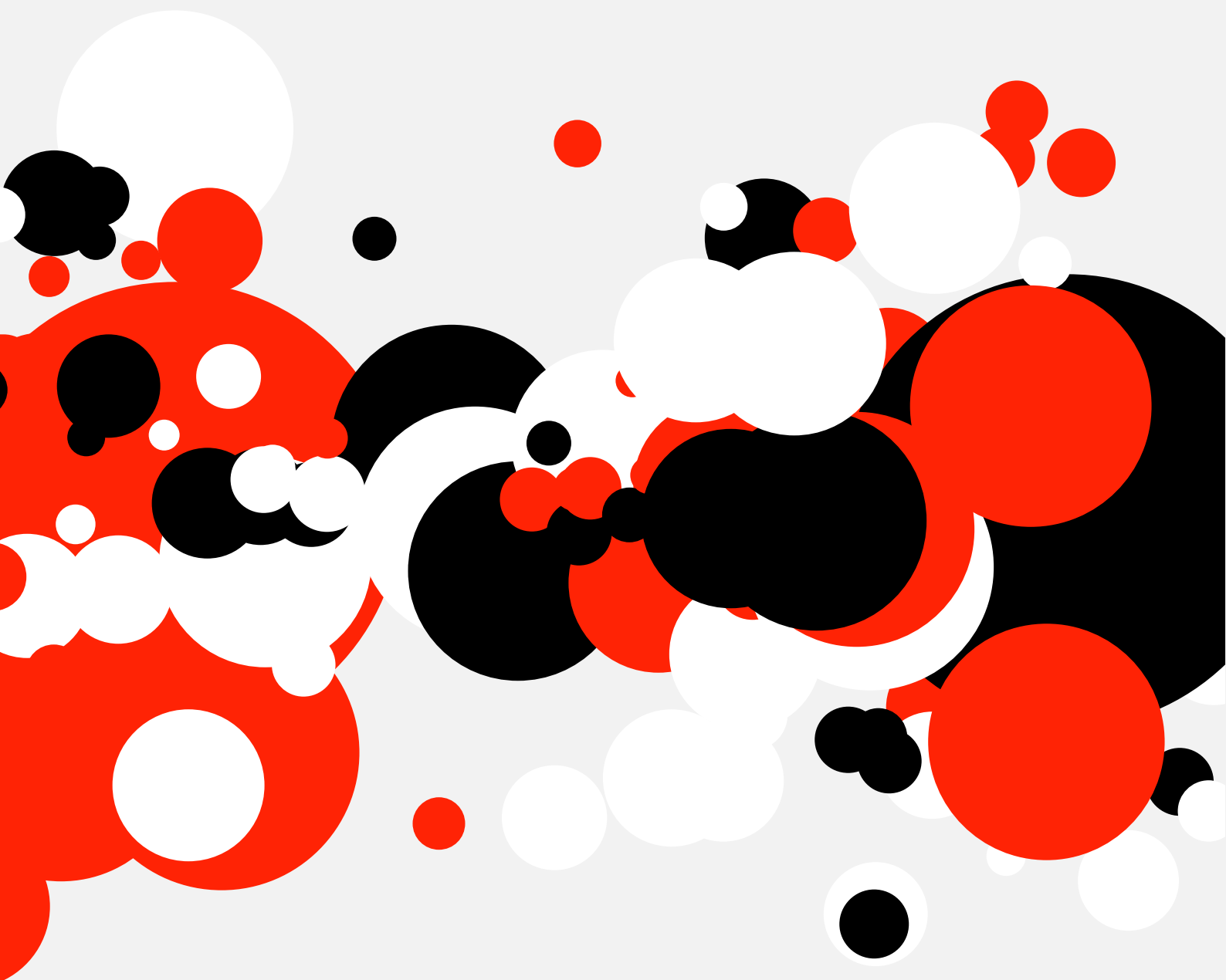# Bellingen Shire Council Financial Sustainability Review

University of Technology Sydney

Centre for Local Government

Contents

List of tables and figures

1   Executive Summary

1.1   Background

The financial sustainability of local governments is a pressing concern for regulators and citizens around the world, especially in view of recent financial collapses in the United States (for example Detroit) and Australia (for instance, the insolvency of Central Darling Shire in 2013[1]). Against this backdrop, Bellingen Shire Council (Council) has requested that the Centre for Local Government (CLG) at the University of Technology Sydney conduct a thorough review of all aspects of Council's financial performance.

1.2   Methodology

In contrast to the minimal number of metrics employed by regulators in New South Wales (NSW), our analysis examines over 45 metrics, derived from an array of scholarly literature and world best practice. All metrics analysed in this report are defined in detail in Appendix B.

Data was collated from the audited financial statements (including from the notes) of Council and its peer group, and augmented with data from the National Regional Profile produced by the Australian Bureau of Statistics (ABS).

In order to provide Council with comparable information, we have conducted all empirical work with respect to a peer group selected by Council itself. The peer group is made up of the following councils:

> Clarence Valley Council

> Coffs Harbour City Council

> Kempsey Shire Council

> Nambucca Shire Council

> Port Macquarie-Hastings Council

> Ballina Shire Council

> Byron Shire Council

> Kyogle Shire Council

> Lismore Shire Council

> Richmond Valley Shire Council

> Tweed Shire Council

> Tenterfield Shire Council

---

[1] See Grant and Drew 2017.

> Cabonne Council

> Parkes Shire Council

> Warrumbungle Shire Council

However, it is important to remain aware that peer group comparisons are only made for contextual purposes, and that the only true and fair comparison for assessing the performance of Council is with respect to itself over time.

In this report we complete a thorough review of Council's technical efficiency with respect to:

> all local governments in NSW;

> all local governments with water and sewer businesses in NSW; and

> the peer group.

We augment this sophisticated and robust empirical evaluation with various metrics that report the average unit costs for key local government goods and services.

Following this, we review a number of metrics aimed at assessing various aspects of financial sustainability. This will lead us to form a conclusion regarding the state of Council's finances and make a series of recommendations that might be expected to improve performance further into the future.

1.3   Key findings

It is our conclusion that Council's long-term financial sustainability is tracking well. In particular, the improving technical efficiency, low levels of debt, prudent spending, and the steady improvement in asset condition all indicate that Council is doing an extraordinarily successful job in challenging conditions. We note some recommendations where Council may make further improvements towards the end of this report.

2 Technical efficiency of Bellingen Shire Council

2.1 Background

The issue of local government technical efficiency has been of keen interest to the Office of Local Government (OLG) and a range of State Government agencies[2] over recent years. In particular, efficiency was a key criterion for determining which councils were fit for the future, and which councils would be amalgamated. It is therefore surprising that there has been no robust and reliable study of local government efficiency in NSW outside of the scholarly literature.

In the past, government analysts have tended to employ per capita operational expenditure as a proxy for efficiency. However, this metric is flawed for a number or reasons.

First, it incorrectly implies that there are no costs to local government for providing goods and services to business, because business doesn't contribute directly to population size.

Second, it incorrectly conceives that the principal remit of local government is directed to individual persons, whereas in fact relatively more spending is directed to properties[3].

Third, it implicitly assumes that the cost of servicing a household with four people in residence is precisely four times greater than servicing a property that has a sole resident (to see how erroneous this assumption is consider the case of rubbish collection).

Fourth, it implicitly assumes that the cost of servicing a household on a large rural property is the same as the cost of servicing a household in town, when, in fact, the two types of properties receive vastly different services (and service levels).

Fifth, it implicitly assumes that the single largest cost to local government (roads) is positively correlated with population, when, in fact, the opposite is true.

For all of these reasons, it is recommended that Council consider alternative metrics (to operating expenditure per capita), as set out in this report, to inform its policy and decision-making.

2.2 Data Envelopment Analysis (DEA)

The recommended method for measuring relative technical efficiency is data envelopment analysis (DEA). A large body of scholarly work on this technique amply attests to its appropriateness[4].

---

[2] Includes Independent Local Government Review Panel (ILGRP). TCorp, Independent Pricing and Regulatory Tribunal (IPART) and Audit Office of NSW.

[3] Drew and Dollery, 2014.

[4] See for example, Cooper, Seiford and Tone, 2017; Coeli. Rao, O'Donnell and Battese, 2005; Drew, Kortt and Dollery, 2015.

DEA is a linear programming technique that first establishes an efficient frontier comprised of the local governments that most optimally convert inputs (staff and operational expenditure) into outputs (proxied by length of sealed roads, length of unsealed roads, number of business assessments, number of household assessments, number of farm assessments), then compares the rest of the entities in the local government jurisdiction to the frontier 'best' performers. The mathematics is rather complicated, so the best way to conceive of the technique is through a graphical depiction (see Figure 1).

Figure 1. Input-orientated DEA model
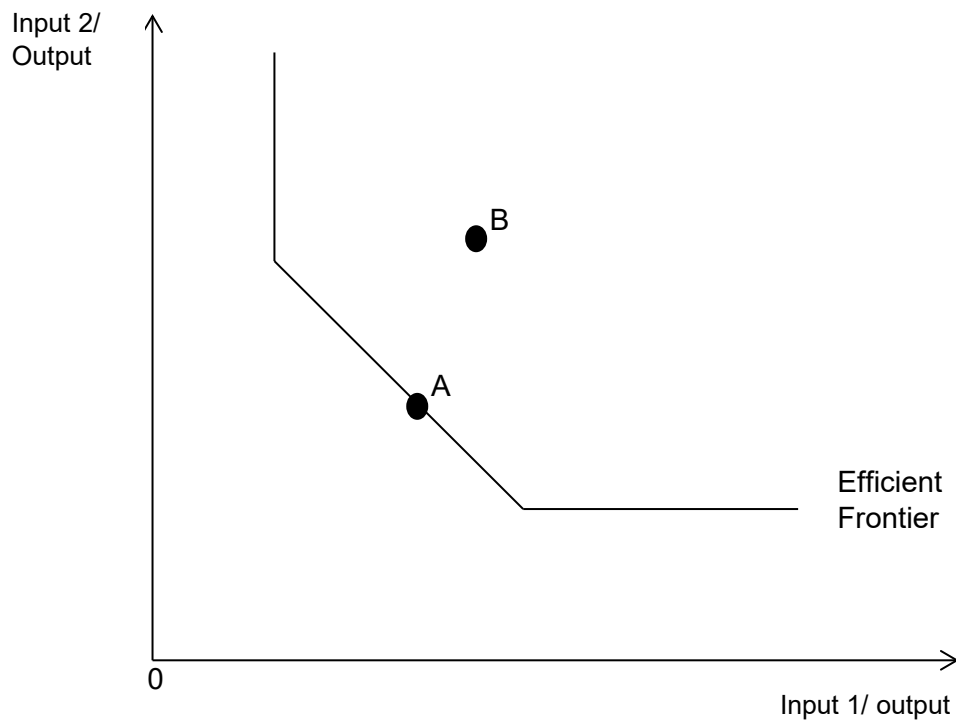
In Figure 1, Council A lies on the efficient frontier (which is also made up of the other optimal conversion councils), and Council B is relatively less technically efficient. By comparing the radial distance from A to B we can precisely measure the efficiency of Council A that lies on a scale ranging from zero (perfect inefficiency), through to one (perfectly efficient and hence lying on the efficient frontier). In Figure 1, Council A would be assigned the score of 1, and Council B a number between zero and one. Because DEA uses multiple inputs and outputs that more accurately reflect the actual local government production function than per capita operational expenditure, it is a far superior way to understand a given local government's technical efficiency.

Technical efficiency is but one of at least three types of efficiency that are routinely employed in scholarly writing about local government. Two other types of efficiency are allocative efficiency (making sure that the outputs produced concord with resident consumer demand) and dynamic efficiency (changes in technical efficiency owing to

improvements in technology or production process[5]). The former type of efficiency is mainly dealt with through the political process (although there is a very large literature from abroad that contends that residents also shop around for the basket of local government goods and services that best conform to their preferences), whilst the latter has been largely ignored (although it could be promoted through astute regulatory decisions)[6].

Technical efficiency is important because it is a good measure of the stewardship of taxpayer resources. However, it is important to note that efficiency is significantly affected by both resident consumer preferences (if residents demand higher standards of local government goods and services, then this will almost certainly result in higher unit cost and hence lower relative technical efficiency) and environmental constraint (the socio-demographics, population density, and geography of the local government area).

Unfortunately most discussions of efficiency have completely ignored the importance of environmental constraint, despite its propensity to significantly affect the metric[7]. For instance, in low socio-demographic areas, need for services may be higher and a council responsive to its citizens will appear to be operating with low relative technical efficiency. Another example can be found in the geography of an area – for instance, the climate and topography of Bellingen are important environmental constraints that have a significant effect on the cost of road construction and maintenance. Thus, it is important for end users of this report to be very cognisant of the challenges faced by Bellingen in delivering services. Moreover, because no other council has precisely the same operating environment as Bellingen Shire it is important that careful comparisons are made – remaining cognisant of the point we raised earlier (namely that the only true and fair comparison is that made to Council itself over time).

We conducted three data envelopment analyses (DEAs), to obtain a comprehensive indication of Council's relative technical efficiency. Figure 2 and Table 1 provide details of our DEA conducted with respect to all local governments in the state over the period 2014 through to 2018 inclusive. We provide details for:

> the highest performing council in each year (North Sydney);

> the typical council (measured by both the mean (average) and the median (middle score when arranged in ascending numerical order));

> the lowest performing council;

> the mean of the peer group selected by Council; and

> Bellingen Shire Council.

According to this analysis, Council performs below the typical council in NSW, but at a comparable level to its peer group. The reason that the peer group and Council appear to have lower relative technical efficiency is that these councils all provide extra services in comparison to the typical urban council. For example, water and sewer services, which result in increased per unit expenditure reflective of the additional outputs. To compensate

[5] Andrews and Entwistle, 2013.
[6] Grant and Drew, 2017.
[7] Drew and Dollery, 2015.

for this bias we conducted a separate analysis which only included local governments in the state that provide water and sewer services (see Figure 3 and Table 2 below).

Figure 2. Technical efficiency, whole state, 2014-18
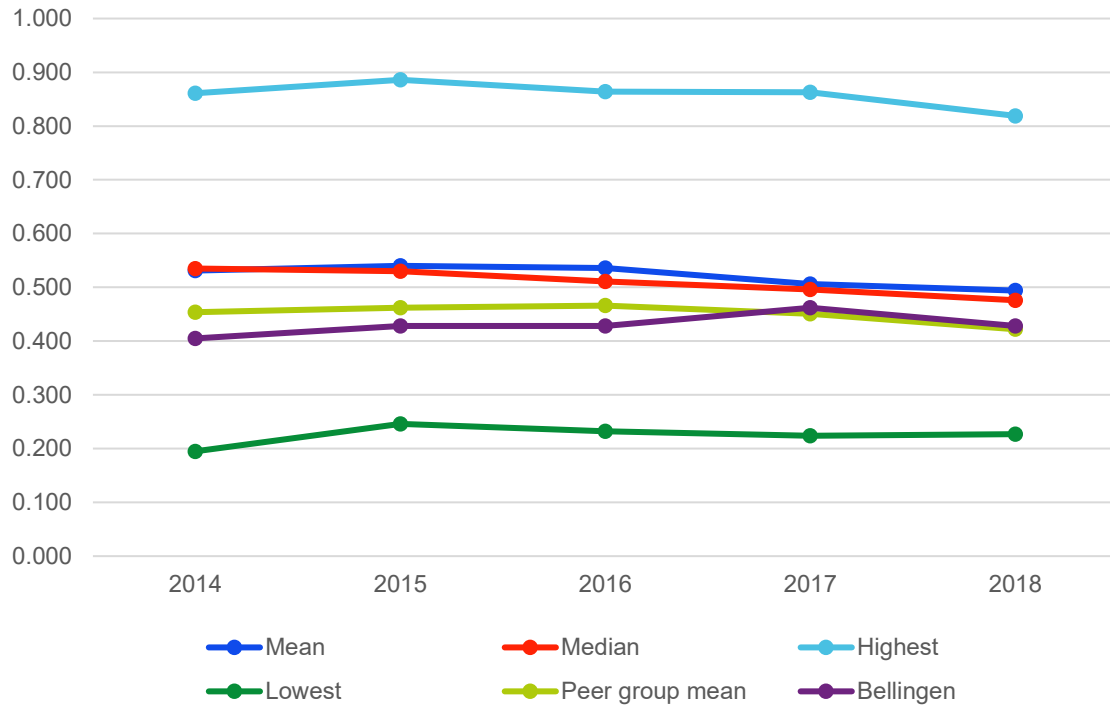
Table 1. Technical efficiency, whole state, 2014-18

	2014	2015	2016	2017	2018
Mean	0.531	0.540	0.536	0.506	0.494
Median	0.535	0.530	0.511	0.496	0.479
Highest	0.861	0.886	0.864	0.863	0.819
Lowest	0.195	0.246	0.232	0.224	0.227
Peer group mean	0.454	0.462	0.466	0.451	0.422
Bellingen mean	0.405	0.428	0.428	0.462	0.428

When we exclude urban and non-utility providers from our analysis we get a very different picture of Council's relative performance. For the 2018 financial year, Council had slightly higher technical efficiency than the typical council in the peer group (as measured by the mean) and only marginally lower technical efficiency than the typical council (with utilities) in the state. More importantly, Council's technical efficiency consistently improved over

the five years, even though the typical performance in the state has deteriorated over most of the period of analysis.

As stated, previously the most important comparison is against Council itself over time (not against its peer group). Financial sustainability is a long-run concept. Therefore, it is more important for a council to be improving over time than to have a particular score in a certain year. The trend is positive for Council, which suggests that management and staff have been working hard (and more effectively than the typical council in the state) to contain and even improve on unit cost.

Figure 3. Technical efficiency, councils with water provision remit, 2014-18
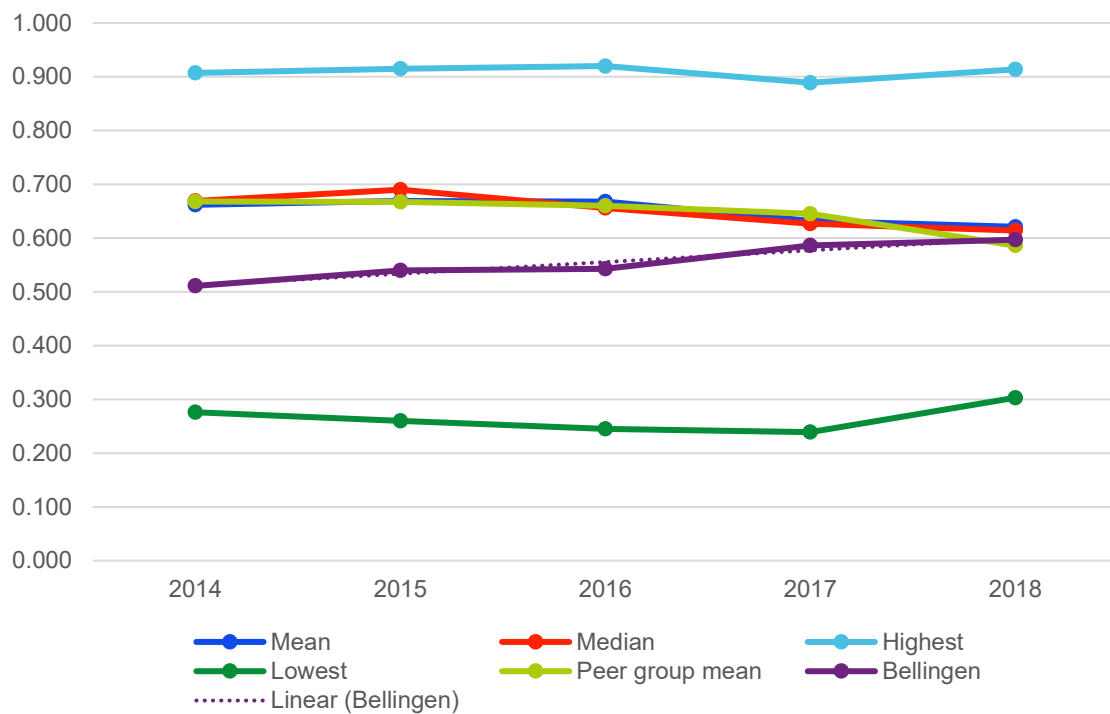
Table 2. Technical efficiency, councils with water provision remit, 2014-18

	2014	2015	2016	2017	2018
Mean	0.662	0.669	0.668	0.632	0.621
Median	0.669	0.690	0.656	0.627	0.614
Highest	0.907	0.915	0.920	0.889	0.914
Lowest	0.276	0.260	0.245	0.239	0.303
Peer group mean	0.668	0.667	0.660	0.645	0.586
Bellingen mean	0.511	0.540	0.543	0.586	0.597

The preceding DEA analysis only measures the relative technical efficiency of Council against councils that also provide water and sewer services over the five years. It is important to remember that what we are measuring here is the *relative* technical efficiency – that is, if one compares the technical efficiency of Council to a different set of councils, then one will get slightly different answers (hence the *prima facie* contradiction for Figures 3 and 4). When compared against just the fifteen peers selected by Council, Bellingen's performance is below that of the typical peer council. However, we note that the trend is steeply positive, which is a very good sign for long-run financial sustainability. We also draw end-users' attention to the fact that Figure 3 (Table 2) is probably the most comprehensive fair comparison of Bellingen's relative technical efficiency.

