

Audit Report for Water New Zealand's 2016/2017 National Performance Review

Final Report



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Client: Water New Zealand

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1.0 Introduction

Each year Water New Zealand (Water NZ) carries out a National Performance Review (NPR) of organisations providing water supply, wastewater and stormwater services across New Zealand. AECOM has been contracted to provide verification audit services for the 2016/17 NPR. This report presents the verification audit findings for the 2016/17 NPR which included the following work:

- Reviewing data return spreadsheets from organisations nominated for on-site audits
- Visiting nominated organisations for on-site audits
- Preparation of onsite audit findings report.

This report documents AECOM's findings arising from the on-site audit work.

Also included in Appendix A are the findings on how all participating organisations have interpreted and responded to the new measures included in the 2016/17 NPR.

2.0 Methodology

AECOM undertook four on-site audits. The participating organisations visited were:

New/Returning Participants

- Clutha District Council
- Masterton District Council

Participants Involved Last Year

- Ruapehu District Council
- Waikato District Council

A pre-defined set of measures were identified for inclusion in the on-site audits. These mainly included all new measures and all measures where the definitions had been changed since the 2015/16 NPR. Other measures were also identified which came from Water NZ's initial checks of the data returned by each organisation and in some instances were supplemented with measures AECOM felt needed closer examination.

Where possible, questions or issues were identified against each of the audit measures and conveyed to each separate organisation prior to their on-site audit.

The responses to the questions and issues are documented in Section 3.0 below.

3.0 Findings

3.1 Overview

The questions, issues and the responses from each organisation are documented in the following subsections. Changes (where known) are documented in **bold text**.

By the end of the audit process, a total of nine organisations had been identified as potential candidates for onsite audits – some of the nine were additional considerations once other organisations had pulled out of the NPR or became unavailable for audits. Overall, four onsite audits were able to take place and went relatively smoothly once organised. The organisation of the visits this year were made difficult by the fact that organisations were busy finalising Asset Management Plans and Long Term Plans which staff had to give priority to over completing the NPR spreadsheets.

3.2 Questions and Responses

3.2.1 Clutha District Council

Questions/Issues	
General	Response
Provide feedback on your overall experience with the NPR.	Katie Beswarick is new to CDC and new to the NPR. She enjoyed the process even though it was quite challenging. The impression is that the right people have been involved to get the right answers so there should be a reasonable level of confidence in the data provided. CDC was quite interested in AECOM's separate copy of the Guide Notes which cover every measure and have more detail than the spreadsheet. It would be worth considering reintroducing the availability of the separate Guide Notes.
Common Section	Response
1. CB10: Internal staff – discuss, would be useful to know what roles comprise the 5.25 FTEs.	CDC does not have staff dedicated to just 3 waters. The 5.25 FTEs is based on a breakdown of hours dedicated to 3 waters activities.
2. CB10a: Staff vacancies – discuss. What role is vacant?	See CB10 response above. Short of one overall person so is not necessarily a 3 waters vacancy.
3. CB12: Near miss reports – explain the CDC Incident Register.	It is a spreadsheet at present and the organisation is in the process of implementing Pro-Map. When being shown the Incident register a near miss report was found and CDC were requested to update the data value from 0 to 1 .
4. CB13: Lost time injuries – explain the CDC Incident Register.	See CB12 response above.
5. CB14a: Climate change LTPs – is this a “Yes”? Discuss.	Yes, climate change is considered but at this stage it is just general commentary.
6. CB14b: Climate change AMPs – discuss.	Data value changed from No to Yes - climate change is considered but at this stage it is just general commentary.
7. CB14c: Climate change design – discuss.	Data value changed from No to Yes - climate change is being factored into design.
8. CB16: Emergency planning – Is this a “Yes” but no data? Discuss.	Yes, emergency planning is in place. CDC is actively involved in Lifelines.
9. CB17a-i: CAPEX program delivery – discuss.	Initially four major pressures had been ticked. After discussion, CB17h was unticked as a pressure.
10. CB18b: Staff training – do you think the budget is enough?	Discussed – the dollar value is an average across the whole organisation. Not all staff receives training each year which means some staff consume more training budget in excess of the average.
Water Section	Response
1. WSB2: Water serviced properties: residential – discuss comment.	All properties are charged the same base annual rate (varies between schemes) regardless of whether the property use is residential or non-residential. Properties used for commercial activity can be metered and get charged

