit or there are flow meters on some outlet pipes which are solar powered and don't always work. A typical threshold for triggering an enforcement action would be say if a clarifier discharged to land as happened at Porirua once. WRC's preference is to work with Wellington Water and spend any money of fixing any non-compliance issues rather than fining them.
WWE4b	Wastewater consent infringement notices	Number	0	How does data get into the performance measure database?	
WWE4c	Wastewater consent enforcement orders	Number	0	How does data get into the performance measure database?	
WWE4d	Wastewater consent successful prosecutions	Number	0	How does data get into the performance measure database?	
SWE1a	Number of stormwater discharges from the piped network	Number	4,510	Why is the data confidence 'less reliable'? Is it because there some outlets are missing (not mapped)?	Some discharges are not mapped.

Code	Measure	Units	Data	AECOM/Water NZ Questions	Wellington Water Responses
SWE1b	Number of stormwater discharges with resource consents	Number	245	Does this mean that only 244 discharges are covered by consents (or are there multiple discharges covered by some of the consents)? If not all the network is covered by consents, why are some discharges covered and not others? Do you expect that other stormwater discharge consents would be required in the future? Did you find this suggestion sufficiently clear, or, could you suggest how it could be improved?	243 discharges are covered by 1 consent and Hutt City has 2 discharges each with their own consent. It is mainly historical that a number of discharges are not consented - each of the 4 councils have previously had their own different approach to consenting The plan is for every discharge is to be consented in the future.
SWE2a	Stormwater consent abatement notices	Number	0	Are you aware of regular monitoring being undertaken to check consent compliance? Is the consent always complied with, or, are you aware of any breaches of consent conditions that have not resulted in any enforcement action? Could you guess what threshold would need to be reached for any of the compliance actions listed here to be triggered?	As with wastewater, Wellington Water undertakes monitoring and provides the data to WRC for analysis and reporting. Information from the reporting gets entered into the performance measure database. Difficult to say what the threshold would be to trigger non-compliance actions. About 5 years ago a reservoir with a high E.coli reading was emptied directly into a stream. This resulted in just a warning letter.
SWE2b	Stormwater consent infringement notices	Number	0	How does data get into the performance measure database? Is there some form of integration with another system?	
SWE2c	Stormwater consent enforcement orders	Number	0	How does data get into the performance measure database? Is there some form of integration with another system?	
SWE2d	Stormwater successful prosecutions	Number	0	How does data get into the performance measure database? Is there some form of integration with another system?	
SWS5	Flooding Events	AEP%	3	How does data get into the performance measure database? Is there some form of integration with another system? Would it be formally recorded anywhere if there had been a flooding event?	There are 2 sources of information or recording of flooding events - maintenance contractor reports and the customer [complaints] database. Information is translated from these 2 sources into the performance measure database.

Code	Measure	Units	Data	AECOM/Water NZ Questions	Wellington Water Responses
SWS5a	Number of habitable floors affected	AEP%	3	How does data get into the performance measure database? Is there some form of integration with another system?	Same as for SWS5 above.
SWS7a	Primary stormwater network capacity	Number	10.00%	Is this an average value or is the same standard applied right across the network?	UH uses 4%, WCC uses 10%, Porirua uses 10% and HC uses 5% for commercial/industrial and 10% for residential. 10% is the most common value.
SWS7b	Secondary stormwater network capacity	Number	1.00%	Is this an average value or is the same standard applied right across the network?	UH uses 1%, WCC uses 2%, Porirua uses 1% and HC uses 2% for industrial and 1% for all others. 1% is the most common value.

Table 14 Whanganui District Council

Code	Measure	Units	Data	AECOM/Water NZ Questions	WDC Responses
CB10	Internal staff	FTE	24	The data value that should be reported here relates to the number of FTE's (council employees) involved in 3 waters. As well as engineering type staff the number may include part contributions from the following types of roles: - accountants - lawyers - human relations/training - communications/public relations - planning - strategy - administrators - customer service	Number provided.
CB10a	Staff vacancies	FTE	1	In consideration of the above criteria, are there any internal vacancies?	Number provided

Code	Measure	Units	Data	AECOM/Water NZ Questions	WDC Responses
CB11	Contracted staff	FTE	15	Do Whanganui outsource any aspects of the 3 waters operations and maintenance? If so, what are the numbers of staff involved in the outsourcing? Roles that are outsourced could include: - lab services (sample collection/analysis) - construction - reticulation operation - treatment plant operation - distribution system maintenance repairs - engineering design renewals - pipe/reservoir cleaning Also, are there any staff contracted into the council to backfill any vacancies or to supplement other roles?	Number provided - includes Veolia and consultants.
WSS7	Number of different water charging regimes	Number	2.00	Was it clear what was meant by a "charging regime"? There has been a difference in interpretation by some organisations.	Data value changed to 2 - not clear what is meant by "charging regime".
WSS7a	Fixed Charge: Non-residential water	\$	231.23	Is this charge just for the City or are there different charges for the other 3 areas the same as there are for residential?	The data value is for the city as that is where the bulk of the non-residential customers are.
WSS7b	Fixed Charge Type: Non-residential water	Selection	Targeted Rate	No question.	
WSS7c	Volumetric Charge: Non-residential water	\$/m3	0.75	Should the data value be the median of the 4 rates or are the bulk of the non-residential properties in the City?	The bulk of the non-residential customers are in the city so a median value could be considered misleading.
WSS8a	Fixed Charge: Residential water	\$	231.23	Should the data value be the median of the 4 rates or are the bulk of the residential properties in the City?	The bulk of the residential customers are in the city so a median value could be considered misleading.
WSS8b	Fixed Charge Type: Residential water	Selection	Targeted Rate	No question.	
WSS8c	Volumetric Charge: Residential water	\$/m3	0	No question.	
WSS9	Average Residential Water Charge Based on 200 m3/yr	\$/200m3	231.23	The answer to the question against WSS8a may change the data value here.	No change.