Figure 4. Technical efficiency, Bellingen and peer group, 2014-18
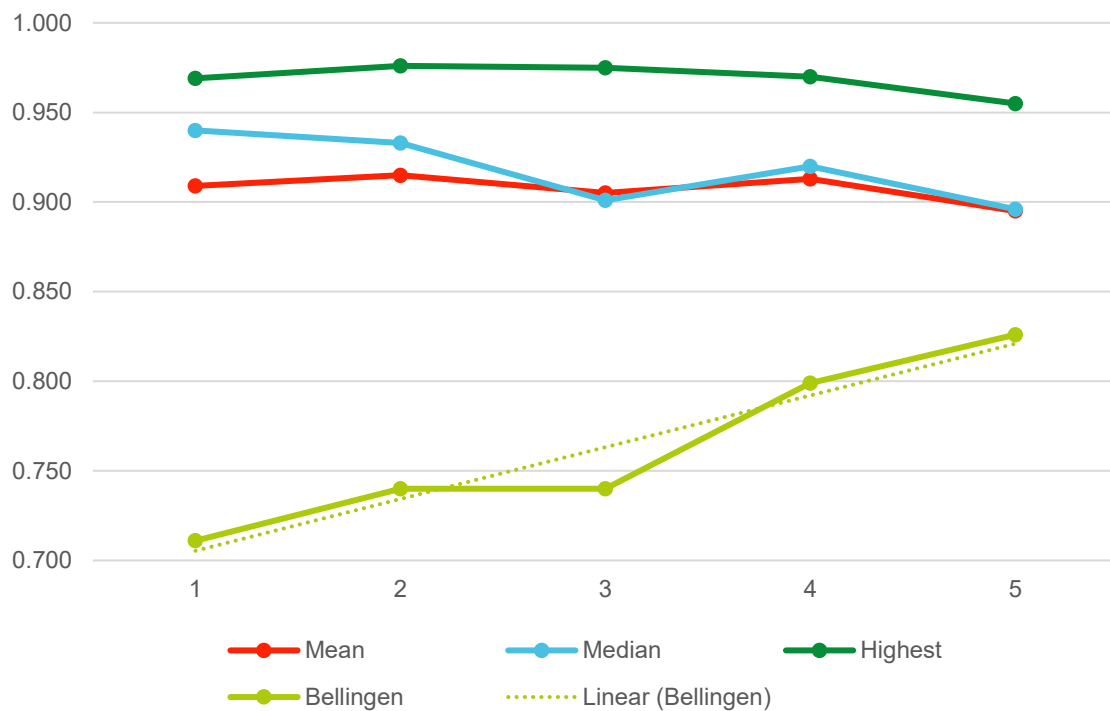
Table 3. Technical efficiency, Bellingen and peer group, 2014-18

	2014	2015	2016	2017	2018
Mean	0.909	0.915	0.905	0.913	0.895
Median	0.940	0.933	0.901	0.920	0.896
Highest	0.969	0.976	0.975	0.970	0.955
Lowest	0.711	0.740	0.740	0.799	0.825
Bellingen mean	0.711	0.740	0.740	0.799	0.826

For this final DEA we also estimated the proportional reduction in inputs required to move Council to the efficient frontier. Our modelling suggests that, holding outputs constant, it would be necessary for operational expenditure to be reduced by $2.270 million and staff expenditure by a further $1.514 million, per annum, in order for Council to become the optimal converter of inputs into outputs for the peer group.

For all of the reasons that we detailed earlier (socio-demographics, population density and geography), reductions of this size are probably not practical. What is important, however, is that Council continues its work to ensure that costs rise slower than the growth in rates assessments.

2.3 Financial Ratios

To gain more insight into Council's efficiency profile, we have examined specific financial ratio data. This analysis is detailed below.

All of the charts that appear below are box and whisker plots (also known as Boxplots). The line in the middle of the box is the median. From this line the box extends down to the first quartile (the median of the lower half of the distribution) and the third quartile (the median of the upper half of the distribution). The x marks the mean and when the distribution of data is not skewed, the mean will coincide with the median. The whiskers extend to cover most values below quartile 1 and above quartile 3, although extreme outliers (very unusual scores) are marked as dots beyond the whiskers. There is a separate boxplot for the entire peer group for each year, and to the right of each boxplot is a line that marks in Council's relative position with respect to the cohort.

2.3.1 Road Expenditure

It appears that Council's road expenditure per kilometre rose from 2016 to 2018, but remained comparable with the typical unit expenditure (according to the median or mean) of the peer group (Figure 5). Given the challenges of topography and climate faced in the Bellingen region this is a creditable result. Unfortunately, the result does not explain the relative performance of Council against the peer group that we noted in our DEA.

Figure 5. Road expenditure (per kilometre)
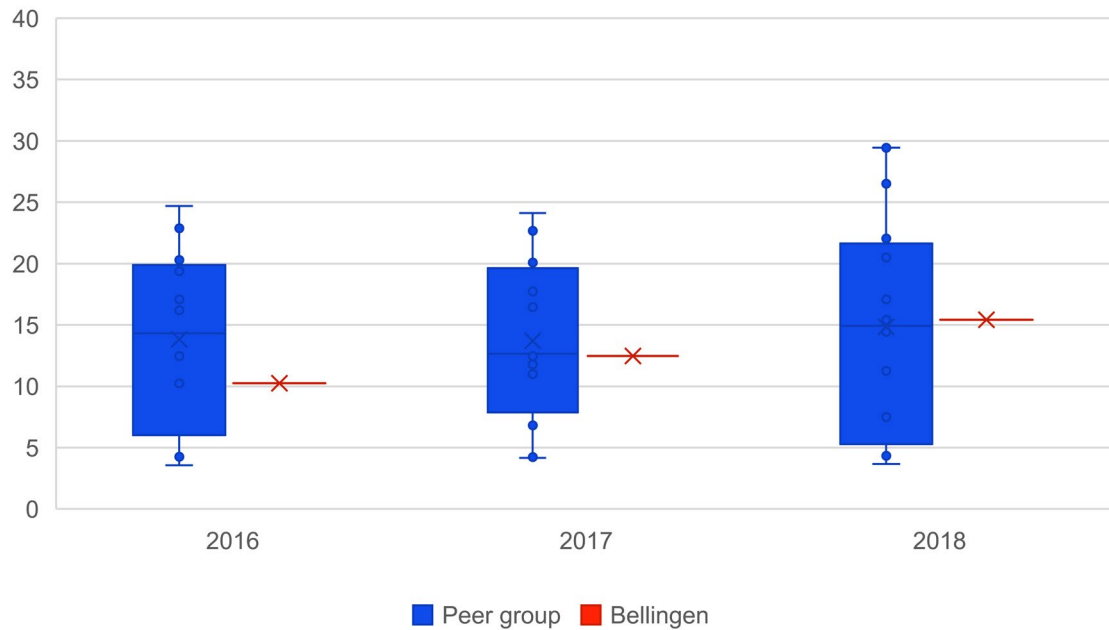
2.3.2   Water and Sewerage Expenditure

To gain further insight, we examined the unit cost for water and sewer provision per connection. However, our analysis is only for the 2016 financial year because the Department of Primary Industries (Water Division) has not yet released the reports for 2016-17 or 2017-18 financial years. For water (Figure 6), Council is relatively efficient, but for sewer services (Figure 7), Council is slightly above the typical unit cost for the peer group.

Figure 6. Water operational expenditure (per connection)
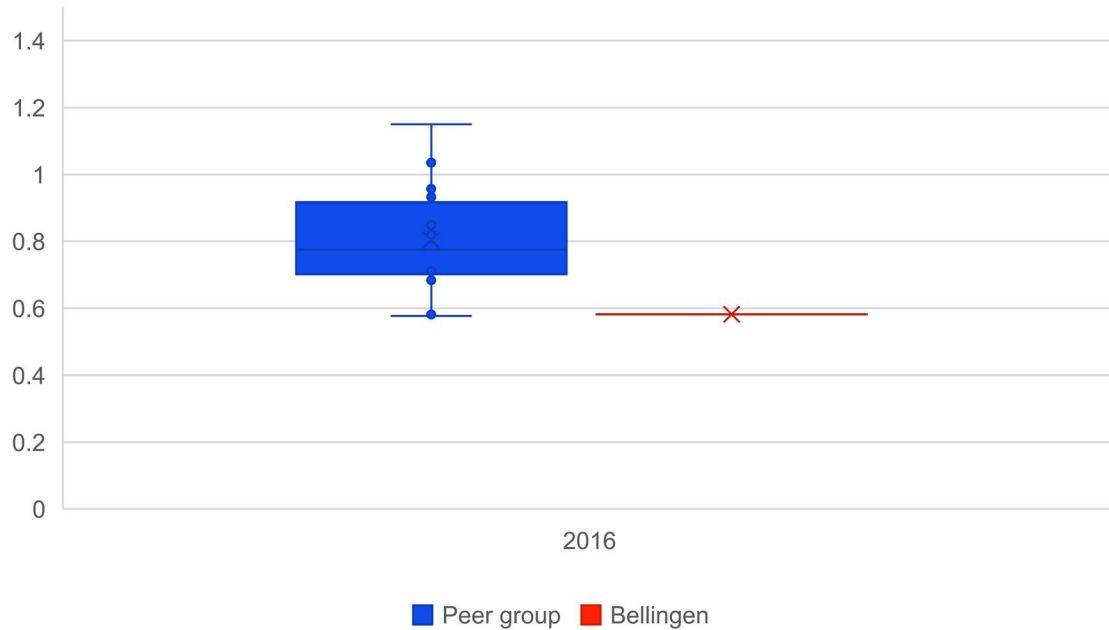
Figure 7. Sewer operational expenditure (per connection)
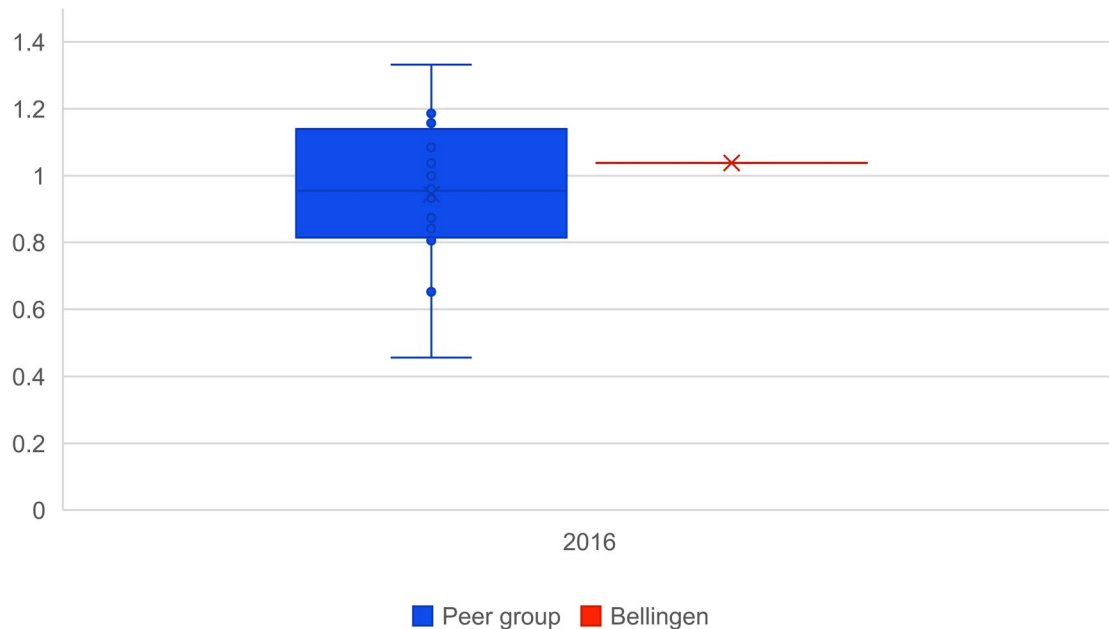
2.3.3   Operational Expenditure per Unit

The minimal discrepancy that we observe between the unit cost for Council and the peer group in road, water and sewer expenses suggests that the reason for deviations in relative technical efficiency that we noted in the DEA might lie elsewhere.

Figure 8 largely confirms that this is the case – operational expenditure per assessment for goods and services (other than road water and sewer) is where Council mostly departs from its peers. Notably the trend has been downwards. Moreover, in 2018 the result was closer to the typical outcome for the peer group, which coincides with the relatively better technical efficiency score for this year.

Therefore, if Council wishes to continue to improve in its relative technical efficiency, the best place to start would seem to be with services other than roads, water and sewer. In particular, our data suggests that a service level review might prove helpful. If the relatively higher unit expenditure is consonant with community need, then little can be done in the short-run, however, if a service level review was to find that some services could be reduced in quantity or quality then there might be good potential gains in technical efficiency to be made.

Figure 8. Operational expenditure per assessment (excl. road, water and sewer expenditure)
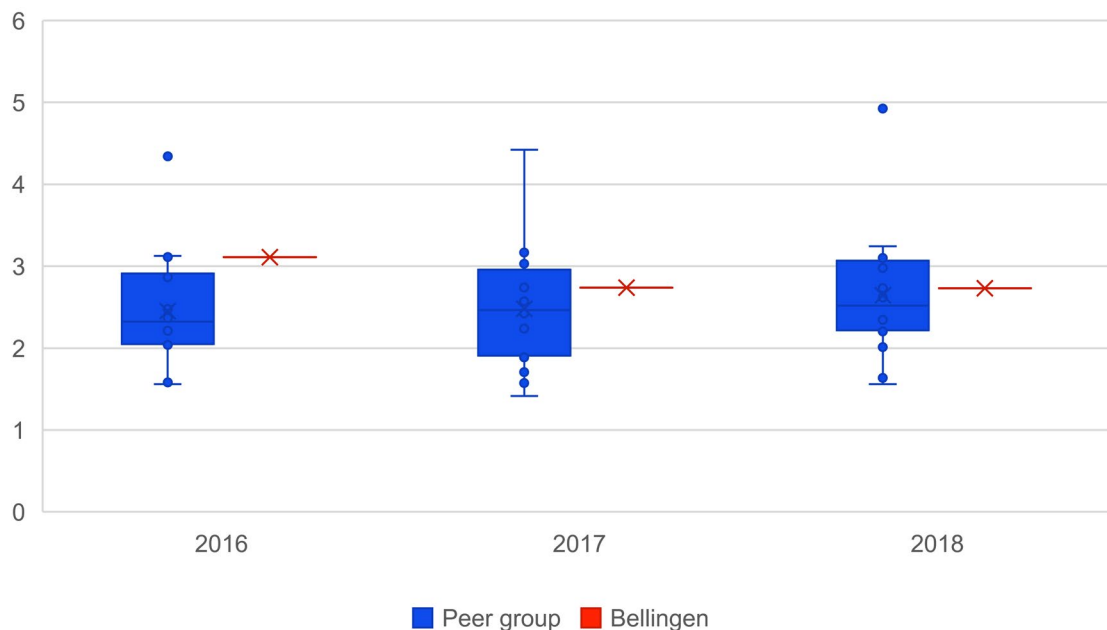
2.3.4 Staff Expenditure

One final matter relating to Council's efficiency is Council's cost structure for employee expenses relative to the peer group.

There are two main ways to analyse staff expenditure: as a proportion of operating expenditure or on a per assessment basis. Figure 9 suggests that Council has a generally high proportion of its operating expenditure attributable to employee costs, relative to its peer group. This impression is confirmed in Figure 10 that suggests unit employee costs are probably higher than comparable peers. As we have noted a number of times, there may be very good reasons for elevated staff expenditure. For example, in response to

environmental constraints or resident need, however it seems that if Council is to make continued progress in its relative technical efficiency, then it will be important to contain future increases in the employee cost-base as much as possible.

Therefore, we recommend that Council continues to consider the establishment of additional future employee positions very carefully and aims to increase additional staff expenditure at a rate lower than the increase in total number of assessments

Figure 9. Staff expenditure as a proportion of operating expenditure
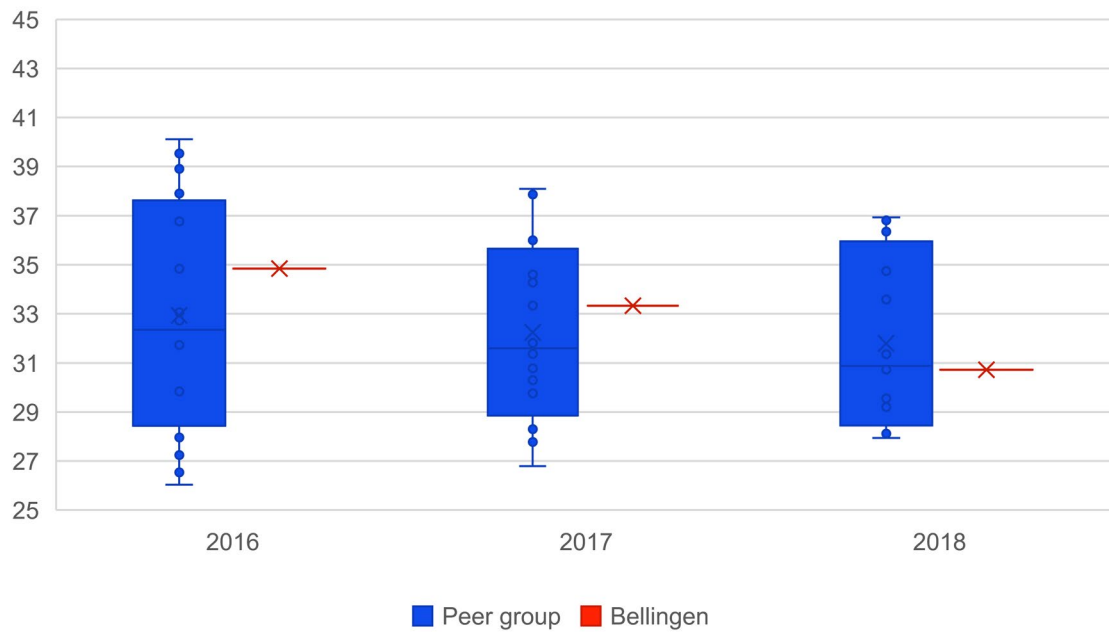
Figure 10. Staff expenditure per assessment ($'000)

Peer group ■ Bellingen ■
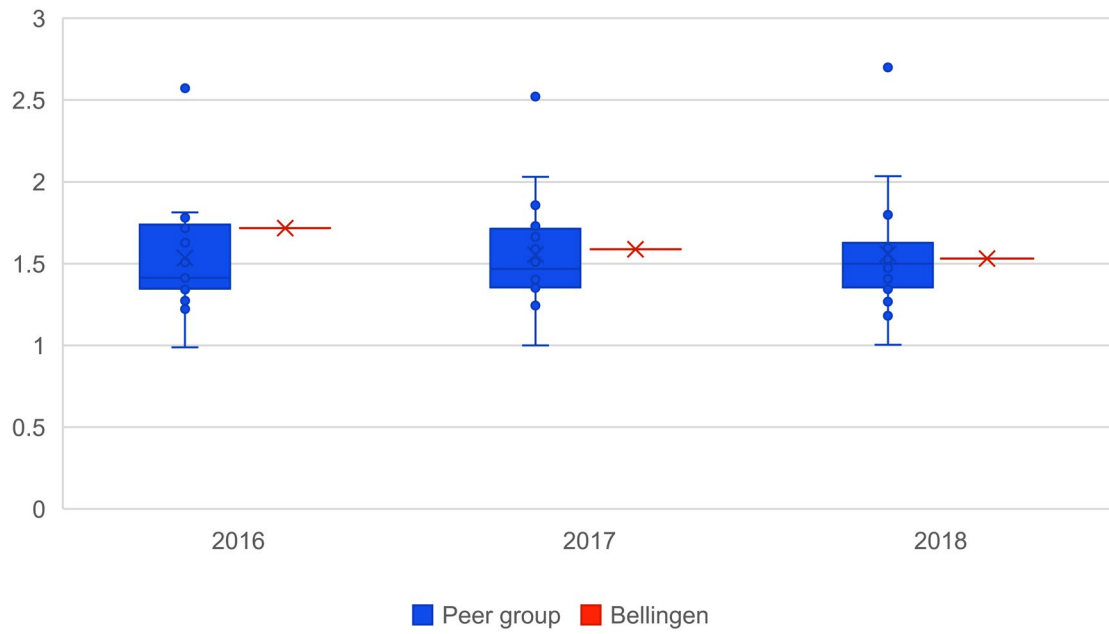
3 Aspects of Bellingen's Financial Sustainability

This section provides measures of a range of aspects of Council's financial sustainability over time (from 2016 onwards) and in relation to the peer group.