	additional amounts depending on the increased level of consumption beyond 366m ³ /year.
2. WSB3: Water serviced properties: non-residential – Water serviced non-residential properties exceeds Total Non-Residential Properties [CB4]. Does the data value include commercial properties?	CB4 has been increased from 1077 to 2250 which fixes the problem. It appears CDC cannot reliably differentiate between residential and non-residential properties and Water NZ will need to consider what the implications are.
3. WSB7: Non-residential water consumption – discuss.	There is limited metering of non-residential properties so no data is readily available – see WSB2 and 3 responses above.
4. WSA1a: Length of water supply network – demonstrate how the total length was derived.	Was shown how the length was measured in AssetFinda. When the results were looked at, a number of recent pipe additions were included so it was explained that the data needed to be as of 30 June 2017. When this filtering was applied the correct number was 2465.44km – a reduction of 2km.
5. WSS3: Planned interruptions – demonstrate how the total number was derived.	The Contractors ring CDC who set up the work request in AssetFinda for the planned interruption. Reporting is then done from AssetFinda.
6. WSS7a: Fixed Charge: Non-residential – looked at in relation to earlier questions.	The data value was revisited as a result of a question against WSS9. The data value was changed to \$0 but this may not be correct as all properties have the same fixed charge. The value should probably be \$452.83. Water NZ to give consideration to this.
7. WSS8a: Fixed Charge: Non-residential – looked at in relation to earlier questions.	The data value has been changed to \$452.83.
8. WSS9: Average Residential Water Charge Based on 200m ² /yr – it seems strange that the residential rate is lower than the non-residential rate. Has this been entered correctly?	See response to WSS7a and 8a above.
9. WSS11: Water restriction days – what is the “Yearly” data source?	Restrictions are over a fixed period each year so do not need to be tracked.
10. WSF8: Chemicals and consumables – is fluoride used and if so is it included in the cost shown?	The cost does include fluoride so this needs to be deducted if possible. The data value has been revised down to \$493,920.50.
Wastewater	Response
1. WWB2: Wastewater serviced properties: residential – was extrapolation used to remove commercial properties?	Data value includes both residential and non-residential.
2. WWB3: Wastewater serviced properties: non-residential – looked at in relation to earlier questions.	The number of 430 equated to the number of properties that are not connected to the network but could be, and were paying half rates because of the potential to be connected. The number has been revised down to 0 but does raise the question about what to do with these properties as they contribute revenue towards the activity. Water NZ to give consideration to this.
3. WWB5: Wastewater exported for treatment – no data or 0 wastewater exported?	No wastewater exported.

4. WWB6: Wastewater imported for treatment – no data or 0 wastewater imported?	No wastewater imported.
5. WWA1a: Total length of public wastewater network – demonstrate how the total length was derived.	Was shown how the length was measured in AssetFinda. When the results were looked at, a number of recent pipe additions were included so it was explained that the data needed to be as of 30 June 2017. When this filtering was applied the correct number was 160.4km – a reduction of 3km. Note to Water NZ – this change hasn't been made in CDC's revised data return.
6. WWE7: Inflow and infiltration – are there any known I&I problems?	Yes, in Milton. Currently doing CCTV to investigate the problem.
7. WWS4a-c: Wastewater complaints – demonstrate how this number was derived.	Demonstrated – data is extracted using a report from their service request system.
Stormwater	Response
1. SWS1: Stormwater charge – where does the revenue come from for stormwater funding?	CDC has a targeted rate. Includes charging for bare properties - they get charged a half rate. Data value has been updated to \$120.34 .

3.2.2 Masterton District Council

Questions/Issues	
General	Response
Provide feedback on your overall experience with the NPR.	David Mawson is relatively new to Masterton District Council and is completely new to local government. He didn't find the NPR too onerous – he has been an engineer his whole working life albeit in different industries but has done very well in pulling all the data together having no previous exposure to the NPR. Where he hasn't been able to source the data himself he has made contact with the appropriate people. He has recently finished rewriting Masterton's AMPs so going through that exercise probably gave him a good grounding for the NPR especially as some of the data was needed for the AMPs as well. In reviewing their updated data return, as well as the highlighted changes below, there appears to be a number of other data changes but it is not clear how these came about as they differ from what was discussed. MDC were quite interested in the peer group they might be placed in. Considerations such as population and network length etc. might not place them in the most suitable group as they only have one community whereas other similar sized organisations might have multiple communities.
Common Section	Response
1. CB10: Internal staff – how confident are you about the number?	Data confidence would be a 5 .
2. CB10a: Staff vacancies – how confident are you about the number?	Data confidence would be a 5 .

3. CB11: Contracted staff – no consultants? How confident are you about the number?	No consultants used. Data confidence would be a 5.
4. CB12: Near miss reports – how are near misses recorded and reported?	Contractor near misses are reported in CityCare reports. Internal near misses are reported to HR.
5. CB13: Lost time injuries – how are lost time injuries recorded and reported?	Contractor lost time injuries are reported in CityCare reports. Internal lost time injuries are reported to HR.
6. CB14a: Climate change LTPs – show in the LTP where climate change is covered.	Shown LTP.
7. CB14b: Climate change AMPs – show in one of the AMP's where climate change is covered.	Shown Water Supply AMP which feeds up into the LTP.
8. CB14c: Climate change design – discuss how climate change is being factored into design - provide an example.	Not actively designing for climate change but are considering it for certain assets - stop banks are the best example - design for renewal to allow for a certain return period (100 years) plus climate change.
9. CB15a-c: Climate change considerations – is the GWRC climate change strategy a formal document?	GWRC climate change strategy is a formal document. It is published on the GWRC website – see http://www.gw.govt.nz/assets/Climate-change/GWRCClimateChangeStrategy7-10-15.pdf
10. CB16: Emergency planning – Is this a “Yes” but no data? Show a copy of the Lifelines document.	Sighted document – it was written back in 2002 and may need updating. The Wairarapa Engineering Lifelines Association (WELA) has not been active of late but is looking at getting up and running again.
11. CB17a-i: CAPEX program delivery – discuss.	The three major pressures identified were discussed: <ol style="list-style-type: none"> 1. Internal resources for project delivery – there is no current move to hire additional resources and relieve this pressure. 2. External expertise – there is a limited number of local capable contractors with the Council preferring to hire local contractors. 3. Consenting delays – this relates to consenting that involves the regional council.
12. CB18a: Staff training development plans – is budget a consideration?	Budget is not a constraint on training.
13. CB18b: Staff training budget – do you think this [\$1,333] is enough – seems quite low?	It was not understood if this included conferences – possibly it doesn't given the low number.
Water Section	Response
1. WSB2: Water serviced properties: residential – could this include rateable properties that don't have a service connection yet? Any multi-unit dwellings?	Does not include properties that are not connected yet. Do have multi-unit dwellings but they are all individually connected.
2. WSB3: Water serviced properties: non - residential – could this include rateable properties that don't have a service connection yet? Any multiple tenancies off one connection?	Does not include properties that are not connected yet. Do have multi-unit dwellings but they are all individually connected.
3. WSB7: Non-residential water consumption – what suggests or indicates the 6%?	All large commercial users are metered (but not charged) - meters are read though which is where the 6% comes from.