Code	Measure	Units	Data	AECOM/Water NZ Questions	WDC Responses
WWE1a	Overflows caused by blockages	Number	183	Can you please explain what the data source "Activity Management" is in relation to the measure? Why is the data confidence rated as unreliable?	Activity Management is essentially the person managing the wastewater activity. The data confidence is rated unreliable because while there were 183 blockages, they may not all have resulted in overflows. Also, other blockages which resulted in overflows may not have been reported as blockages.
WWE1b	Overflows caused by mechanical failures	Number	1	Can you please explain what the data source "Activity Management" is in relation to the measure? Has the data value come from SCADA?	Activity Management is essentially the person managing the wastewater activity. The 1 occurrence here is notable (can easily be recalled) because it resulted in a court case.
WWE2a	Wet weather overflows from the wastewater network	Number	30	Were the 30 overflows all recorded by flow monitoring or was there another data source?	The 30 wet weather overflows are not necessarily actual overflows. The number has come from flow monitoring and modelling.
WWE2b	Wet weather overflows from combined stormwater and wastewater networks	Number	8	Are these the same 30 overflows as for WWE2a? Is the assumption being made that all the overflows were on the combined network?	Data value revised to 8.
WWE8a	Sewage containment design standards	AEP%/ADWF	4	Do you mean 4 x ADWF? Is this documented in design guide or code of practice?	Yes, 4 x ADWF. WDC use NZS:4404
WWE8b	Average calculated wet weather overflow frequency	AEP%	200.00%	No question.	
WWE9a	Overflows recorded through verbal reports	Yes/No	Yes	Are the verbal reports recorded in a customer service system?	Yes, verbal reports are record in the customer service system. However, not all verbal reports get recorded.
WWE9b	Overflows recorded through SCADA monitoring	Yes/No	Yes	No question.	
WWE9c	Overflows calculated through hydraulic models	Yes/No	Yes	No question.	
WWE9d	Overflows calculated through calibrated hydraulic models	Yes/No	Yes	How recent is the calibration?	The last calibration was done in 2014.

Code	Measure	Units	Data	AECOM/Water NZ Questions	WDC Responses
WWE4a	Wastewater consent abatement notices	Number	0	Where/how would it be recorded if there has been an abatement notice (is there a consent database)? Are there cases of noncompliance that don't result in abatement notices? What threshold would need to be breached to trigger an abatement notice or any of the other actions listed below?	Notices etc. would get recorded in the document management system. They are also monitored through KPI reporting. There are noncompliance's which don't result in any sort of action.
WWE4b	Wastewater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice? Are there cases of noncompliance that don't result in infringement notices?	
WWE4c	Wastewater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order? Are there cases of noncompliance that don't result in enforcement orders?	
WWE4d	Wastewater consent successful prosecutions	Number	1	Where/how has it been recorded that there was a successful prosecution? Is it just common knowledge?	It is just common knowledge and in the public domain that there was one prosecution. This related to a power outage at a pump station which caused it to discharge into a stream.
SWE1a	Number of stormwater discharges from the piped network	Number	108	Was GIS the actual data source for the number of discharge points?	Yes, the 108 were identified using the GIS.
SWE1b	Number of stormwater discharges with resource consents	Number	108	Is every discharge point individually consented or is there a global consent?	A global consent covers all 108 stormwater discharges.

Code	Measure	Units	Data	AECOM/Water NZ Questions	WDC Responses
SWE2a	Stormwater consent abatement notices	Number	0	Where/how would it be recorded if there has been an abatement notice (is there a consent database)? Is regular monitoring being undertaken to check consent compliance? Are there cases of noncompliance that don't result in abatement notices? What threshold would need to be breached to trigger an abatement notice or any of the other actions listed below?	If there was a notice etc. it would be recorded in the document management system. There are no instances on non-compliance - the global consent does not have any water quality limits and there is no monitoring. Not sensible to have limits for urban area as all stormwater discharges into the Whanganui River where it is tidal. When the global consent is renewed/replaced it will likely include monitoring.
SWE2b	Stormwater consent infringement notices	Number	0	Where/how would it be recorded if there has been an infringement notice? Are there cases of noncompliance that don't result in infringement notices?	
SWE2c	Stormwater consent enforcement orders	Number	0	Where/how would it be recorded if there has been an enforcement order? Are there cases of noncompliance that don't result in enforcement orders?	
SWE2d	Stormwater successful prosecutions	Number	0	Where/how has it been recorded that there was a successful prosecution? Is it just common knowledge?	
SWS5	Flooding Events	AEP%	0	Where would it be recorded if there had been a flooding event? Have nuisance flooding events occurred that have not been reported (e.g. road corridors etc)	Reported as per DIA definition. Occurrence of flooding events and habitable floors affected would be recorded in the customer service system. Stormwater models indicate where flooding occurs but since 2016 there has been no event significant enough for habitable floors to be affected.
SWS5a	Number of habitable floors affected	AEP%	0	Where would it be recorded if there had been habitable floors affected? Would there be a record of any insurance claims?	
SWS7a	Primary stormwater network capacity	Number	10.00%	This value implies a less than 1 year return storm period? Is this correct? Is this value applied across the whole primary network? Is this documented in a design guide or code of practice?	Value changed. WDC used NZS: 4404. Value applies to new developments.

Code	Measure	Units	Data	AECOM/Water NZ Questions	WDC Responses
SWS7b	Secondary stormwater network capacity	Number	0.50%	Is this documented in a design guide or code of practice?	Value changed. WDC used NZS: 4404. Value applies to new developments.