3.1.1 Operating Performance Ratio

The purpose of the operating ratio is to measure the extent to which a council has succeeded in containing operating expenditure within operating revenue. It is important to emphasise that this ratio focuses on operating performance, and hence capital grants and contributions, fair value adjustments, and reversal of revaluation decrements are excluded. The current benchmark is greater than zero per cent (according to the OLG and Department of the Auditor-General).

However, the OLG/ Department of Auditor-General specification for the operating ratio, as used in NSW, is somewhat misleading as it defies basic double-entry bookkeeping principles. Specifically, grants for capital purposes are excluded, but the corresponding expenses for capital goods (depreciation) are retained. This tends to present a more damaging picture of local government operating position than is strictly warranted.

This method of calculating operating ratio, as applied to all NSW councils in the notes to their financial statements has at least two weaknesses. First, for the reason of environmental constraint, which we discussed earlier, it is never appropriate to apply the same benchmark to all councils in the state (as if the operating context for the council has no impact on actual results). Second, especially given the failure to observe basic double-entry bookkeeping protocols, a benchmark of break-even is not appropriate in most cases. Indeed, in its 2006 study, PricewaterhouseCoopers (2006) used a benchmark of -10 per cent, which still wasn't appropriate because all councils were assessed by the same benchmark irrespective of environmental constraint and TCorp used a benchmark of -4 per cent.

When considering a target operating ratio, it is also useful for Council to strike a balance between collecting sufficient revenues over the medium term to cover expenses and avoiding material surpluses, which might indicate to the community that Council's taxation is too high, and almost certainly will raise expectations for improvements to services and service levels[8].

Thus short periods of large surpluses can, somewhat paradoxically, lead to financial stress over the long-term if they give rise to inappropriate taxation restraint or increases to services that can't be financed over the long term.

---

[8] See for example, Drew 2017; Stalebrink 2007; Grant and Drew, 2017.

In view of the risks regarding large surpluses and the poor specification of the operating ratio, Council has probably struck the right balance by recording very slim surpluses in recent years.

Figure 11. Operating performance ratio
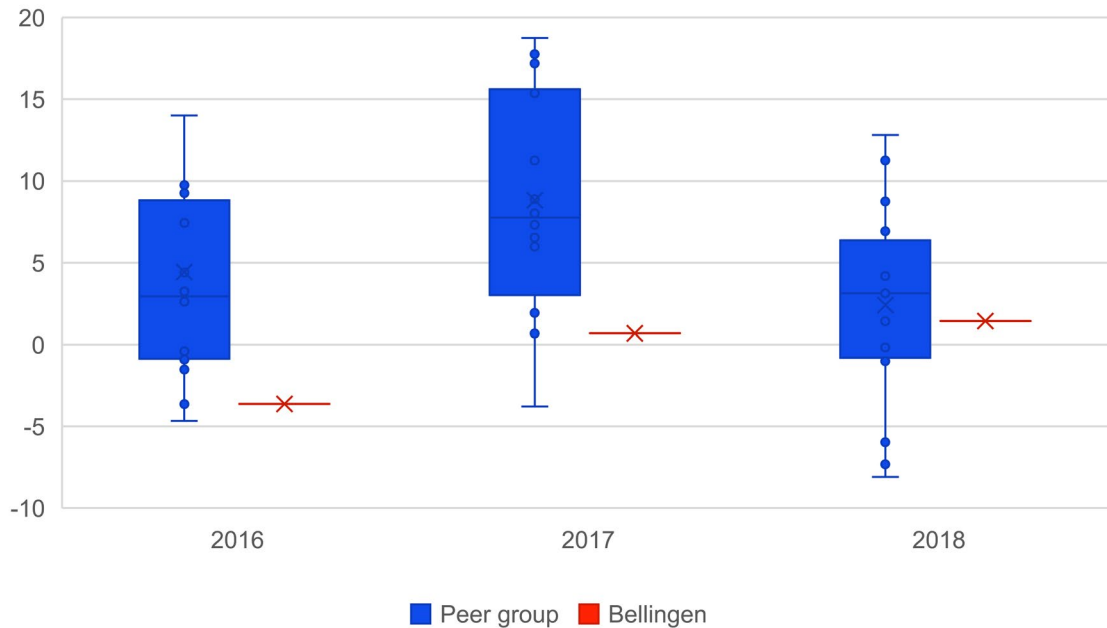
3.1.2 Operating Cash Flow

The operating cash flow measures cash that flows in or out of the councils control over the financial year for purposes relating to the operating activities (which differs to the income statement, for instance, which recognises revenues and expenses when they arise which may differ substantially to when the cash is received or paid). It largely mirrors the picture provided by the relative operating performance ratio.[9] Again, Council is towards the bottom of the peer group, but in view of the risk of having surpluses that are too high (as explained with respect to operating ratio above), this is probably a prudent position.

---

[9] Deflated by revenue consonant with Steccolini et al. 2017. It is common practice to deflate cash flow numbers by revenue so that fair comparisons can be made between councils of different size.

Figure 12. Operating cash flow as a proportion of revenue

Legend: Peer group (blue), Bellingen (red)
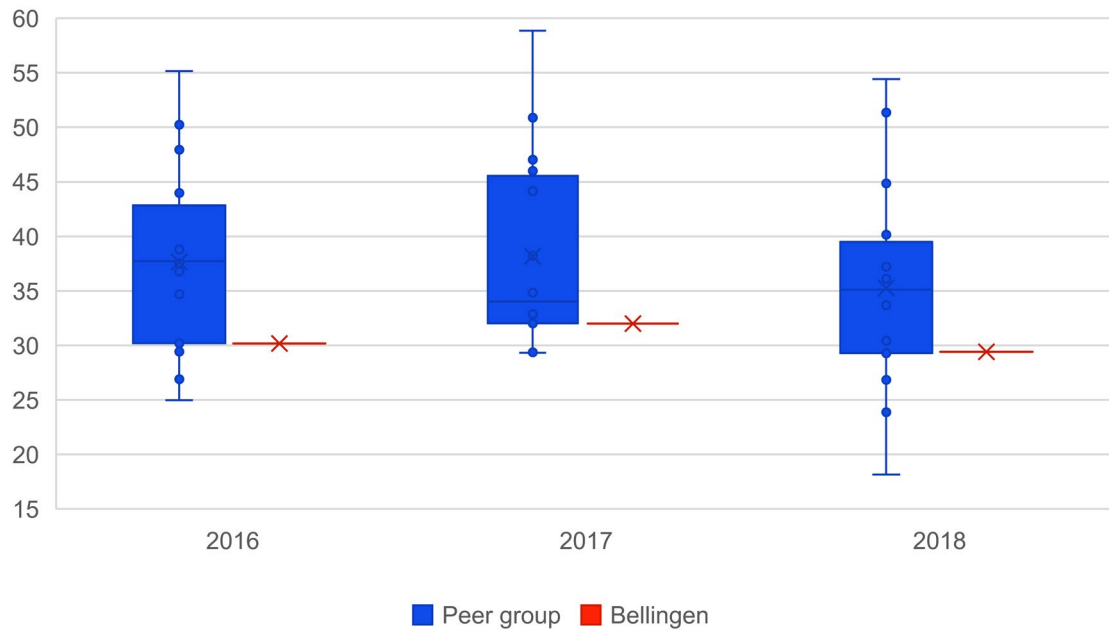
3.1.3   Investing Cash Flow

Investing cash flows should be negative in most instances owing to the need to replace plant and equipment and build infrastructure assets. The more a council is investing in long-life assets the more negative will be the cash flow. Investing cash flows tend to be lumpy because big infrastructure is built infrequently. Compared with its peer group, Council is on the low side (that is, its investing cash flows are less negative than most of the peers which suggests a relative underspend in long-lived assets) for investing activities, but if this is consistent with long term financial plans then this need not be cause for worry. However, it is important to keep an eye on asset replacement and infrastructure backlogs with respect to predicted growth in the local government area.

Figure 13. Investing cash flow as a proportion of revenue

Peer group ■ Bellingen ■
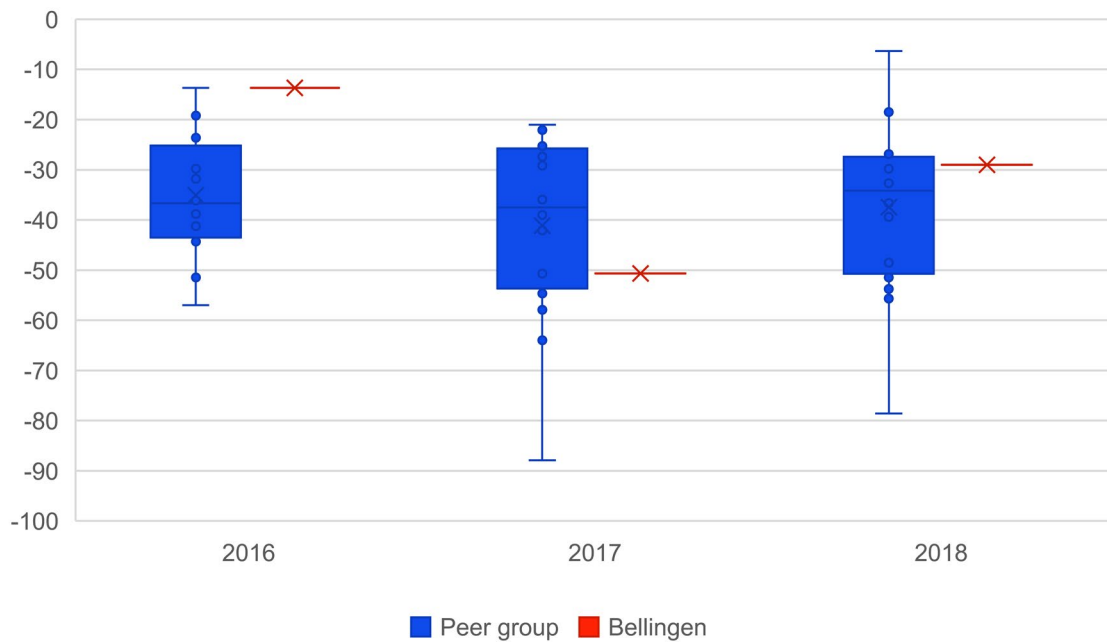
Financing Cash Flow

Financing cash flows look at borrowings and repayments. Council has a very conservative setting for borrowings (repayments and no borrowings over the period – see Figure 14), which is prudent for a comparatively small council with relatively low revenue capacity. Debt carries with it a significant moral hazard and little attention has been paid to this by regulators and commentators alike. We will discuss debt in greater detail later in the report.

Figure 14. Financing cash flow as a proportion of revenue
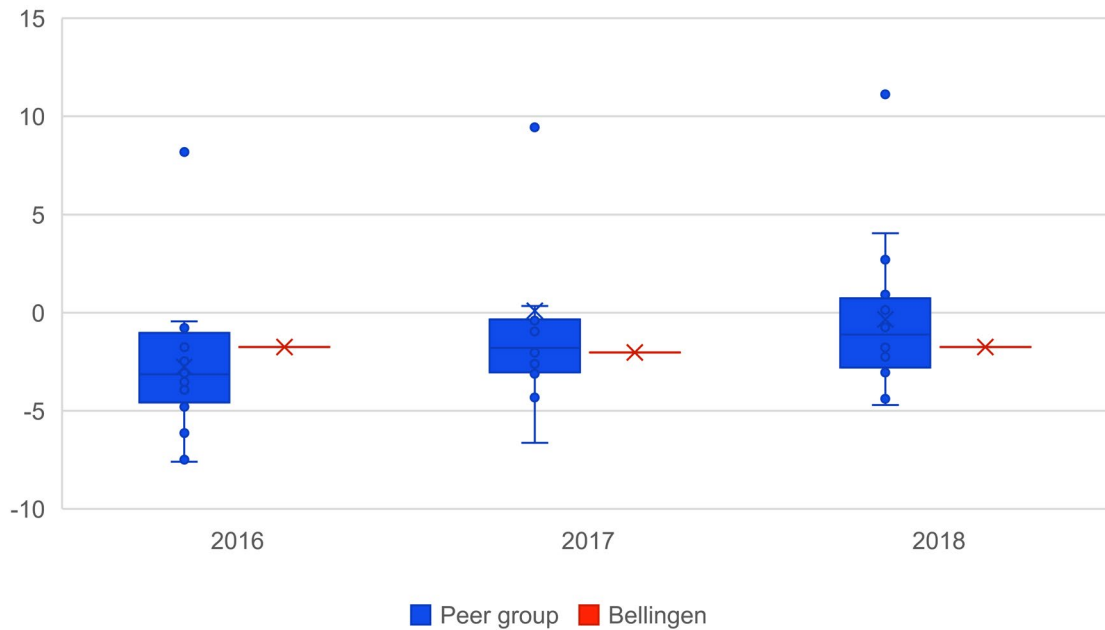
3.1.4 Own Source Ratio

The own source ratio is purported to measure fiscal flexibility. It reflects the degree of reliance on external funding sources, such as operating grants and contributions. The benchmark is for the proportion of revenue derived from taxation, fees, charges and the like to be greater than 60 per cent.

The evaluation of all councils against a universal benchmark presents some challenges that can lead to poor public policy outcomes, for reasons set out below.

The reason why own source revenue may be relatively low is because of the payment of intergovernmental grant transfers (Financial Assistance Grants (FAGs) being the major source). The whole purpose of the FAGs is to achieve horizontal fiscal equalisation (HFE)[10] . HFE is necessary in all federations and exists in order to:

- avoid inefficient migration of capital and labour;

- reduce the occurrence of pork barrel politics;

- promote regional development, especially as it relates to commodity exports; and

- to ensure that all people are treated equally by government irrespective of their postcode[11].

Under HFE, higher tiers of government (in Australia's case, the Federal government uses state local government grant commissions to allocate FAGs) make transfers to local

[10] Local Government (Financial Assistance) Act 1995 (CTH) s6(3)).
[11] See Grant and Drew 2017; Drew and Campbell 2016.

government designed to '*ensure that each local governing body in a State is able to function, by reasonable effort, at a standard not lower than the average standard of other local governing bodies in the State'*.[12]

Clearly, rural councils and councils in low socio-demographic areas will need to receive relatively greater transfers if HFE is to be achieved. It follows by logical extension that rural councils and councils in low socio-demographic areas will have relatively low own-source ratios. To hold that all councils should be evaluated on the same benchmark with respect to own source revenue is to ignore the reality of different operating environments and the economic principles of intergovernmental grant systems that operate in all federations.[13]

We recommend that limited emphasis be placed on this ratio, other than as an indication that FAG transfers may be lower than what might be warranted: a higher than expected own source ratio suggests FAGs may be lower than reasonable. Later in this report, we will present evidence relating to the appropriateness of existing allocations

Figure 15. Own source ratio

■ Peer group   ■ Bellingen
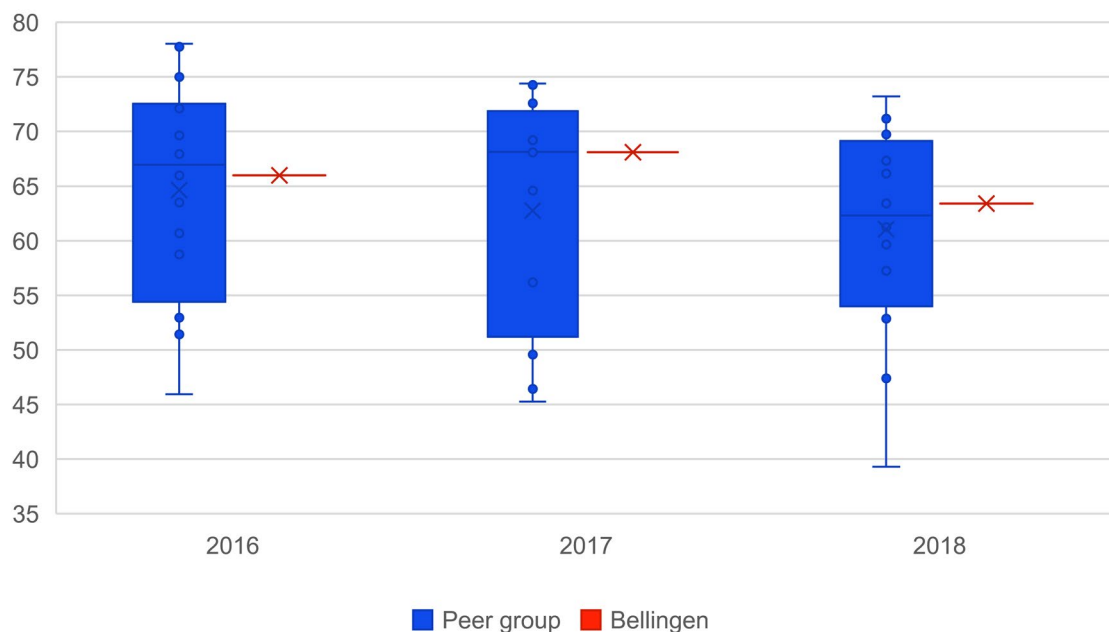
3.1.5 Unrestricted Current Ratio

The unrestricted current ratio and cash expense ratio both measure liquidity.

We would generally not expect any council to have a sudden liquidity problem – problems of liquidity emerge only after very lengthy periods of financial crises (and occur just prior to

---

[12] Local Government (Financial Assistance) Act 1995 (CTH) s6(3)(a)).
[13] See seminal work of Oates, 1999.

insolvency). It is likely that other ratios would sound the alarm well before one noticed anything in the liquidity ratios.