4. WSA1a: Length of water supply network – show the AMP that the number came from.	Shown figure in AMP.
5. WSA10: Properties with water restrictors – Utilities - is that the group that provided the number? Was it emailed or in a report?	List recorded as part of backflow test process. Restrictors also recorded in the GIS
6. WSS3: Planned interruptions – can this be demonstrated in NCS?	Sighted report that came from NCS - no need for demonstration.
7. WSS11: Water restriction days – explain "alternative days".	Restrictions always start on the first day of summer and end on the last day of summer (3 months). "Alternative days" means odd numbered houses can do certain things on one day and then even numbered houses can do certain things on the next day.
8. WSS12a: Hydrant testing – how was this reported by Utilities?	Not formally reported hence low data confidence.
9. WSS12b: Non-compliant hydrants – no data or no non-compliant hydrants?	No data.
10. WSF8: Chemicals and consumables – if fluoride is used, has this been excluded?	Data value does exclude fluoride
11. WSF16: Operational cost coverage: water supply – Operational costs [WSF12] exceed revenue [WSF4]	[WSF2] data value has been changed to \$3,231,849 which has corrected the error.
Wastewater	Response
1. WWB2: Wastewater serviced properties: residential – any multi-unit dwellings?	Do have multi-unit dwellings but they are all individually connected.
2. WWB3: Wastewater services properties: non-residential – any multiple tenancies off one connection?	Do have multi-unit dwellings but they are all individually connected.
3. WWB5: Wastewater exported for treatment – no data or 0 wastewater exported?	No exporting - data confidence changed to 5 .
4. WWB6: Wastewater imported for treatment – no data or 0 wastewater imported? Explain the comment.	No data - wastewater is imported but no longer measured. A fixed charge is applied to the connections that are providing the wastewater.
5. WWA1a: Total length of public wastewater network – show the AMP that the number came from.	Shown figure in AMP.
6. WWA7m: Peak wet to dry weather flow ratio – it would be useful to record the data values in the comments column that have come from SCADA for the calculation.	Values added to comments column. Ratio has changed to 3.52 .
7. WWE7: Inflow and infiltration – explain the comments.	Overall measure is the % of time discharging to river - other indicators are inflow trends to treatment plant, all discharges and flows to treatment plant.
8. WWE8a: Sewage containment design standards – enter 1% in the data column.	1% entered in data column.
9. WWE8b: Sewage containment of the existing network – has any wastewater modelling been done? What is the design standard?	4.6 times dry weather flow is the design standard. 4.6% has been entered in the data column but this doesn't fit the data requirements for this measure.

10. WWS4a: sewage odour – shift “0/1000” to the comments column and enter 0 in the data column.	Data value has been updated to 8 .
11. WWS4b: sewerage system faults – shift “0/1000” to the comments column and enter 0 in the data column.	Data value has been updated to 1 .
12. WWS4c: sewerage system blockages – shift the “6.081/1000” to the comments column and enter total number in the data column.	Data value has been updated to 48 .
13. WWF16a: Interest: wastewater – interest exceeds total revenue [WWF4].	Needed to talk to Finance – there has been no update in the revised data return.
Stormwater	Response
1. SWE1a: Number of stormwater discharges – demonstrate in GIS how the number was obtained.	It is quite a laborious process and would have taken too long to demonstrate.
2. SWE1b: Number of stormwater discharges with resource consents – no data or no consents?	No consents – data confidence changed to 5 .
3. SWF3: Total revenue: stormwater – what funds are used for operating the stormwater system?	[SWF1] updated to \$517,922 .

3.2.3 Ruapehu District Council

Questions/Issues	
General	Response
Provide feedback on your overall experience with the NPR.	At the time of the audit Mary Shepherd had been with Ruapehu DC for only 10 weeks. The person who had previously taken responsibility for compiling the NPR data returns is in the process of retiring hence Mary's involvement. It has definitely been a learning experience for Mary both in terms of understanding the definitions of the NPR measures and then where to source the data from especially as she is new to the organisation. Overall, Mary found it a good learning experience. Other comments especially from Anne-Marie Westcott included: <ul style="list-style-type: none"> • Try and avoid doing the NPR in an LTP year (last year's NPR data did provide input into this year's LTP). • Do the NPR bi-annually. • Keep the DIA measures in the NPR (it is the only forum that publishes the DIA data).
Common Section	Response
1. CB10: Internal staff – discuss comments	Discussion resulted in data valued being changed to 3 .
2. CB10a: Staff vacancies – discuss data value.	Discussion resulted in data valued being changed to 0 .
3. CB11: Contracted staff – discuss data value.	Discussion resulted in data valued being changed to 13 .