Council has more than adequate liquidity as attested to by both the unrestricted current ratio and cash expense ratio. Incidentally, we note that the current specification employed by Audit NSW and the OLG for the cash expense ratio (Figure 17) is technically incorrect (52/4 is 13 not 12), which is the reason that we have presented it in weeks.

It should also be noted that for these particular ratios it is not appropriate to compare Council to the peer group and that exceeding the ratio benchmarks by a very high margin has grave implications for the appropriate investment in economically efficient assets and infrastructure, thus should be avoided.

Figure 16. Unrestricted current ratio
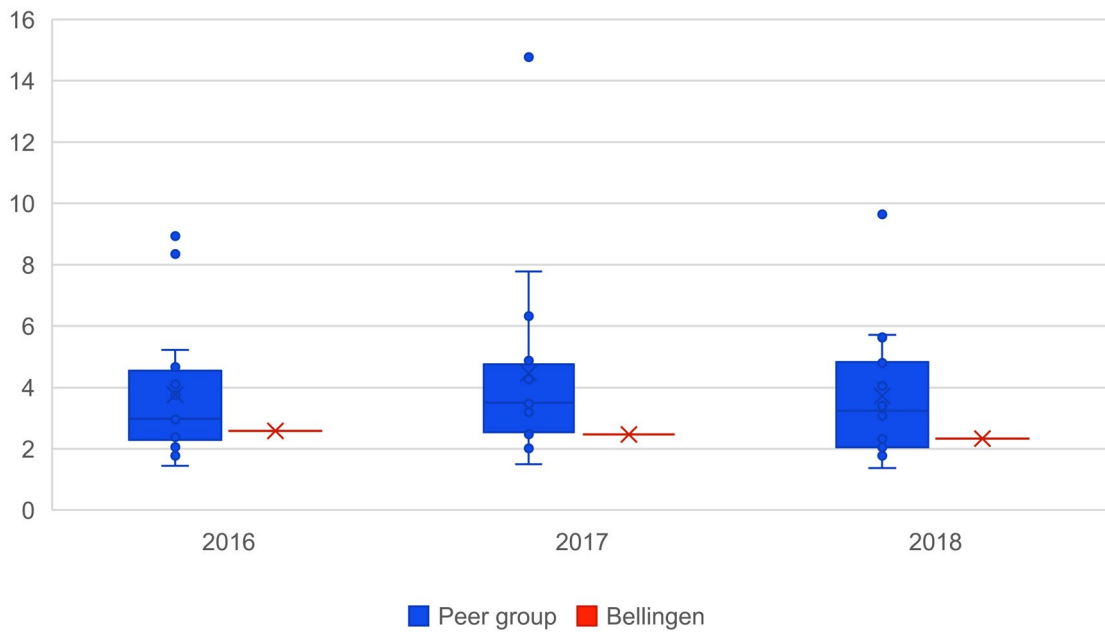
Figure 17. Cash expense ratio (weeks)

Peer group ■ Bellingen ■
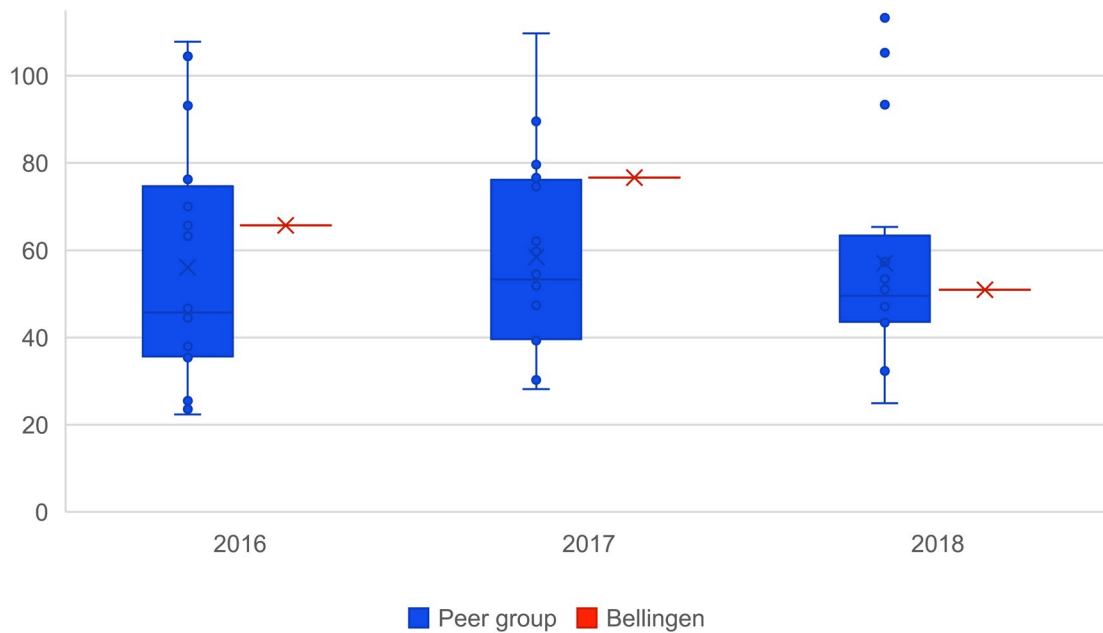
3.1.6   Rates and Annual Charges Outstanding

The purpose of the rates and annual charges outstanding metric is to assess the impact of uncollected rates and annual charges on liquidity and the adequacy of recovery efforts. It can also inform us about two important aspects of local government financial operations:

- the effectiveness of rate and charges recovery programs, and
- the capacity of the community to pay charges and local government taxation.

Unfortunately, the two elements of this ratio are conflated, making it impossible to separate out whether the significant improvement in Council's performance is due to the efforts of management and staff, or to an upturn in the local economy. In truth, it is likely a combination of both aspects.

The trend for Council for this ratio is downwards and exceptional in comparative outcomes (Figure 18). As such, this is an area that should be of relatively little concern to Council decision makers.

Figure 18. Rates and charges outstanding
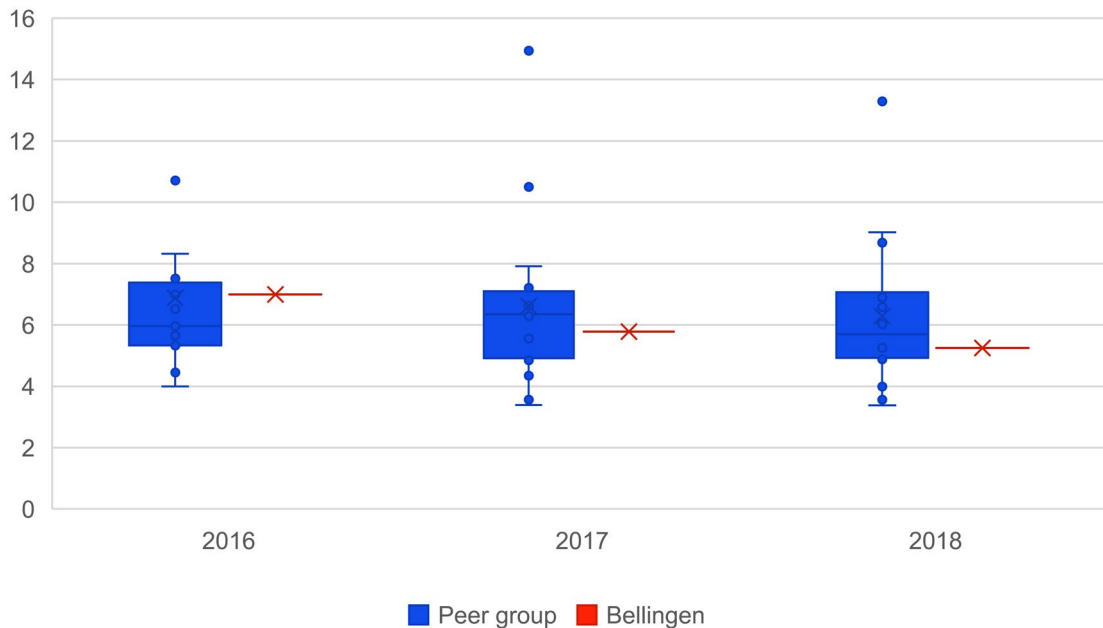
3.1.7 Debt Service Ratio

This ratio measures the availability of operating cash to service debt including interest, and principal. The benchmark is greater than two times.

A lot of uninformed commentary has been provided on the matter of local government debt in recent years, starting with the ill-conceived focus placed on debt by the Independent Local Government Review Panel and the initial fit for the future (FFTF) requirement that all councils should carry some debt. Sub-national debt has reached crisis levels in much of the world and is likely to be the impetus for the next financial crisis, an indicator of the ease with which debt can be misused[14]. It is important for any council that is considering taking on debt to first conduct robust econometric analysis of its debt capacity. This type of analysis goes well beyond the debt ratios currently in use.

To understand the moral hazards associated with local government debt, it is first important to note that debt is not a source of revenue, but rather a way of bringing forward future local government taxation receipts (at cost)[15]. Therefore, taking on debt binds future ratepayers to higher taxation, on which they have had no political voice [16]. If debt is taken on to pay for services and short-lived assets then there can be no moral defence for shifting today's consumption onto tomorrow's taxpayers. However, there *might* be some moral justification for using debt to fund some long-lived assets, provided that the debt inherited is proportional to the remaining useful life (that is, previous taxpayers have paid

---

[14] Drew and Campbell, 2016.
[15] See Boadway and Shah, 2009; Buchanan, 1997.
[16] Bruekner, 1997.

off at least the portion of the asset that was consumed by them) *and* that the asset is likely to be of value to future local government taxpayers.

There is also the issue of debt bias that lies behind the rapid growth in sub-national debt around the globe that must be considered – residents and decision makers who do not expect to be ratepayers for the entire period required to pay off the debt actually gain, in a pecuniary sense, when debt is taken on to pay for assets[17]. For older residents (and decision makers), as well as for persons considering a short-term move out of the local-government area, there is therefore a strong incentive to prefer that debt be used to fund asset purchases and consumption related expenditures. Lastly, debt fosters fiscal illusion – because taxpayers are allowed to defer payment for goods and services consumed in the present there is a very weak price signal sent that generates dissonance between the value that residents actually receive and the price that they have actually paid. A large body of scholarly literature shows that this fiscal illusion heightens demand and weakens financial sustainability[18].

The debt service ratio has weaknesses as an indicator of assessment of debt level, as it only considers principal repayments and borrowing costs, and entirely neglects other important liabilities (for example staff leave entitlements) as well as current assets (available to service the debt).

Nevertheless, Council comfortably satisfies this metric and benchmark, as shown by Figure 19.

Figure 19. Debt service ratio
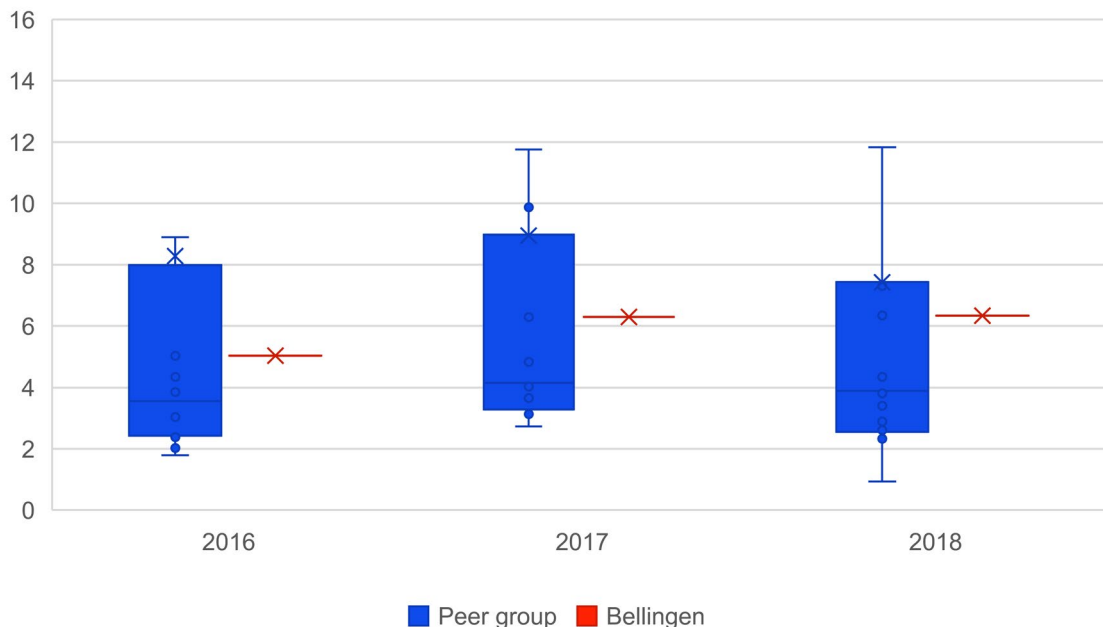
[17] Buchanan, 1997.
[18] See for example, Grant and Drew 2017.

3.1.8   Nett Financial Liabilities Ratio

A much more useful metric than the debt service ratio is the nett financial liabilities ratio, which features prominently in the scholarly literature, and is employed in both Queensland and South Australia. This metric looks at the difference between total liabilities and current assets available to service the liabilities.

As can be seen in Figure 20, Council has a negative position, which means that its current assets outweigh its liabilities. This is a good outcome for future residents and is testament to the prudent and ethical conduct of Council's finances.

Figure 20. Nett financial liabilities
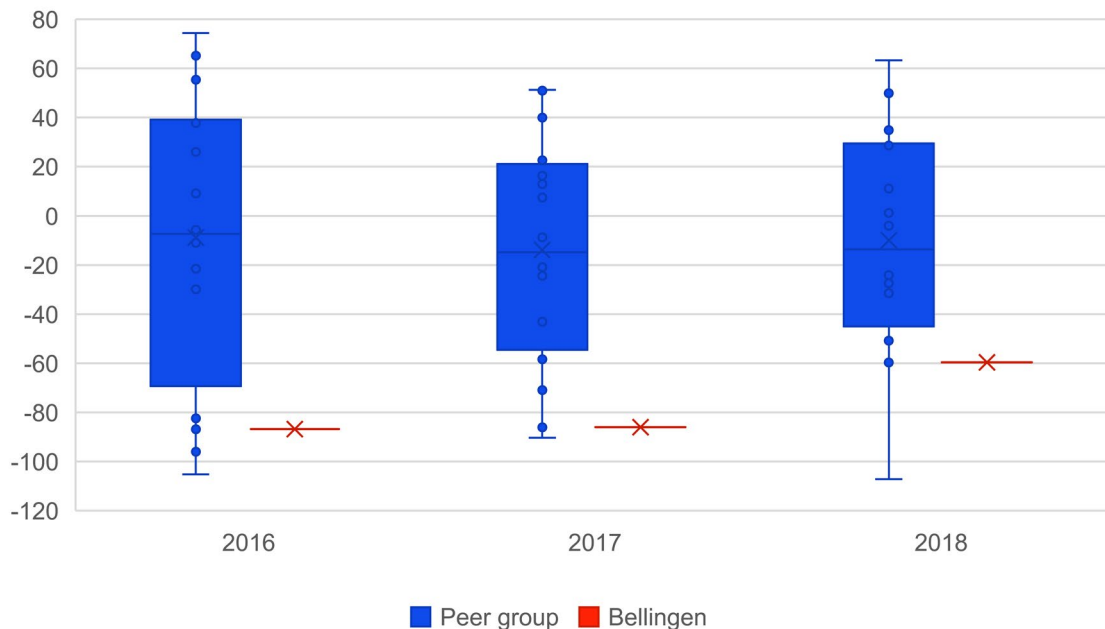
3.2   Infrastructure Metrics

Recently, a considerable amount of public attention has been focused on the state of local government infrastructure. However, the metrics used in NSW have been the subject of considerable manipulation,[19] suggesting that comparisons between councils must be done very carefully.

---

[19] Drew 2017.

Building and Infrastructure Renewals Ratio

This ratio assesses the rate at which assets are being renewed against the rate of which they are depreciating. The benchmark is greater than 100 per cent.

However, it should be noted that the current benchmark for the buildings and infrastructure renewal ratio could potentially see councils spending more on renewals than necessary, and doesn't reflect in any way the sporadic nature of infrastructure spending for local government. This is reflected in Council's relatively low performance for the renewals ratio in the 2016 and 2017 financial years (Figure 21), followed by a relatively large jump in the 2018 financial year. This is to be expected and is no cause for concern.

Figure 21. Building and infrastructure renewal ratio
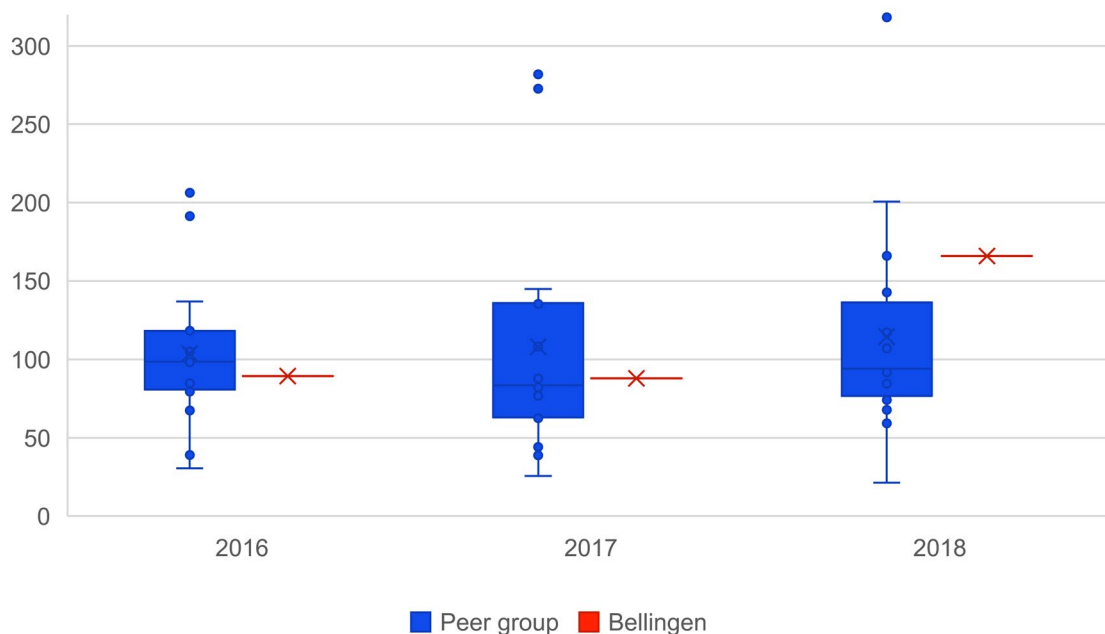
3.2.1 Infrastructure Backlog Ratio

The infrastructure backlog ratio measures the proportion of infrastructure backlog to the total nett book value of a council's infrastructure assets. The benchmark is less than two per cent.

This metric is particularly subjective and unreliable. The main input to the ratio is the cost to bring assets to a satisfactory standard, but this term has never been defined adequately[20].

---

[20] Drew and Grant 2017.

Council is well above the benchmark for this metric in recent years and higher than its peer group. However, this may be mostly a reflection of diligent reporting and estimations. Importantly, the main point is that Council has a good understanding of its taxpayers' preferences with respect to the infrastructure backlog that is deemed satisfactory, and this should be a matter explored carefully in service reviews. If the estimates are consistent with taxpayer preferences, then Council needs to methodically work on lowering the backlog over time. This cannot be done quickly and we caution that launching aggressively into remedial work could put financial sustainability at risk.

Figure 22. Infrastructure backlog ratio

Peer group ■ Bellingen ■
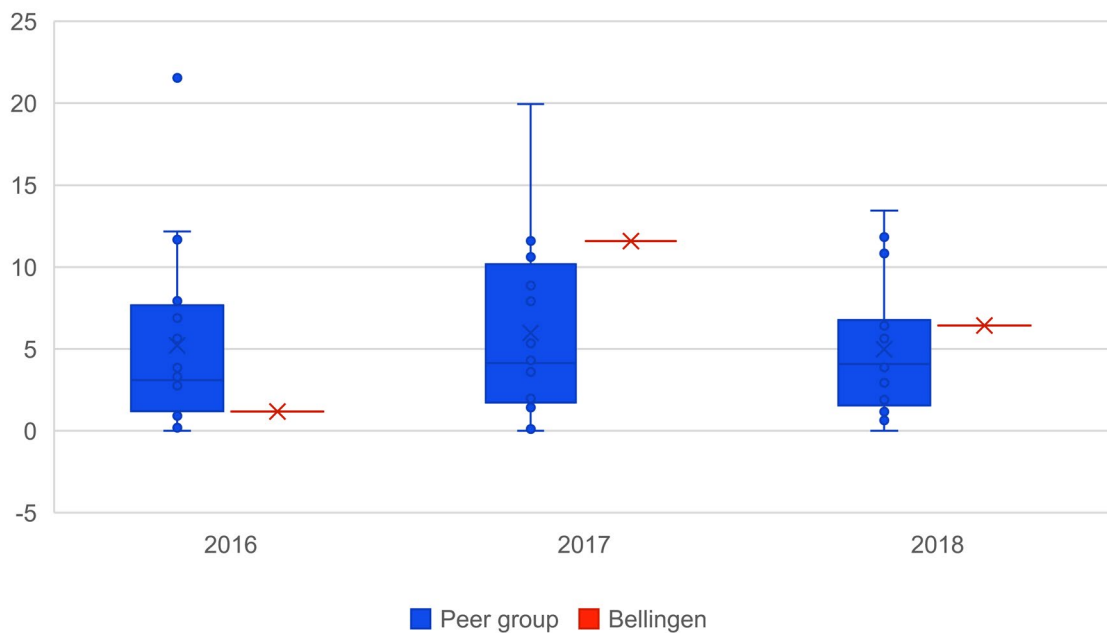
3.2.2 Asset Maintenance Ratio

This ratio compares actual versus required annual asset maintenance – a number that can be subjective and difficult to estimate. The benchmark is greater than 100 per cent.

Figure 23 indicates that Council has revised the required annual maintenance figure down substantially in 2017. We also note that Council has been increasing the level of spending on asset maintenance for each of the three years analysed, which is consistent with the profile of a council making prudent and steady improvements to its overall financial sustainability.

Figure 23. Asset maintenance ratio

■ Peer group ■ Bellingen
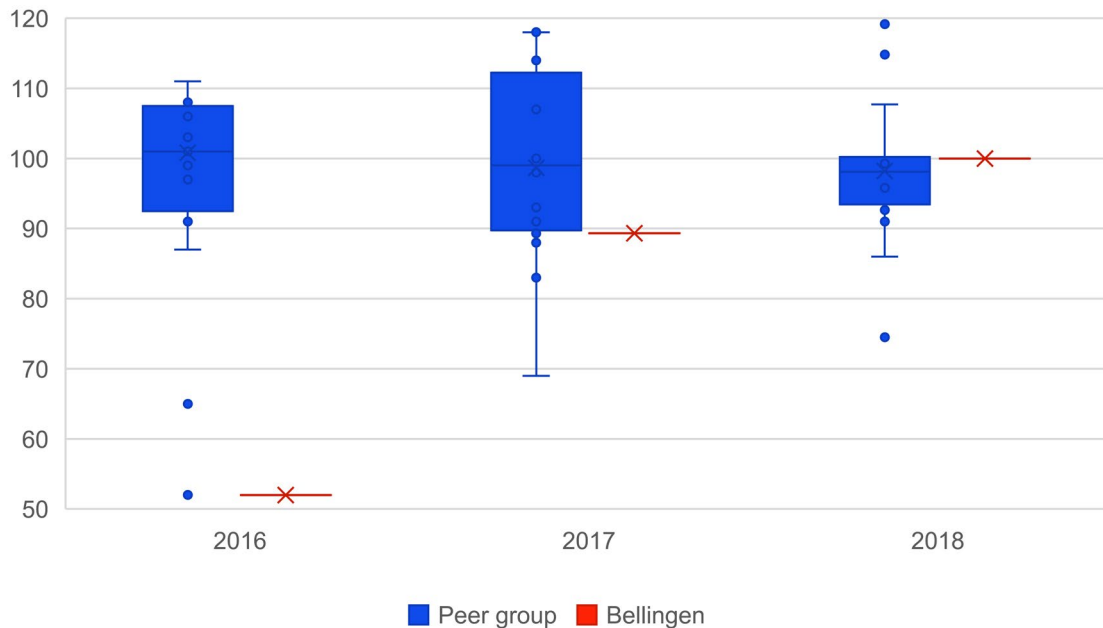
3.3   Budget Accuracy

Not enough attention has been paid to the matter of budget accuracy, either in the scholarly literature or by regulators. In forthcoming work, McQuestin, Drew and Noguchi (2019) analyse the association between technical efficiency and budget accuracy. What they find is strong and statistically significant evidence that suggests that as accuracy diminishes, so does technical efficiency. Unfortunately, most of the inaccuracy in local government budgets falls largely outside of the control of councils. Often, the greatest sources of inaccuracy relate to grants and contracted work. We have already described the unpredictability of the intergovernmental grant system that operates in NSW and this has also been covered comprehensively in the scholarly literature.[21] Ideally the NSW local government grants commission would establish a reliable, robust and defensible allocation methodology. Doing so would improve the predictability of inward cash flows for councils and recent econometric evidence suggests that this would improve technical efficiency substantially.[22]

Unpredictable contracted work (especially Roads & Maritime Services (RMS) work) is also a problem for many rural councils and Bellingen is no exception. More thorough planning by RMS is the key to solving this problem and hence improving technical efficiency.

A review of the notes to Council's financial statements suggests that council has fallen victim to these exogenous influences on local government budgeting. The floods and grants pertaining to the floods in recent years have also had a large bearing on budget

[21] See Grant and Drew, 2017.
[22] McQuestin, Drew and Noguchi, 2019 forthcoming.

accuracy. Council may therefore wish to investigate advocacy channels (such as appropriate peak bodies) with respect to this matter.

Figure 24. Deviation from budgeted revenue
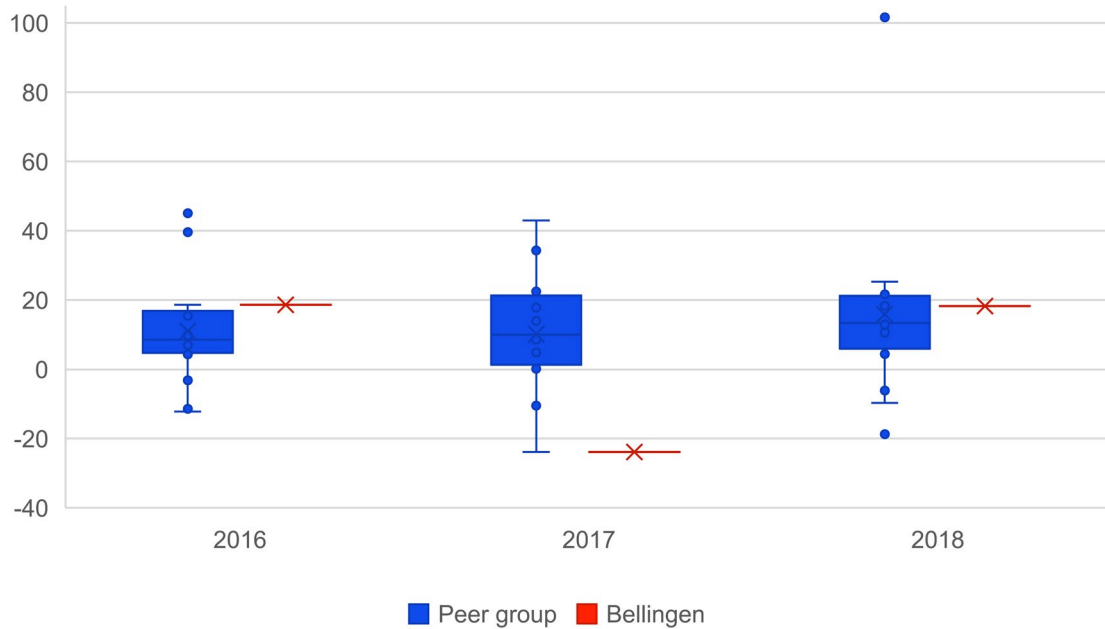
Note: Positive results indicate underestimated revenue.

Figure 25. Deviation from budgeted expenditure
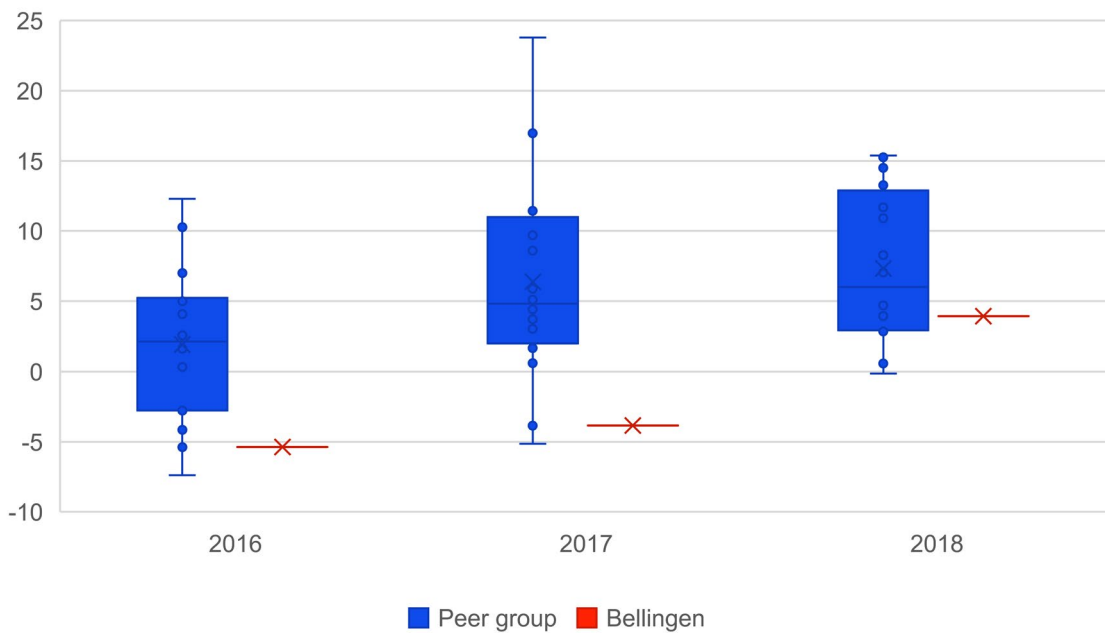
Note: Positive results indicate underestimated expenditure.

3.3.1 Nexus Rate

Nexus is an oft-ignored but critical aspect of local government financial sustainability. The Nexus Rate measures how much of the operational expenditure is paid for out of fees and charges. All things considered, the higher the nexus rate the better things are in terms of financial sustainability.

There is a huge body of economic literature that demonstrates why the common tax pool should only be used to fund public goods and services and the subsidy component of merit goods.[23]

Public goods and services are items that are both non-excludable and non-rival in consumption. Non-rival means that my use of the public good (for example a local road) does not materially affect anyone else being able to use the good. Non-excludable means that there is no simple way (or maybe even no lawful way) to stop me from using the public good (for instance, council would be hard pressed to try to enforce a toll on its local roads). Public goods have to be funded through taxation because otherwise the goods would never be produced (because no-one can make a profit or even recoup their costs otherwise). Indeed the provision of public goods is the raison d'etre of government[24].

Merit goods are another important class of goods and services. These are items that are provided to the community in the belief that there is some laudable value in the good that should be internalised by residents. For instance, libraries and public swimming pools are provided because it is generally believed that reading gives rise to knowledge and that exercise is beneficial to the health of persons.

There is a moral argument for using *some* of the common tax pool to subsidise *some* of the costs associated with merit goods in order to elicit optimal levels of consumption. However, often local governments provide subsidies that are poorly targeted or above the minimum levels required to achieve the desired purpose (efficient levels of consumption). If subsidies are poorly targeted (for instance if a subsidy is provided to all children entering a public swimming pool irrespective of the income of the parents), then the common tax pool suffers (more is expended than necessary), there are thus less funds available to apply to other important merit good subsidies, and equity for taxpayers suffers[25].

If the subsidies are higher than required to elicit optimal levels of consumption then money is being spent that could have been more usefully directed elsewhere *and* upwards pressure is exerted on demand. By way of contrast, if subsidies are lower than required to elicit optimal levels of consumption then the merit objective is not fully realised. The correct level of subsidy can be determined with reference to the community – either through carefully designed survey instruments or through application of variable pricing policies and empirical evaluation of the data that is produced from same.

The opposite of public goods and services are private goods and services. These are things that are both rival and excludable. Provision of organic compost from a rubbish tip

---

[23] Grant and Drew, 2017.
[24] Oates, 1999.
[25] Drew and Grant, 2017; Siricio, 1997.

is a good example – once I use it on my garden it is gone and not available to others, and council can easily stop me from just turning up to the tip and taking the compost I desire.

Private goods and services must be funded through fees and charges set according to a supply-side or demand-side approach. To do otherwise would introduce risks to a council's financial sustainability, visits inequity on taxpayers (why should they pay for something they are excluded from using), and damages the local economy (if private providers are in competition with council). A demand side approach prices the good or service according to the 'going price' levied by other providers and removes distortion from the local economy, but may not guarantee financial sustainability if other suppliers have lower costs of production (which is probably more likely than not). A supply-side approach prices the good at its cost of provision, but may do less to avoid distortion in the local market (especially if council has lower costs of production or requires a lower return on risk than commercial enterprises).

Council's relative nexus rate suggests that it has done a good job, compared to the typical local government (generally at or above the median), of ensuring that the right types of local government goods are funded with the appropriate mix of fees and taxes. However, there is always room for improvement and Council may well benefit from re-examining how subsidies are targeted, and the level of subsidies, in particular. Getting the funding structure correct for local government goods and services increases revenue and equity, as well as reducing demand, and is an area that should be a high priority for all local governments.

Figure 26. Nexus rate
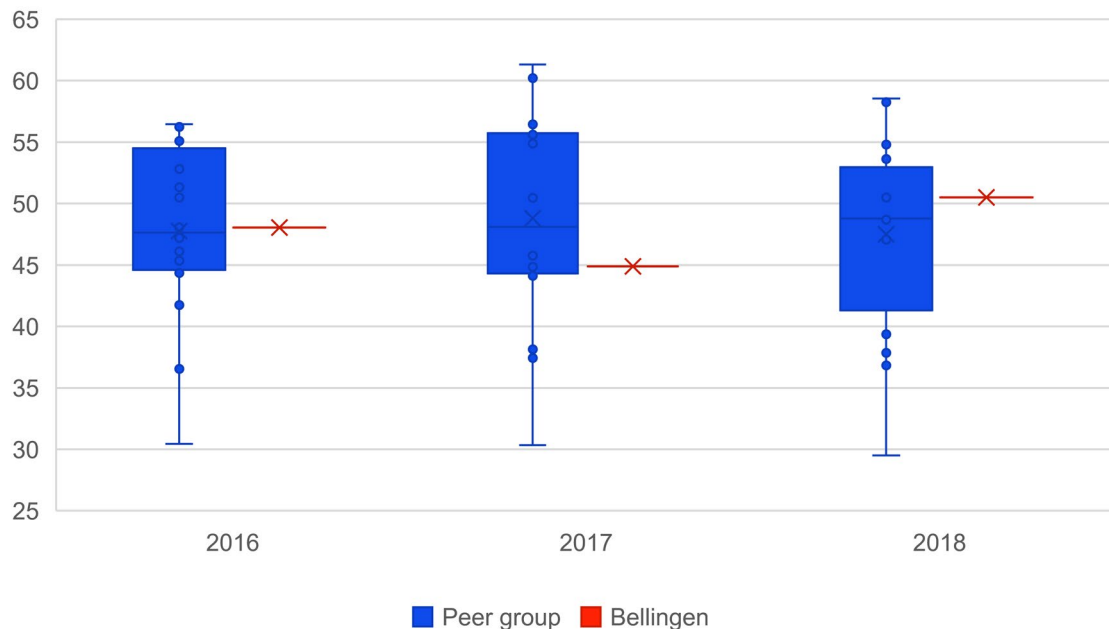
3.3.2   Road Grant

Intergovernmental grants are of great importance, especially to low population density rural councils. We know from the scholarly literature that the FAG grant allocations in most states of Australia are not robust nor defensible.[26] We also have cause to suspect from the own source ratio that the allocations for Council may not be equitable.

Figure 26 presents the road grant per kilometre data for Council and its peer group. Council receives close to the typical allocation for the peer group – the question is whether the typography, climate and substrate conditions in Bellingen are comparable to the typical peer. Notably, the NSW grants commission, unlike its Victorian counterpart, barely takes into account the environmental conditions that play such a large part in the cost structure for road construction and maintenance.[27]

Comparability is a question that Council's management are probably best equipped to answer. It may help to know that Council's rate of allocation is far lower than Ballina, Coffs Harbour, Port Macquarie and Tweed Heads for comparative purposes. It should also be noted that even if the comparison rate with respect to the peer group may seem reasonable, it is almost certainly not reasonable if considered with respect to urban local government allocations, which are generally much higher than the allocations used for rural councils, because of the flawed methodology employed.[28]

---

[26] NSW LGGC uses population as an input into the road grant component calculation. This is clearly flawed because population is negatively correlated with road length and will thus introduce bias against low population density councils, who are most in need of road grant assistance.
[27] Drew and Dollery, 2014b.
[28] Drew and Dollery 2014b; Drew and Campbell, 2016; Grant and Drew, 2017.

Figure 27. Road grant (per kilometre)
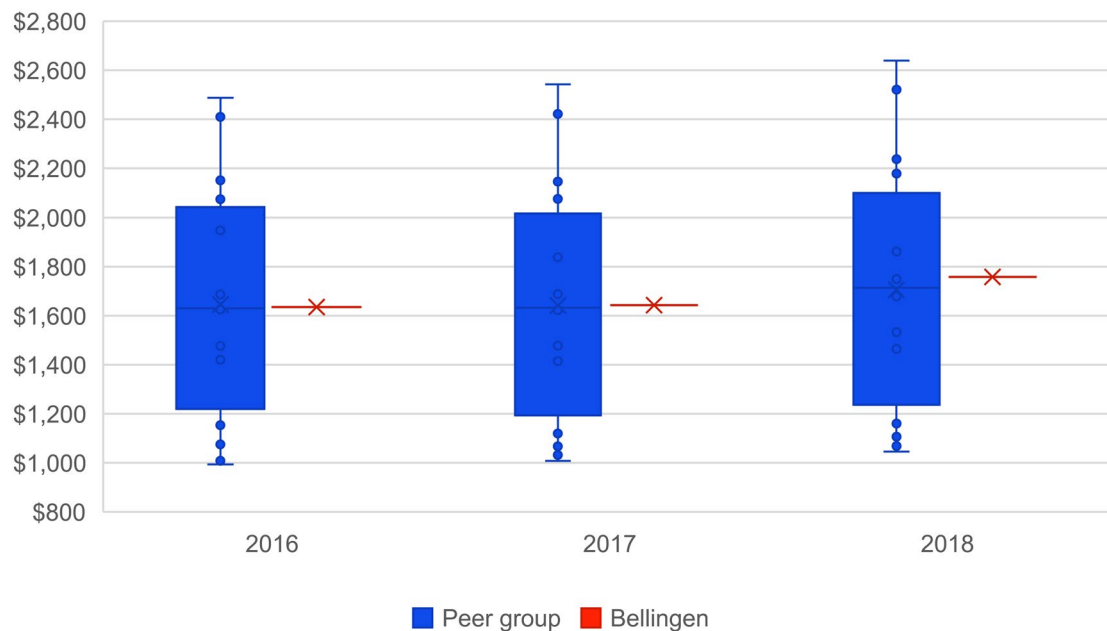
3.3.3 Financial Assistance Grant (FAG)

The general component of the FAG grant can also be compared and the most appropriate way to do so, given the stipulations in the enabling legislation regarding minimum population payments, is to present this part of the transfer on a per capita basis.