4. CB12: Near miss reports – does this include RDC near misses?	No - 1 RDC near miss so data value should be 76 .
5. CB14a: Climate change LTPs – “Yes” or “No”?	Answer should be Yes . Climate change is addressed in AMPs which feed up into the LTP.
6. CB14b: Climate change AMPs – “Yes” or “No”?	Answer should be Yes . Climate change is addressed in AMPs.
7. CB14c: Climate change design – “Yes” or “No”?	Answer should be Yes . Modelling allows for 1 in 200 year events. In 50 years’ time the frequency will be 1 in 100 years.
8. CB15a: Sea level rise – discuss.	RDC has no coastline areas under its jurisdiction and any rivers are sufficiently far enough away from the coast to be unaffected by sea level rise.
9. CB15b: Rainfall return period – can you complete this measure?	Need to check – are following guidelines set by Horizons Regional Council.
10. CB15c: Average annual rainfall – why not enter 1450?	Enter data value of 1,450 .
11. CB16: Emergency planning – is RDC involved in Lifelines?	RDC is actively involved in Lifelines so data valued should be Yes .
12. CB17a-i: Can you select the top 3 issues?	Top 3 issues are: c - Materials availability – need to source via Veolia for cheaper prices. e – Consenting delays. i – Other – having to use subcontractors to supplement internal staff.
13. CB18a: Staff training development plans – are there no formal plans in place?	No formal plans in place so data value should be No .
14. CB18b: Staff training – is there an average budget across the whole organisation?	Average across the whole organisation is \$1,700/annum .
Water Section	Response
1. WSB2: Water serviced properties: residential – discuss.	Data value has gone up by 3 which is correct.
2. WSB3: Water serviced properties: non - residential – discuss.	Data value has gone up by 4 which is correct.
3. WSB7: Non-residential water consumption – discuss comments.	Need to further investigate.
4. WSA1a: Length of water supply network – discuss.	No change from last year as have only done replacements.
5. WSA10: Properties with water restrictors – Utilities – discuss.	No water restrictors installed. Change data confidence to 5 .
6. WSS3: Planned interruptions – no data confidence value?	As the data value has come from water shutdown notices, the data confidence should be 5 .
7. WSS11: Water restriction days – can you complete this measure?	Need to check water restrictions report.
8. WSS12a: Hydrant testing – can you estimate the %?	Need to check with Veolia.
9. WSS12b: Non-compliant hydrants – can you estimate a number?	Need to check with Veolia.
10. WSF8: Chemicals and consumables – If fluoride is used, has this been excluded?	RDC does not use fluoride. Data confidence should be 5 .
Wastewater	Response

1. WWB2: Wastewater serviced properties: residential – value has gone down from last year. Is this correct?	Need to check.
2. WWB3: Wastewater services properties: non-residential – value has gone down from last year. Is this correct?	Need to check.
3. WWB5: Wastewater exported for treatment – discuss comment.	Wastewater is exported – need to check a calculation used for the billing.
4. WWB6: Wastewater imported for treatment – discuss comment.	Data value is for tankered waste but it comes from Ruapehu Alpine Limited where there is no option for treatment. Water NZ needs to give consideration to including this data value.
5. WWA1a: Total length of public wastewater network – discuss.	The data value has gone up by 1km which was for a sludge line from the Raetihi water treatment plant.
6. WWA7m: Peak wet to dry weather flow ratio – why no data available?	Need to check with Veolia.
7. WWE7: Inflow and infiltration – discuss.	Data value should be Yes but there is no formal I&I program in place. Use CCTV, smoke testing and monitor pump stations.
8. WWE8a: Sewage containment design standards – discuss comments.	Need to check with Veolia.
9. WWE8b: Sewage containment of the existing network – discuss comments.	Need to check with Veolia.
10. WWS4a: sewage odour – no data value?	Need to do a calculation.
11. WWS4b: sewerage system faults – no data value?	Need to do a calculation.
Stormwater	Response
1. SWE1a: Number of stormwater discharges – can you complete this measure?	Need to check GIS. Question for Water NZ – what about roading stormwater that directly discharges into rivers etc?
2. SWE1b: Number of stormwater discharges with resource consents – can you complete this measure?	Data confidence should be 5 and data value should be 0 .