Figure 27 presents this data for Bellingen and its peer group. Once again, even if the peer comparison seems reasonable, it must be remembered that the FAGs are heavily biased towards high density urban population centres, because of the methodology in use in NSW. Given Bellingen's relatively low population density and relatively low socio-economic profile, one might have expected a much higher than typical allocation (the current allocation for Bellingen is above the median, but below the third quartile relative to the peer group). However, under the current FAG allocation method, we note that Kyogle, Parkes, Tenterfield and Warrumbungle received substantially higher unit allocations than did Bellingen.

A FAG allocation method that better reflects the objectives of the enabling legislation would be to Council's benefit. We advise Council to advocate for a fairer and more economically justifiable allocation system, with its peers, and in its interactions with peak bodies and higher tiers of government.

Figure 28. Financial assistance grant (per person)
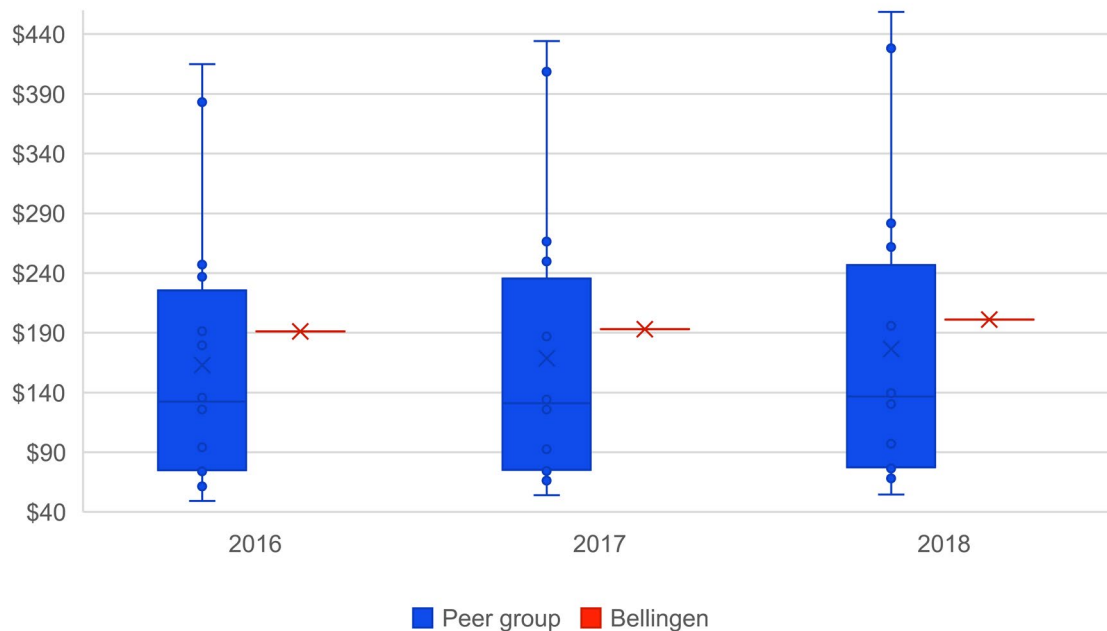
3.4 Depreciation Accruals

Another area that has caused difficulties for most local governments in Australia is the matter of depreciation accruals. Unlike many other countries that have adopted accrual accounting, Australia runs a full accruals system for public entities. This is problematic given that most government assets do not generate revenue nor can be traded in an informed arms-length transaction, which is why other countries use partial accruals.

We are aware that many councils in NSW have done a lot of work to adjust their depreciation accruals since FFTF. One way to get a sense for the comparability of Council's practice is to compare its depreciation rate (depreciation as a proportion of the carrying value of depreciable infrastructure, property, plant, and equipment) to that of its peers (Figure 29). It appears that in a comparative sense, Council's rate of depreciation is consistently at the upper end of the peer group. However, it must be remembered that depreciation accruals should be heavily influenced by the rate at which durable assets are actually 'consumed' and it may well be the case that the climate (in particular) at Council warrants a relatively higher rate of accruals. However, we also note consistent 'nett gains on disposal' which are another potential indicator that the rate of depreciation employed might be at the upper end of range.

Figure 29. Depreciation rate
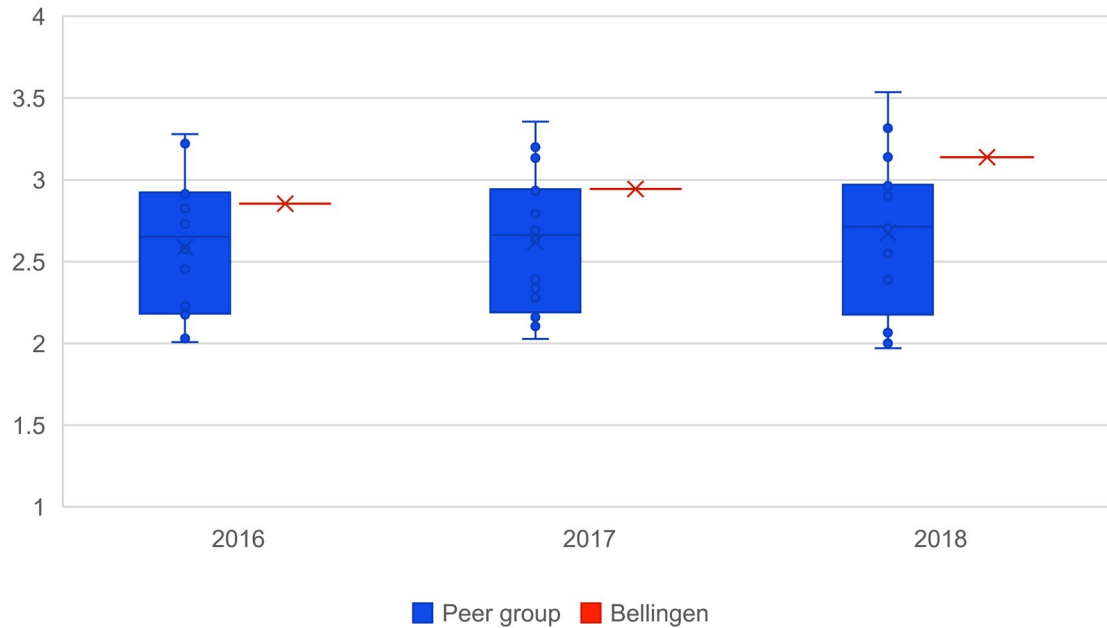
To provide a better sense of where the particular problem may lay, we also present comparisons of the depreciation rate (depreciation as a percentage of carrying value) for the 2018 financial year for asset classes that deviated significantly from the typical pattern of Council's peer group (see Figures 30 to 37).

These charts show that Council's rate of depreciation is relatively low for office equipment, and footpaths. However, Council's depreciation rate is relatively high for depreciable land improvements, roads, bridges, and sewer assets. In particular, the road and bridge depreciation rates are quite high and could have a material influence on many key financial ratios, in view of the high value embodied in these asset classes (roads especially). We re-iterate that depreciation accruals cannot be calculated precisely according to a formula and that there may be good reasons for why they deviate so strongly from peer councils. However, the data certainly suggest that it would be prudent to review the schedules for some of these asset classes, to ensure that they are indeed reflective of consumption patterns.

Figure 30. Office equipment depreciation ratio
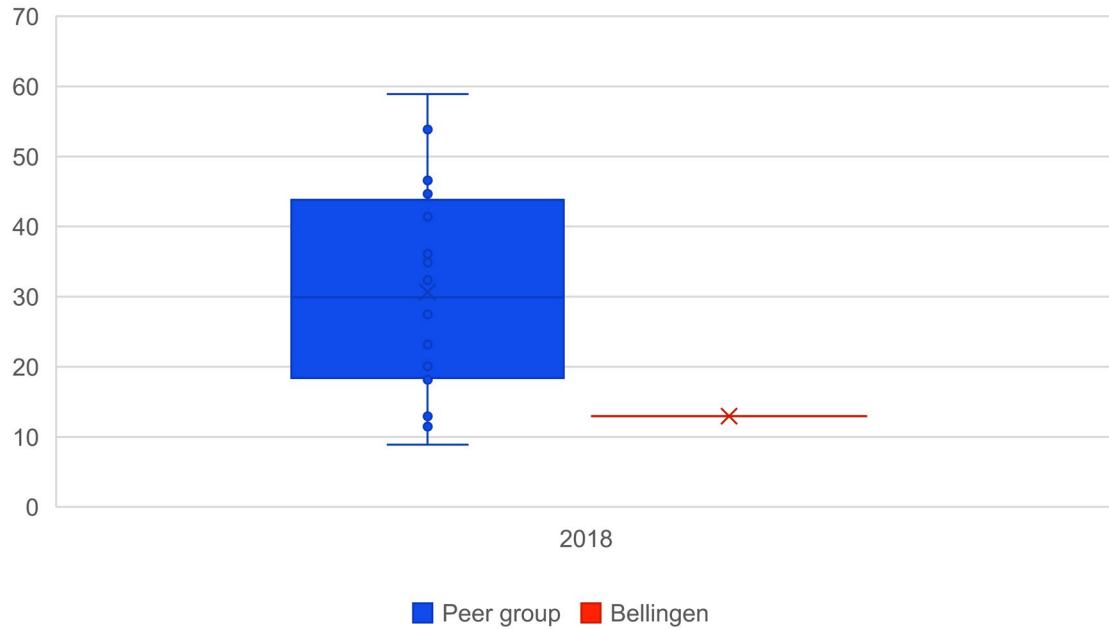
Figure 31. Depreciable land depreciation rate
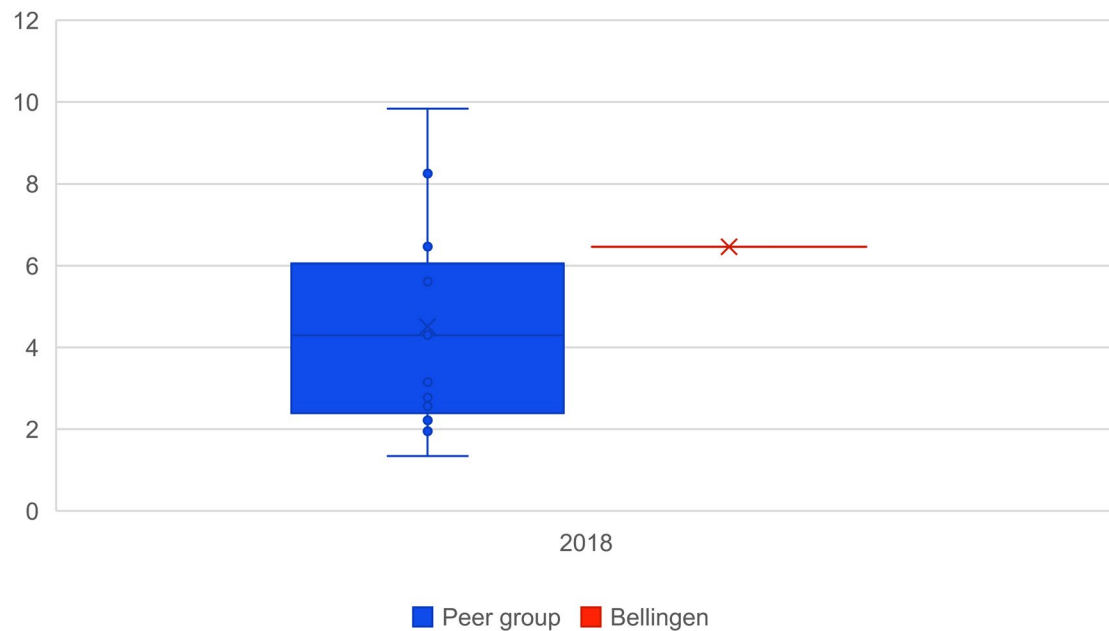
Figure 32. Road depreciation rate
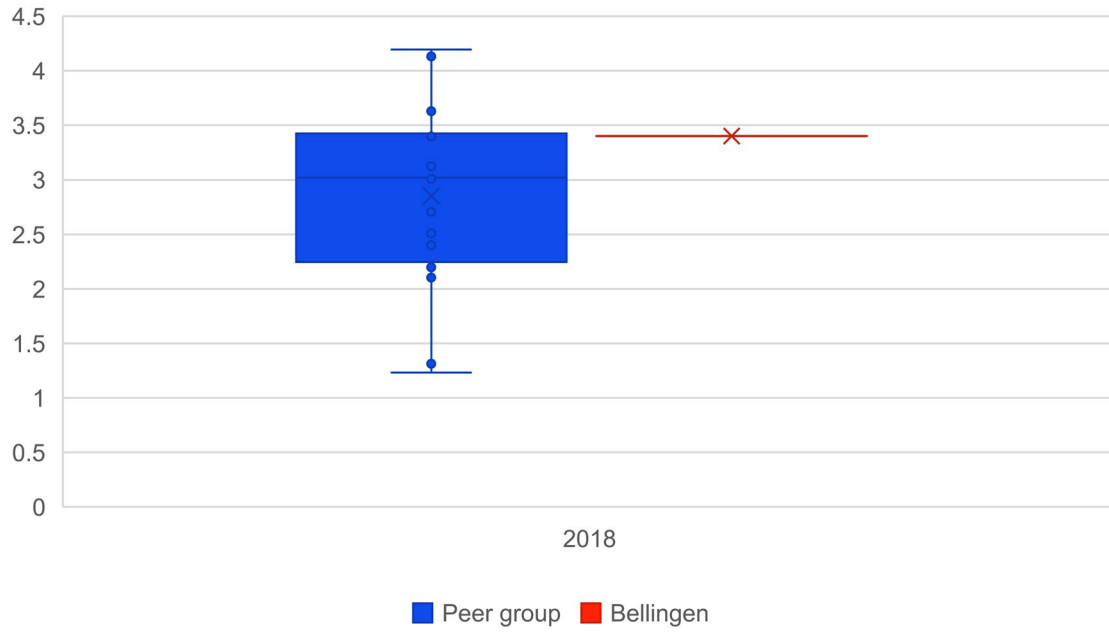
Figure 33. Bridge depreciation rate
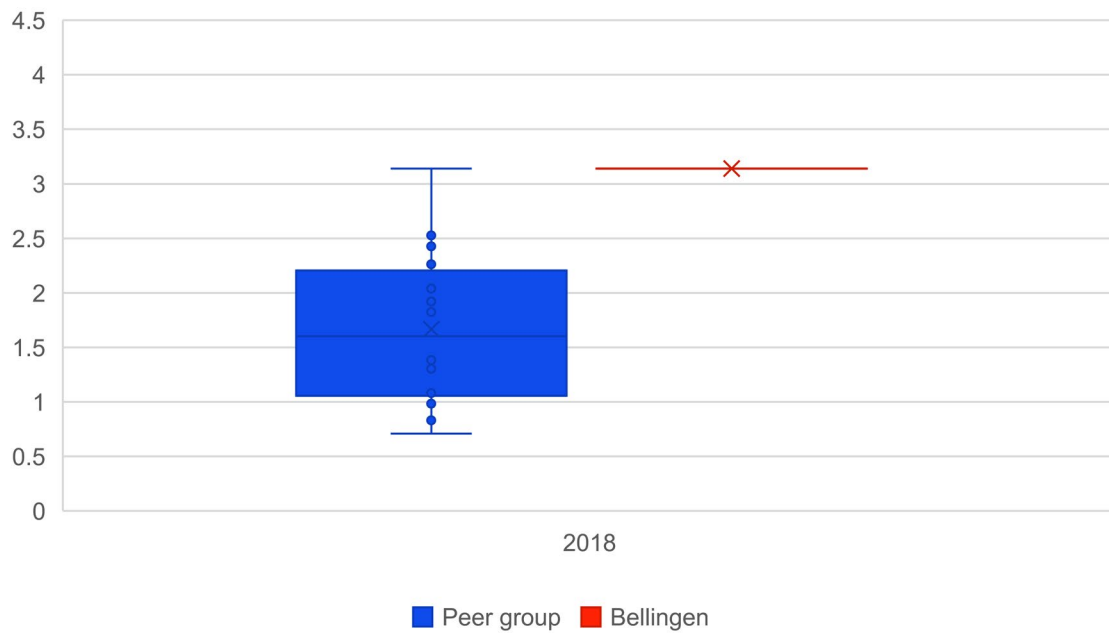
Figure 34. Footpath depreciation rate
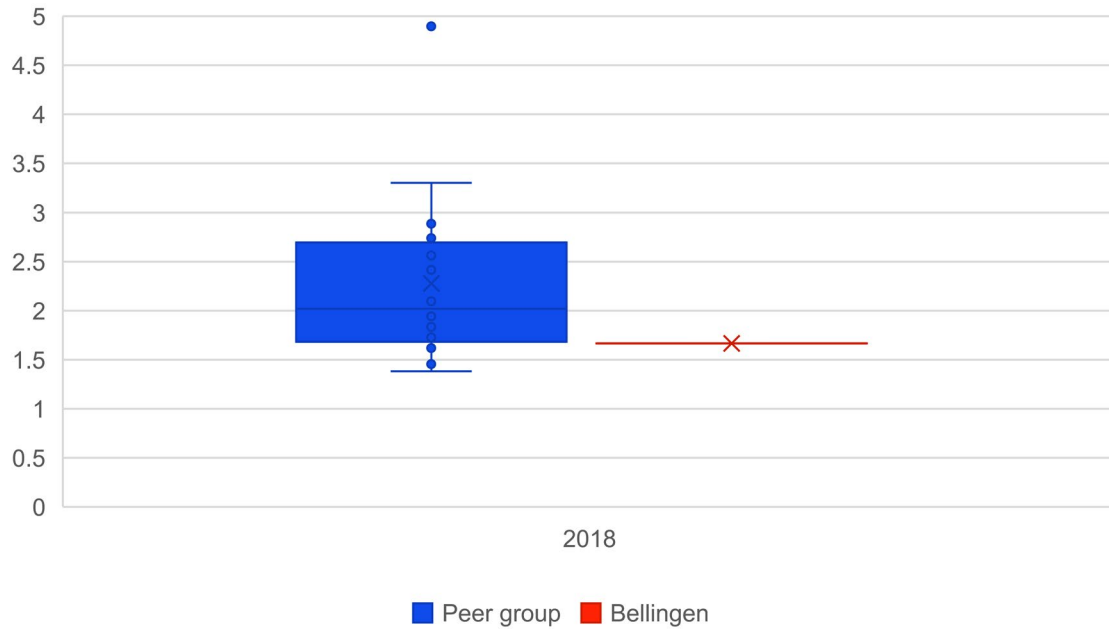
Figure 35. Water asset depreciation rate
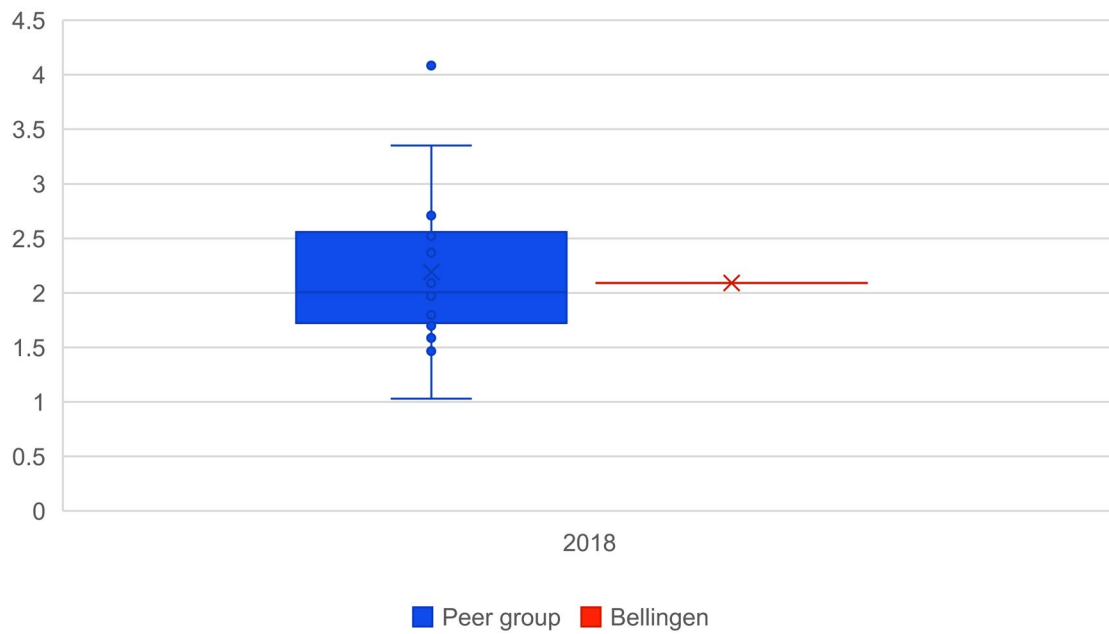
Figure 36. Sewer asset depreciation rate
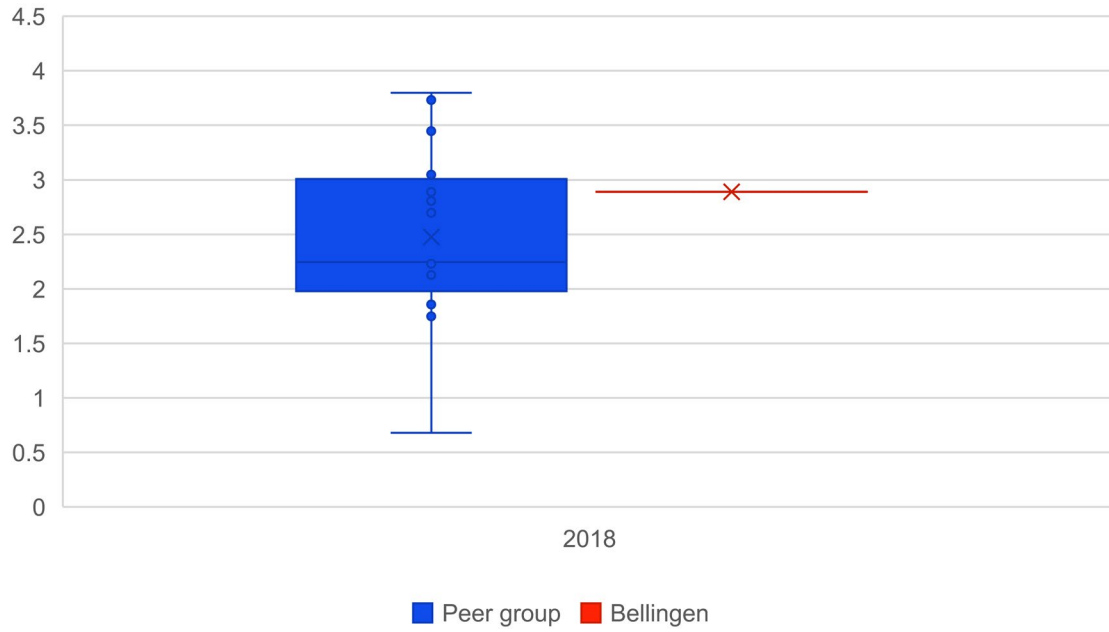
Figure 37. Building depreciation rate
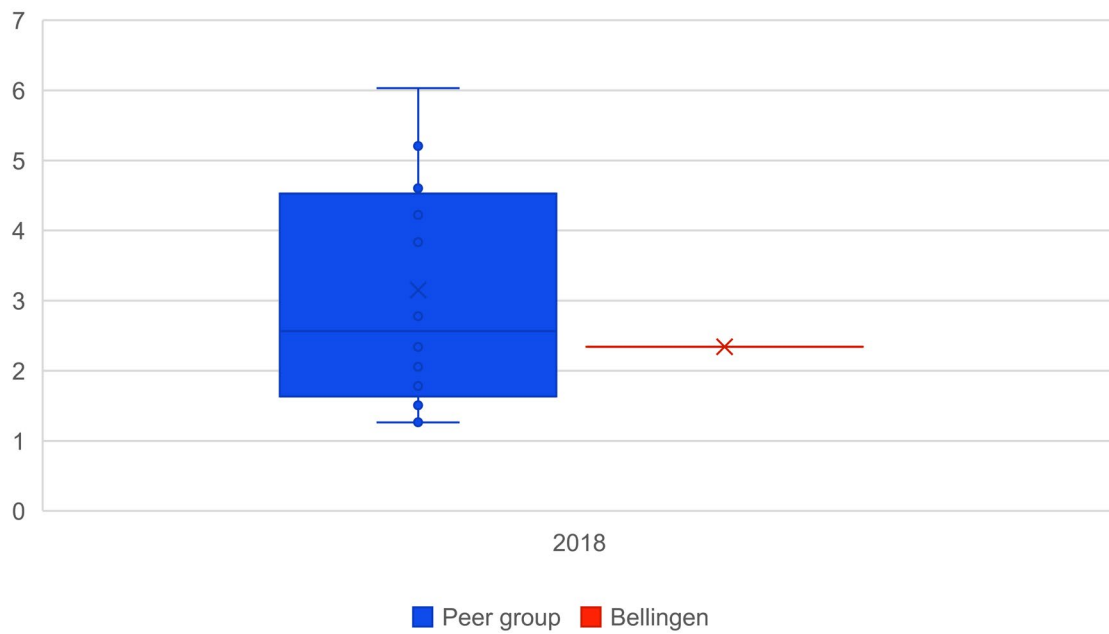
3.5   Assessment Growth