3.2.4 Waikato District Council

Questions/Issues	
General	Response
Provide feedback on your overall experience with the NPR.	Robert Ball is relatively new to Waikato District Council and is new to local government. He has recently returned from overseas where he was involved in the provision of treatment plant technology so he has had a certain amount of exposure to local government/water authority type organisations. His current role is Operations Team Leader which extends beyond three waters. Robert's challenges were similar to the other participants – it was about becoming familiar with the measures and then finding out who in the organisation to go to for the data. The timing of the NPR also wasn't great as WDC were busy like most other councils trying to finalise their AMPs. Overall Robert found it a good learning experience.
Common Section	Response
1. CB10: Internal staff – is this figure taken from an org structure diagram?	From HR - Ops is about to be restructured so numbers will change (will go up).
2. CB10a: Staff vacancies – data value should be 7 if there are 7 vacancies.	Data valued updated to 7. Ops is about to be restructured so numbers will change (will go up initially until additional appointments are made).
3. CB11: Contracted staff – how was the data value provided/confirmed?	The number of staff is dictated by the Contracts.
4. CB12: Near miss reports – What sort of system is the Zero Harm team using to record near misses?	Software used is called BWARE/Promapp.
5. CB13: Lost time injuries – what sort of system is the Zero Harm team using to record lost time injuries?	Software used is called BWARE/Promapp.
6. CB14a: Climate change LTPs – can you do a Word search on the LTP to see if climate change is mentioned?	Data value of Yes entered - AMPs address climate change which feed into the LTP.
7. CB14b: Climate change AMPs – can you do a Word search on the AMPs to see if climate change is mentioned?	Data value of Yes entered - AMPs address climate change which feed into the LTP.
8. CB14c: Climate change design – is climate change being incorporated into modelling e.g. has the return period being designed for increased etc?	Data value of Yes entered – future proofing is now mentioned but unclear what that means.
9. CB15a-c: Climate change considerations – discuss.	Agreed to check on data – a data confidence of 5 has been added but no corresponding data values have been added.
10. CB16: Emergency planning – is WDC involved in Lifelines? [There is a Waikato Lifeline Utilities Group]	Agreed to check if WDC is involved with the Waikato Lifeline Utilities Group but no follow-up confirmation provided.
11. CB17a-i: CAPEX program delivery – can you make a best guess as to which are the 3 top pressures?	Agreed to check on what the 3 top pressures are – have stated time, resourcing and planning but have not ticked any of the options.

12. CB18a: Staff training development plans – can HR provide an answer?	Plans are in place for all staff - new starts get training on joining and ongoing training is provided for existing staff.
13. CB18b: Staff training budget – can HR provide an answer? Ideally an average across 3 waters FTEs is preferred but an average across all council FTEs would be okay.	A data value of \$48,542 has been provided. If it is assumed this applies to the 3 waters FTEs (27) then the data value should be \$1,797.85 per FTE.
Water Section	Response
1. WSB2: Water serviced properties: residential – last year the data value was 8550. 13002 is quite a significant increase - is this correct?	WDC have confirmed the value is correct.
2. WSB3: Water serviced properties: non-residential – there might be a digit missing from this data value. Last year the value was 4349.	Agreed to check on the data value provided but the data value has not been changed.
3. WSB5: Water supplied to own system – the value last year was 4,587,333 which came from the 15/16 Water loss report. Is there a similar report for 16/17?	15/16 data value of 4,587,333 has been entered with a corresponding data confidence commented as being 2 .
4. WSB6: Authorised consumption – the value last year was 3374726 which came from the 15/16 Water loss report. Is there a similar report for 16/17?	15/16 data value of 3,374,726 has been entered with a corresponding data confidence commented as being 2 .
5. WSB7: Non-residential water consumption – a figure of 1,150,297.5 was calculated last year. Is it possible to repeat the calculation? A fall back option would be to repeat last year's value and lower the data confidence to say a 2.	15/16 data value of 1,150,297.5 has been entered with a corresponding data confidence commented as being 2 .
6. WSA1a: Length of water supply network – data should be as of 30/06/2017. Is it possible to check to see what the impact of the revised date is?	Agreed to check on the data value provided but the data value has not been changed.
7. WSA9b: Properties with water meters – non-residential – the number last year was 4,036 which came from the 15/16 rates strike. The low data value for WSB3 is causing this year's data value to be flagged as too low.	Agreed to check on the data value provided but the data value has not been changed.
8. WSA10: Properties with water restrictors – are water restrictors physically recorded anywhere e.g. in AssetFinda?	Agreed to check but no further comments provided.
9. WSS1: Unplanned total interruptions: water supply – this measure is an element of the DIA mandatory measures that have to be reported so it is surprising there is no data.	The measure has now been populated.
10. WSS3: Planned interruptions – how are planned interruptions recorded? No data was provided last year so possibly there is still a recording issue. If this is still the case then '0' should be entered in the data confidence column. This measure is also an element of the DIA mandatory measures that have to be reported so it is surprising there is no data.	Still a recording issue so no data is available.

11. WSS4: Third part incident – this measure is an element of the DIA mandatory measures that have to be reported so it is surprising there is no data.	The measure has now been populated.
12. WSS5a-e: Water quality complaints – these measures are elements of the DIA mandatory measures that have to be reported so it is surprising there is no data.	Agreed to check but measures are still blank.
13. WSS11: Water restriction days – a figure of 123 was provided last year from "WDC data". Can the same data source be used to provide an updated value? A fall back option is to provide last year's value and lower the data confidence to say a 3.	The measure has now been populated.
14. WSS12a: Hydrant testing – how is hydrant testing work managed? Can a number be extracted from whatever recording system is used?	Agreed to check but the measure is still blank.
15. WSS12b: Non-compliant hydrants – how is hydrant testing work managed? Can the number of non-compliant hydrants be extracted from whatever recording system is used?	Agreed to check but the measure is still blank.
16. WSF8: Chemicals and consumables – is fluoride included in this cost. If so it needs to be excluded.	WDC have now commented that fluoride is included in the cost but the \$ value has not been adjusted to exclude the fluoride cost.
Wastewater	Response
1. WWB2: Wastewater serviced properties: residential – this data value represents a 19% growth. Does this seem about right?	Agreed to check on the data value provided but the data value has not been changed.
2. WWB3: Wastewater serviced properties: non-residential – last year's data value was 1253 so a reduction of 497. Is this correct?	Agreed to check on the data value provided but the data value has not been changed.
3. WWB5: Wastewater exported for treatment – is "not any" correct given that wastewater from Pokeno and Tuakau is going to the Pukekohe treatment plant? Last year the data value was 327062	Agreed to check on the data value provided but the data value has not been changed.
4. WWA1a: Total length of public wastewater network – data should be as of 30/06/2017. Is it possible to check to see what the impact of the revised date is?	Agreed to check on the data value provided but the data value has not been changed.
5. WWA7g: Treatment plant design capacity – volume of wastewater treated at plant cannot exceed treatment plant design capacity [Last year the total design capacity was 8323080]	Agreed to check on the data value provided but the data value has not been changed.
6. WWA7m: Peak wet to dry weather flow ratio – are each of the treatment plants monitored by SCADA? If so is it possible to get the values needed for this measure? Values can be entered for each treatment plant.	Agreed to check but the measure is still blank.
7. WWE7: Inflow and infiltration – are there any known I&I problems?	Data value should be No , with a data confidence of 5 . It is noted that for the coming year there will be some I&I investigations as it is understood that