The operating environment of a local government can have a significant effect on both technical efficiency and financial sustainability. Moreover, apparent trends in changes to socio-economic conditions can presage future reduced revenue or increased expenditure need. In Figures 37 to 46 we briefly review key aspects of Council's operating environment.

Growth in the number of rateable properties for Council (Figures 37 to 39) has been somewhat inconsistent in recent times, which could introduce additional complexity into budget decisions and infrastructure planning. Moreover, generally, assessment growth is below typical levels (median and mean) which suggests less pressure on Council finances from this area (growth in assessments is associated with the need for higher infrastructure spending).

Figure 38. Growth in total assessments
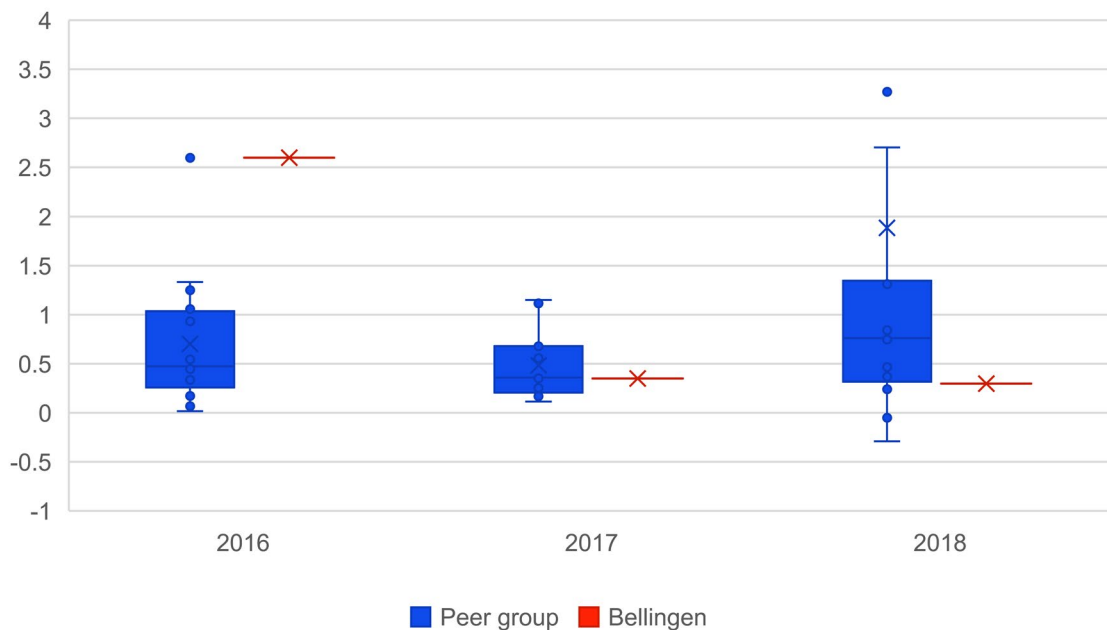
Figure 39. Growth in residential assessments
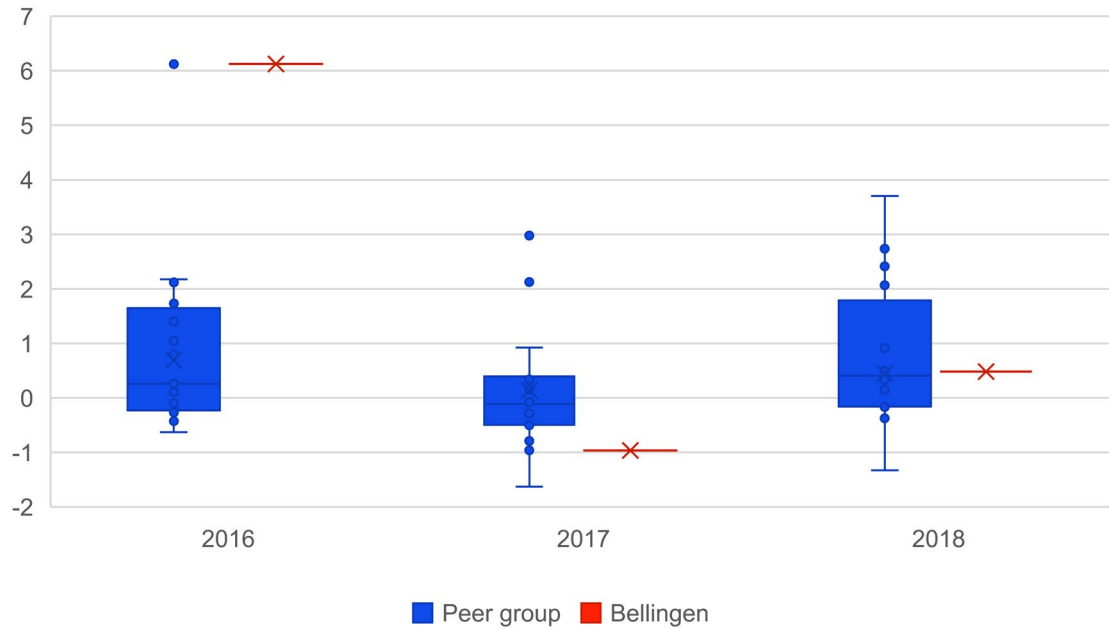
Figure 40. Growth in business assessments
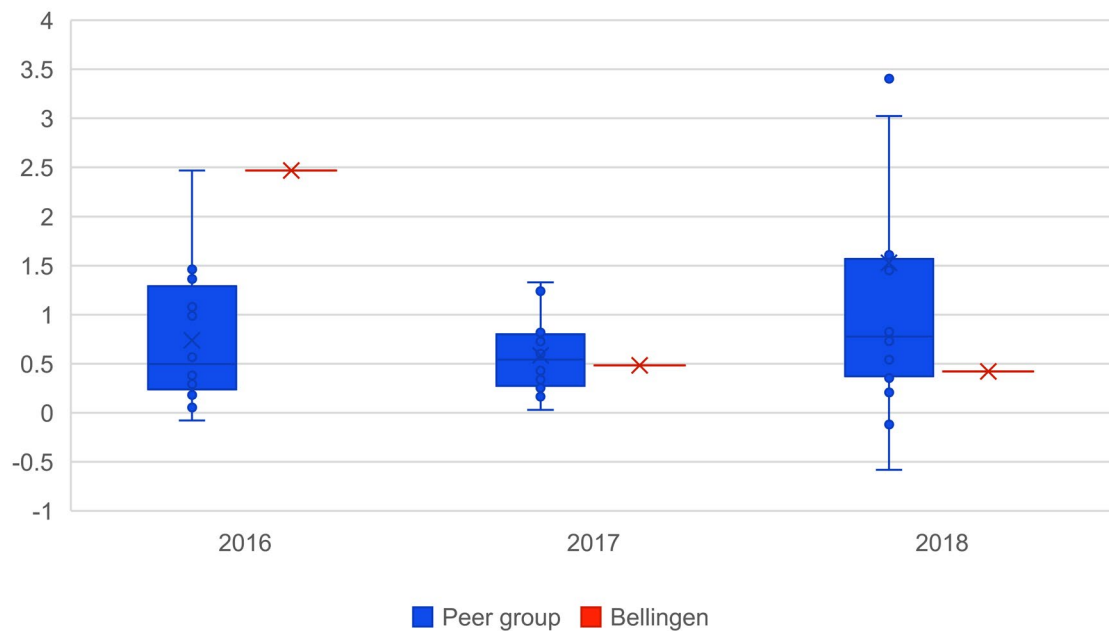
3.6   Population

3.6.1   Population growth

For Council, population growth is stable and at similar levels to the typical rate for the peer group. This trend is good for Council, as stable population growth makes planning for services to persons much easier.

Figure 41. Population growth
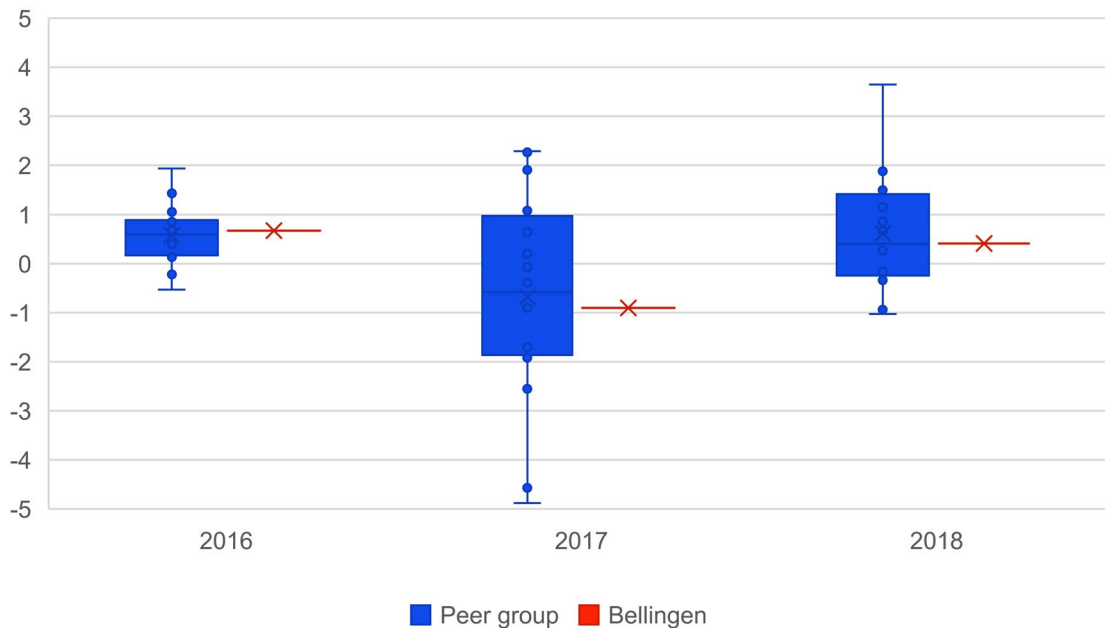
3.6.2   Population Density

Council faces particular challenges in relation to its low population density per square kilometre. Low population density is associated with diseconomies of density – that is, it costs far more for a council with low population density to provide services, especially services to property.

The literature suggests that the only way for local governments to respond to low population density is to prioritise in-fill development over greenfield sites.[29] Council may wish to consider this carefully in community planning. Diseconomies in density also presents a strong case for higher intergovernmental grant transfers.

Notably, amalgamation does nothing to mitigate diseconomies of density.

---

[29] Ladd 1992.

Figure 42. Population density (per square kilometre)
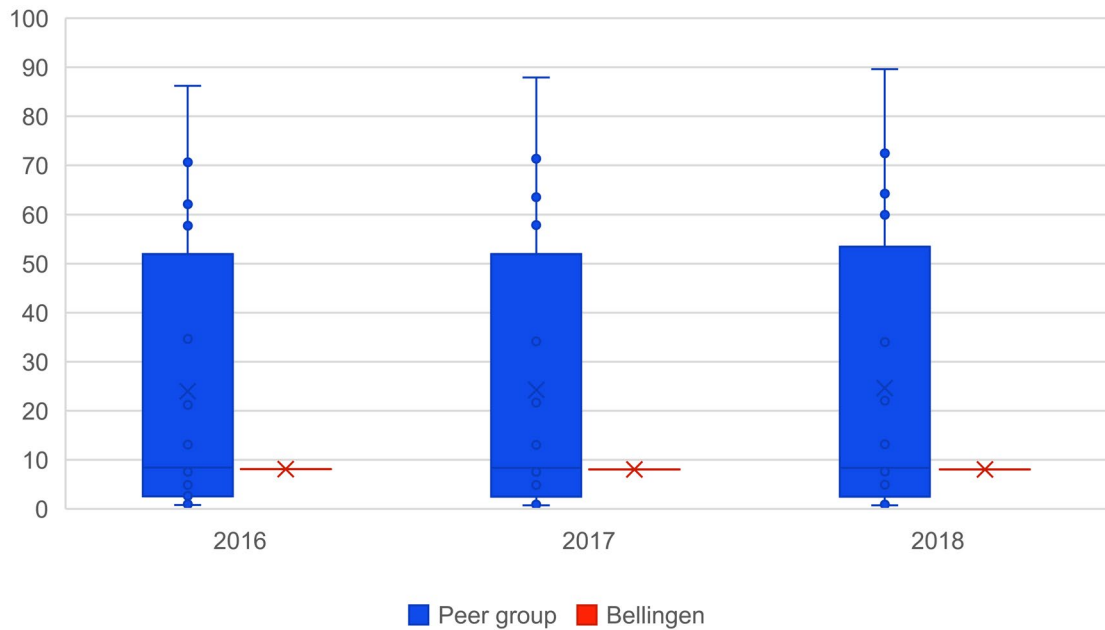
3.7 Government Support Payments and Income

3.7.1 Government Support Payments

The proportion of persons receiving government support payments has long been associated with increased need for local government goods and services. The graphs below (Figures 43 to 46) track the growth in the proportion of persons receiving government support for the main categories of benefits.

Fortunately for Council, the need for government support has remained fairly stable for the Bellingen local government area. This means that Council does not appear to be facing the same sort of challenges confronting many of their peers (such as Coffs Harbour and Port Macquarie). Challenges associated with increasing persons on government support payments can include increasing resident needs, combined with reduced household incomes (important for the rate of consumption of local government goods paid for through fees) and higher take-up of pensioner discounts.