	new parts of Pokeno may have problems.
8. WWE8a: Sewage containment design standard – is there a design standard for wastewater? What storm event has the wastewater network been designed for e.g. 1 in 100?	Agreed to check but the measure is still blank.
9. WWE8b: Sewage containment of the existing network – is there a design standard for wastewater? How many times the normal dry weather flow can the wastewater network handle e.g. 4.65?	Agreed to check but the measure is still blank.
10. WWS4a: Odour – this is a DIA measure which presumably WDC are reporting. Is the DIA value available? If so it can be entered here. A value of 16 was reported last year which it seems came from the CRM.	The measure has now been populated.
11. WWS4b: Sewerage system faults – this is a DIA measure which presumably WDC are reporting. Is the DIA value available? If so it can be entered here.	Agreed to check but the measure is still blank.
12. WWS4c: Sewerage system blockages – this is a DIA measure which presumably WDC are reporting. Is the DIA value available? If so it can be entered here.	Agreed to check but the measure is still blank.
Stormwater	Response
1. SWB2: Stormwater serviced properties-residential – last year the data value reported was 8,848 which came from the 15/16 rates strike. Why the big difference this year?	Data value has been updated from 721 to 9,015 .
2. SWB3: Stormwater serviced properties-non-residential – Stormwater serviced non-residential properties exceeds Total Non-Residential Properties [CB4]. CB4 value is 2,292 hence the potential error. The data value reported last year was 2,957 which came from the 15/16 rates strike.	Data value has been updated from 12,342 to 3,124 but still exceeds the CB4 value of 2,292 .
3. SWE1a: Number of stormwater discharges – are the discharge locations recorded in AssetFinda or some other system?	Agreed to check but unable to find any data.
4. SWE1b: Number of stormwater discharges with resource consents – if the discharges are recorded in a system, is there any associated consenting information recorded against each discharge?	Agreed to check but unable to find any data.

4.0 AECOM Observations and Comments

The audits this year were made interesting by the fact that at all four organisations audited, the person in charge of collecting/collating data was new to their organisation and had no previous involvement in the NPR. It was a learning experience for all four persons and all rose to the challenge as best they could. It would be interesting to know if this trend extended across other organisation involved in the NPR. One of the potential impacts of change of personnel in any form of annual survey is that a different interpretation or different approach can be applied to deriving data which can produce different results from the previous year. There was some evidence of this with the four organisations

audited which then raises questions about any other organisations where there has been a change in personnel.

The timing of this year's NPR was definitely an issue for organisations in that it coincided with preparation of Asset Management Plans and Long Term Plans. As would be expected, organisations had to give priority to the preparation of these plans which led to delays in completion of the NPR data returns and in some cases forced organisations to withdraw from the NPR all together. This caused difficulties when trying to organise and co-ordinate the onsite audits especially when organisations eventually decided to withdraw from the NPR. One visit was delayed and one visit was cancelled both at short notice which was quite frustrating.

When responded to, the new measures and changed measures didn't appear to cause any significant problems for the four audit participants. One exception was the measure WSF8: Chemicals and consumables where it hadn't always been picked up that the cost now excludes fluoride. It may be beneficial to add at the end of the visible description that the cost of fluoride is excluded.

As an auditor, it is important to have a clear understanding of all measures being audited and the Guide Notes coupled with experience provide the basis for that understanding. While most of the definitions are now embedded as comments in the data return spreadsheet, often they are ignored and there was surprise and reasonable interest that separate Guide Notes did actually exist. AECOM have found the Guide Notes to be a very useful reference both for the NPR and other forms of work. Being able to print out the Guide Notes and have them at hand and being able to share the document can be quite beneficial. If possible the Guide Notes should continue to be offered to NPR participants and at least give them a choice of using the document and/or using the definitions embedded in the data return medium be that a spreadsheet or an online form.

5.0 Recommendations

Recommendations/suggestions arising from this year's NPR audit include:

1. To try and maximise participation in the NPR, give consideration to the timing of the NPR to try and avoid clashes with the preparation of Asset Management Plans and Long Term Plans. Organisations that run very lean 3 waters teams will always struggle in an LTP year as was evident with this year's NPR.
2. In association with Recommendation 1 above consider making the NPR a bi-annual process. This may be slightly difficult as the bi-annual timing would not fit in nicely with the LPT process which is a 3 yearly event. Possibly an easy compromise is to just not do the NPR in an LTP year.
3. Where there are factors in the definition of a measure that have a significant bearing on the data value provided, consider making these factors visible in the description of the measure so they are not easily overlooked.
4. Continue to maintain and publish the Guide Notes and offer them to all NPR participants.
5. Continue with some form of independent auditing. This year as with previous years it has not been difficult to challenge a number of the data values provided once physical evidence of where or how those data values have been derived, has been sighted. Looking at two other benchmarking initiatives AECOM is involved with – WSAA (worldwide) and NWWBI (Canada), the success of these two initiatives is in part due to the significant amount of independent auditing that is done. The auditing for each initiative is done slightly different but the outcome is that every participant and every measure gets audited which means that there is a very high level of confidence in the findings. Both initiatives also now use online data collection but believe it is important to get alongside participants and examine the physical evidence and confirm the data being provided is correct.
6. Consider suggestions relating to new measures detailed in Appendix A .

Appendix A

Review of New Measures

Appendix A Review of New Measures

CB14a-c Climate Change Processes

The way asset management strategy and planning is supposed to function within local government in New Zealand is that the content of asset management plans (AMPs) feed up into long terms plans (LTPs) albeit in a summarised or condensed form. If climate change is considered in AMPs it is therefore logical to expect some commentary on climate change in the LTPs.

Both Waimakariri DC and Whangarei DC have said 'Yes' to considering climate change in their AMPs but 'No' to consideration in their LTPs. A review of Whangarei DC's 2015-2025 LTP reveals that climate change has been considered. Interestingly both Waimakariri DC and Whangarei DC state that climate change is considered in their 30yr infrastructure strategies but the Local Government Act requires that these strategies are included in LTPs although this is a relatively new requirement. Some organisations do structure their documents so that 30yr infrastructure strategies feed into their AMPs which then feed into their LTPs.

Six organisations said 'No' to complete consideration to climate change including design. AECOM has worked with several of the organisations and we are quite surprised that they have said 'No'. One of the six organisations was Watercare and talking with other AECOM staff who have worked quite closely with them, they are very surprised at the 'No' response especially in regard to design.

Looking at the organisations that did not provide data for some or all of the measures, three of the organisations have reasonable lengths of coastline within their jurisdictional areas so it would be very surprising that they have not considered climate change at least in relation to stormwater.

Suggestions

1. Rather than using the word "processes" in the descriptor, consider using the word "areas".
2. Consider the value of asking about climate change consideration in both LTPs and AMPs. The suggestion would be to just ask about AMPs.
3. The document questions could be turned around and organisations asked to list the documents in which they address climate change or maybe offer a list that they provide ticks against.
4. Consider asking the document and design questions against each of the three waters. This might help direct the questions to people who can provide informed answers.

CB15a-c Climate Change Considerations

The responses to these three measures are so varied it is difficult to draw any obvious conclusions. We believe the current descriptors along with units make it reasonably clear what types of data responses are expected. From AECOM's audit experience there can be a tendency to overlook the units and with these three measures that could easily result in a variety of data responses. Several organisations also responded with Yes/No answers in the same manner they responded to CB14a-c so it would seem they are not paying enough attention. When talking to people about climate change and various factors etc. often there is not common or consistent use of terminology or phraseology which may also contribute to the varied responses.

It is also surprising how many organisations have no data but possibly this could also mean the measures are not applicable which hasn't been made clear.

Suggestions

1. Consider changing the descriptor to just "Climate change consideration". Having the descriptor as a question may be the cause of the Yes/No responses.
2. Consider providing some example data values in the descriptors. Cover the options e.g. sea level rise could be a single number say 2 or it could be a range say 0.3-2.1. (Are ranges acceptable?)
3. Consider providing links or references to data sources that will further help explain the measures as well as provide examples of data.

CB16 Emergency Planning

We believe the descriptor for this measure is reasonably clear and most organisations have responded appropriately - 35 organisations have responded "Yes" although the comments provided are not as definitive as asked for in the descriptor. A question for Water NZ is how were you planning to make use of the comments? Are you looking for trends or indicators that can then be commented on?

Three organisations have said "No" or they have no data but have then provided commentary which suggests the data response should be "Yes". Three organisations have given an outright "No" which is surprising.

Very few organisations have acknowledged they are part of their local Lifelines group but that knowledge typically rests with the individuals who are directly involved and may not be widely known about throughout the whole organisation.

Suggestions

1. Consider having sub measures for the types of emergencies that have been planned for and the networks the planning is applicable to.
2. Mention Lifelines in the descriptor which might act as a useful prompt. A useful sub measure might be 'Are three waters staff actively involved in the local Lifelines group?'

CB17a-I CAPEX Program Delivery

This is a very simple measure to respond to but seems to have the following issues:

- Picking less than or more than three issues (nine organisations did this). Having less than three issues could be valid but probably unlikely.
- Not picking any issues (three organisations did this). This would possibly suggest that the appropriate people were not consulted.
- The 'Other' option didn't seem to have a functioning tick box which meant it wasn't used consistently. Some organisations have manually inserted a tick and then populated the comments field and then others have put their comments in the data field.

Suggestions

1. Consider adding a checksum that applies highlighting when three measures have been selected.
2. Apply a tick box to the 'Other' option so comments have to be added in the comments field.
3. As an alternative to ticking consider using a drop down list with numbers 1, 2 and 3 as options. This might help organisations focus on the fact they are only being asked to select three pressures.
4. Examine what constitutes 'Other' pressures and extend the list of pressures.

CB18a-b Staff Training

CB18a is a very simple measure and 41 of the 44 organisations were able to respond with a "Yes" or "No" answer. The difficulty appears to be with CB18b in that organisations don't necessarily have a stated training budget just for three waters staff. Organisations typically have a total training budget for all FTE staff so a simple solution is to divide the budget by the total number of FTE staff and then multiply that value by the number of 3 waters FTE staff stated in CB10. Some organisations appear to be hesitant to do this calculation when there isn't a specific three waters training budget.

Suggestion

1. Outline in the descriptor that the above calculation can be done if there is no stated budget specifically for three waters staff.

WSA10 Properties with Water Restrictors

This is a very simple measure. Organisations either do or do not use water restrictors but then the issue seems to be where are they recorded and how accurate or up to date the data is? Data confidence values range from 1 – 5 with a number of organisations applying a data confidence value lower than 5 to a value of '0'. This suggests these organisations are not completely sure they do not have any water restrictors installed or possibly they are just being over cautious and don't want to allocate a data confidence of 5.

Suggestion

1. Monitor next year's NPR and question any data responses that have a data confidence value lower than 5 against a data value of '0'.

WSS12a-b Water Hydrants

The descriptors for these measures are reasonably clear but what is surprising is the lack of data that is able to be reported against these measures. We don't know if all hydrant testing is performed as per the code of practice stated and possibly this has deterred some organisations from providing data values for the two measures.

If the testing of hydrants is outsourced the results may only be available in report form which does not make it easy to retrieve data. In an ideal world organisation would be using work orders even if the testing is outsourced and the results could then be easily queried.

One organisation – Christchurch, appears to have changed the cell format for WSS12a so the data value of 33 is likely to be 33%. All the other data values for WSS12a appear to be correctly formatted.

Suggestions

1. Investigate if all hydrant testing is done in accordance with the quoted code of practice. If it isn't then consider not making this a constraint on the data being asked for – maybe modify the descriptor to read ...(e.g. as defined in clause....).
2. For WSS12b, make it clear that the number of non-compliant hydrants relates to the percentage reported in WSS12a.

WWA7m Peak Wet to Dry Weather Flow Ratio

From the analysis data provided, it is not possible to see if organisations provided data values against each treatment plant. However, from the data values that appear in the data columns, the ratios appear to be within an acceptable range which suggests those organisations have interpreted the measure correctly. One exception is Napier which reports a value of 0.458 which is possibly in units that differ from what has been asked for. Another exception is Tasman which reports a value of m³/day which is hard to understand without seeing their spreadsheet.

Over half the participants report no data which seems strange as this group includes a number of organisations which are known to have reasonable SCADA systems in place that should be capable of monitoring flows and be able to provide the data needed for the ratio calculation.

Suggestion

1. Consider reporting separately the peak wet weather and average dry weather flows and then automatically calculate the ratio.

WWE8a-b Sewage Containment Standard

For those organisations that have provided data values for WWE8a, most have interpreted the measure correctly. There are some exceptions – Tasman has reported a value of 6xDWF so maybe they don't use AEP. 25 organisations either don't use AEP or don't know what the AEP value is. The latter is hard to understand as each organisation will almost certainly have a design standard in place for new sewers as well as having undertaken hydraulic modelling.

Three organisations have responded 'Yes' to WWE8a which seems odd as the spreadsheet was not configured for this type of response.

Organisations have responded similarly to WWE8b although there is one additional oddity – Masterton's design standard is 4.6xDWF which they have entered as 4.6% yet their AEP is 1%.

Suggestions

1. Consider renaming measure WWE8a to 'Sewage containment design standards for new sewers'.
2. For both measures consider the use of a drop down list offering options such as 1in5, 1in 10, 1in 20, 1in 50 etc, N/A, Unknown and Other (provide detail in comments field)

SWE1a-b Stormwater Discharges

33 of the 42 organisations that measure SWE1a applies to, were able to provide data values. Of the remaining nine, two said this measure was not applicable yet they provided data values for SWE1b. The other seven organisations were unable to provide data although one of them did provide a data value for SWE1b.

Most of these nine organisations have reasonable GIS systems and we would have thought that it is a reasonable expectation that discharge points are mapped and thus can easily be queried.

33 of the 42 organisations that measure SWE1b applies to, were able to provide data values – note though that this is not the exact same 33 as for measure SWE1a. Of the remaining nine, one organisation said they do not have any consents and the other eight were unable to provide data. It is not clear what the expected medium is for recording consents. Ideally this should be an attribute recorded against the discharge point (asset) itself but this is not commonly done at present.

Suggestions

1. Consider adding a descriptor to SWE1a to make it clear what is meant by a stormwater discharge point e.g. 'The end of a stormwater pipe or network where water leaves the built stormwater system and enters the natural environment, at a watercourse, lake, beach or pond etc.' Note that sometimes a discharge could be directly from a pipe i.e. there is no constructed outlet or outfall although in some cases a flume bag might be used to stop erosion.
2. Clarify in a descriptor that consents could include consents that have expired and are in the process of being renewed. The number could also include consents for new discharge points which are awaiting approval.