Figure 43. Proportion of persons on an aged pension
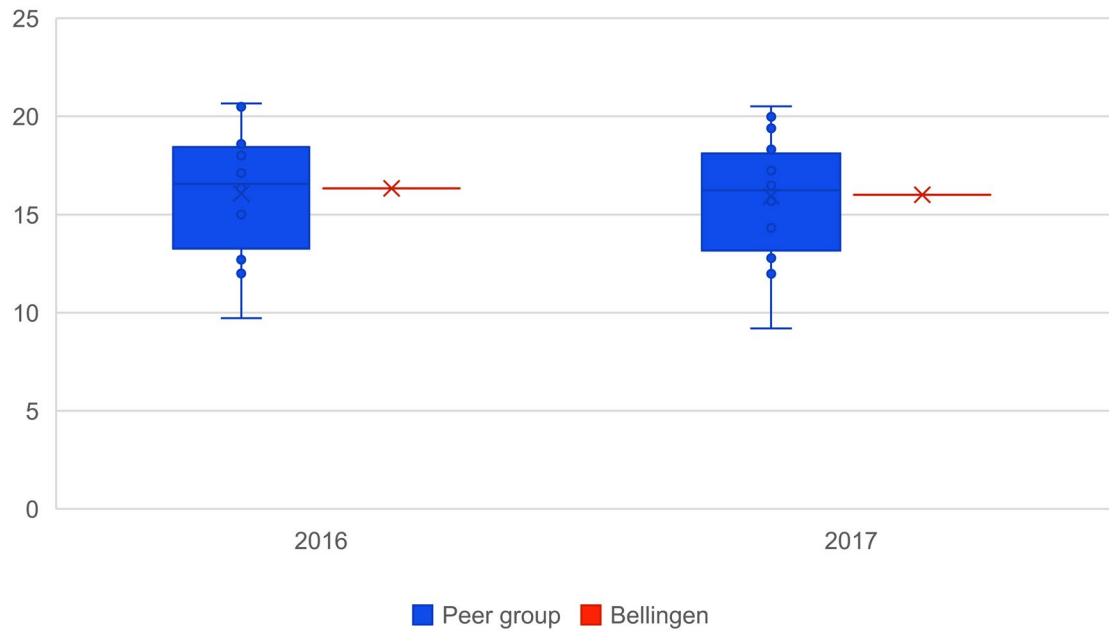
Note: 2018 data not yet available.

Figure 44. Proportion of persons on a disability pension
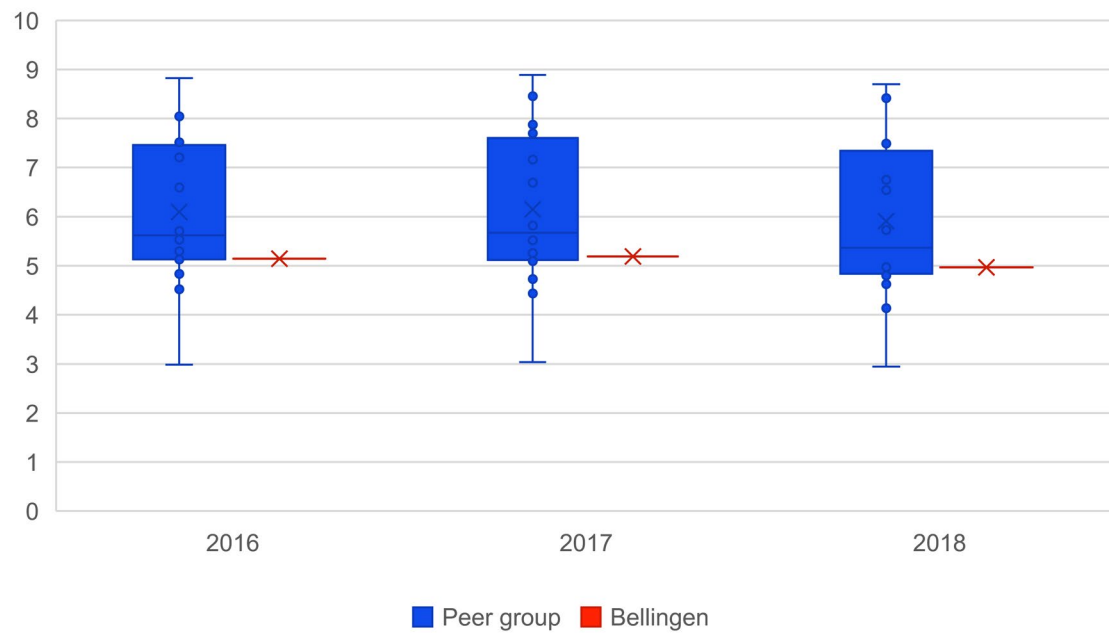
Figure 45. Proportion of persons on Newstart

Peer group ■ Bellingen ■
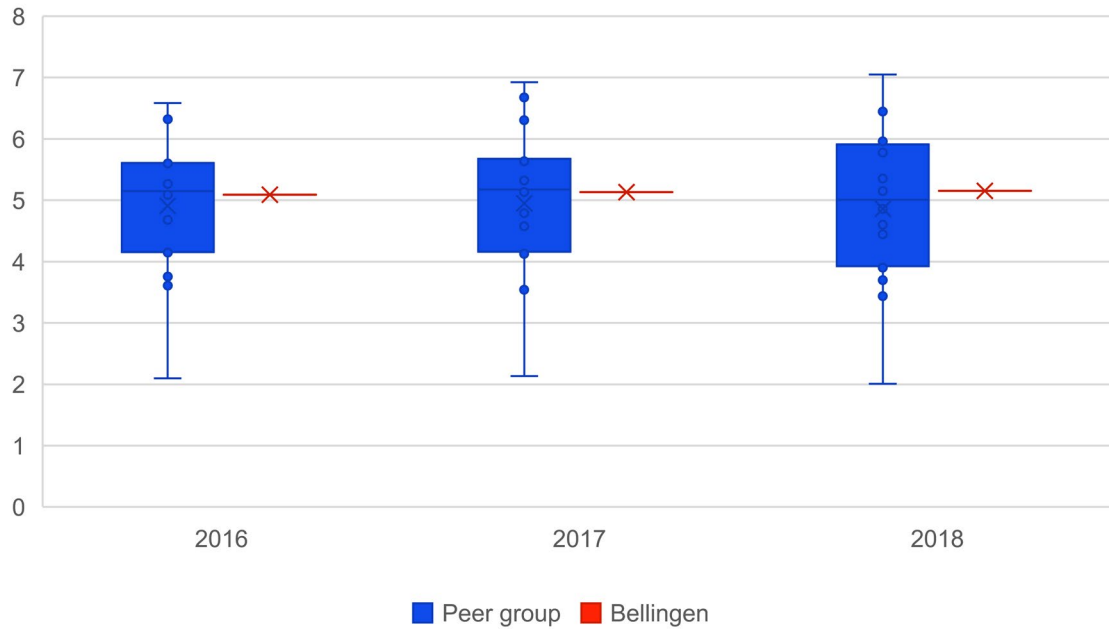
Figure 46. Proportion of persons on a single parent pension

Peer group ■ Bellingen ■
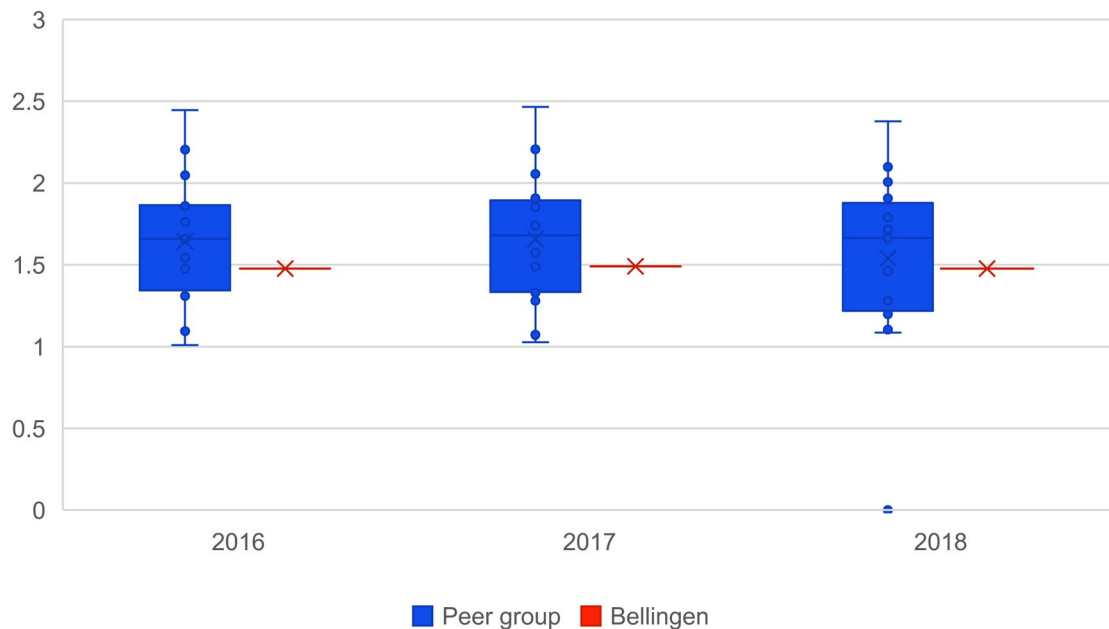
3.7.2 Median income

Median income in a local economy context is important for at least two reasons. First, median income is associated with ability to pay. Therefore, an increase to median income might be expected to reduce arrears rates, as well as increase demand for local

government goods and services that are funded through fees. Secondly, a large body of scholarly work demonstrates conclusively that as incomes increase, so does the demand for quality and quantity of local government goods and services.[30]

When we combine both of these ideas from the literature with the increase to median wages in the Bellingen local government area, it is further reason for Council to continue to pay close attention to ensuring that subsidies are tailored and targeted appropriately, and that all private local goods and services are funded through fees and charges that capture at least the full cost of provision.

Figure 47. Median income

---
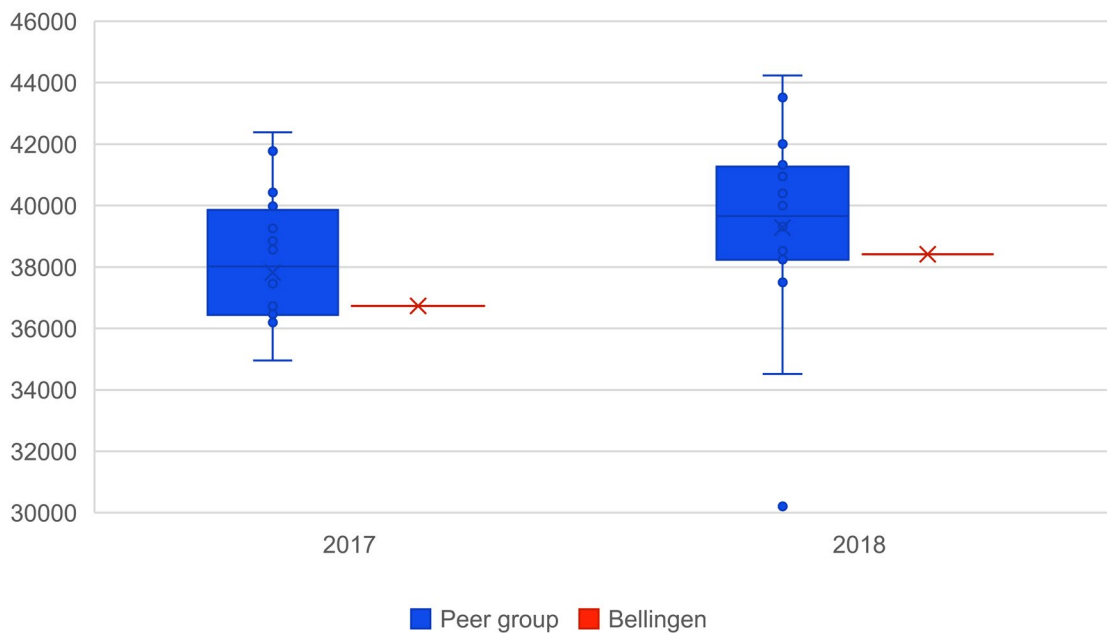
[30] Grant and Drew 2017.

4 Recommendations

The evidence presented strongly suggests that Council has done a remarkable job in executing sustained improvements to financial sustainability. However, there are always matters in which further improvement might be made. We have briefly listed the most important measures that council could take (in order of importance), given its existing circumstances.

RECOMMENDATION 1 – DEPRECIATION ACCRUALS

There is strong evidence that the depreciation accruals for some asset classes are, at the very least, out of-step with the peer group. In a few instances, depreciation appears to be under-estimated, but in most cases it seems to have been over-estimated. Over-estimates of depreciation accruals depict a financial condition that may be worse than warranted. It also results in sporadic and unexpected revenue recognitions (when assets are disposed of), and confounds decision-making.

We are aware that Council has a challenging climate, which may explain some of the deviation from peer practice. However, we suggest there is a case to review the asset classes that we identified earlier in Section 3.4 as having material deviations from expected depreciation accruals.

RECOMMENDATION 2 – CONTINUED CONSTRAINT IN STAFF EXPENDITURE

Our analysis of relative technical efficiency suggests that Council needs to continue to monitor staff expenditure, as the level of expense is considerably higher than peers on the efficient frontier.

Reducing staff numbers can be inappropriate for a number of moral and local economic reasons. We therefore suggest the best way to ensure continued improvement to relative technical efficiency is for Council to ensure that the growth rate in full-time equivalent employment (FTE) is always capped to a proportion of the growth rate in number of assessments. Establishing such a decision-making rule (or even perhaps a rule that growth in FTE must be, for example, 30 per cent less than growth in number of assessments to take account of wage increases) will assure continue improvement to technical efficiency over time.

RECOMMENDATION 3 – SERVICE LEVEL REVIEWS

Our analysis of relative technical efficiency also suggests that a service level review may find that the community is prepared to reduce the quality or quantity of some services, and therefore potentially bringing services more in line with the standards of the peer group.

Service reviews should also test public reaction to the targeting and level of subsidies provided for merit goods. Alternatively, Council might 'experiment' with the introduction of variable rates of subsidies and analyse the ensuing data to determine the most appropriate contribution levels.

RECOMMENDATION 4 – REVIEW OF PRICING

Council has a very good nexus rate. However, there is always room for improvement. We suggest that Council can improve both its financial sustainability and equity for local government taxpayers by carefully reviewing its fee and charges schedules.

First, Council should ensure that no private goods and services are funded out of the common tax pool.

Second, Council should ensure that the amount of subsidies provided for merit goods are at appropriate levels – preferably tailored to 'need' for the purposes of ensuring optimal consumption.

Third, for all merit goods, Council should specify the objective and rationale for each subsidy, plus a level of consumption that would be considered optimal. Each merit good then should be reviewed on (preferably) an annual basis to ensure that the objectives of the subsidies are being met.

Fourth, Council should determine the appropriate method for pricing each good or service – if the service is also provided by competitors in the local economy then demand-side pricing should be practiced to avoid local economic distortions. If the service is not provided by competitors in the local government area then supply-side pricing will ensure equity and sustainability.

RECOMMENDATION 5 – BUDGET ACCURACY

Council should continue to strive for greater accuracy, given the strong statistically significant evidence for an association between budget accuracy and relative technical efficiency. However, we are mindful that two of the biggest areas for deviations relate to unpredictable grant flows and RMS work.

RECOMMENDATION 6 – ADVOCACY FOR FAIRER INTERGOVERNMENTAL GRANT TRANSFERS

There is scope to believe that Council may be significantly short-changed by the financial assistance grant (FAG) allocations, especially in comparison with the urban local government peer group. It is recommended that Council take opportunities to advocate for a fairer and empirically robust distribution, in communications with the federal government, the NSW local government grants commission (which controls the methodology), peak groups (LG Professionals and LGNSW), and the Minister and regulator (Office of Local Government). It is important for equity and economic efficiency in NSW that allocations are robust and empirically defensible. It is also important to note that the core problem with FAGs is not the size of the money on offer from the federal government, but rather the way that it is allocated.

We are confident that the future looks bright for the residents of Bellingen Shire council and that they can have the utmost faith in the stewardship of council. We stand ready to assist Bellingen in any way that we can in their quest to continue to improve the financial sustainability of their council.

5 Appendix A: References

Andrews, R. and Entwistle, T. (2013). Four Faces of Public Service Efficiency. *Public Management Review*, 15(2): 246-264.

Boadway, R., & Shah, A. (2009). *Fiscal Federalism*. Cambridge: Cambridge University Press.

Borna, S. and Mantriprgada, K. (1989). Morality of Public Deficits: A Historical Perspective. *Public Budgeting and Finance*, Spring 1999: 33-46.

Bruekner, J. (1997). Infrastructure Financing and Urban Development: The Economics of Impact Fees. *Journal of Public Economics, 66,* 383-407.

Buchanan, J. (1997). The Balanced Budget Amendment: Clarifying the Arguments. *Public Choice,* 90, 117-138.

Coelli, T., Rao, D., O'Donnell, C., and Battse, G. (2005). *An Introduction to Efficiency and Productivity Analysis*. Springer: Singapore.

Cooper, W., Seiford, L., and Tone, K. (2007). *Data Envelopment Analysis*. Springer: Singapore.

Drew, J. (2017). Playing for Keeps: Local Government Distortion of Depreciation Accruals in Response to High Stakes Public Policy-Making. *Public Money & Management*, 38(1): 57-64.

Drew, J. and Campbell, N. (2016). Autopsy of Municipal Failure: The Case of Central Darling Shire. *Australasian Journal of Regional Science*, 22(1): 81-104.

Drew, J. and B. Dollery. (2014). Keeping It In-House – Households as an Alternative Proxy for Local Government Output. *Australian Journal of Public Administration*, 73(2): 235-246.

Drew, J. and B. Dollery. (2014b). Road to Ruin? Consistency, Transparency and Horizontal Equalisation of Road Grant Allocations in Eastern Mainland Australian States. *Public Administration Quarterly*, 39(3): 517-545.

Drew, J. and Dollery, B. (2015b) How High Should They Jump? An Empirical Method for Setting Municipal Financial Ratio Performance Benchmarks. *Australian Journal of Public Administration*, 75(1): 53-64.

Drew, J. and Grant, B. (2017). Means, Motive and Opportunity: Distortion of Public Policy Making Performance Management Data. *Australian Journal of Public Administration*, 75(1): 237-250.

Drew, J. and Grant, B. (2017)b. Subsidiarity: More Than a Principle of Decentralisation – A View from Local Government. *Publius*, 47(4): 522-545.

Drew, J., Kortt, M. and Dollery, B. (2015). No Aladdin's Cave in New South Wales? Local Government Amalgamation, Scale Economies and Data Envelopment Specification. *Administration & Society*, DOI: 10.1177/0095399715581045.

Drew, J., O'Flynn, J. and B. Grant (2018). Performing What? Exploring and Expanding the Notion of Synecdoche in Performance Management Practice. *Public Administration Quarterly*, 42(3): 113-122.

Grant, B. and Drew, J. (2017). *Local Government in Australia: History, Theory and Public Policy*. Springer Palgrave, Singapore.

Independent Local Government Review Panel (ILGRP) (2013). Revitalising Local Government. ILGRP: Sydney.

Ladd H (1992). Population Growth, Density and the Costs of Providing Public Services. *Urban Studies* 29(2): 273-295.

McQuestin, D. and Drew, J. (2018). Is a Problem Shared a Problem Halved? Shared Services and Municipal Efficiency'. *Australian Journal of Public Administration* DOI: 10.1111/1467-8500.12349.

Oates, W. (1999). An Essay on Fiscal Federalism. Journal of Economic Literature, 37(3): 1120.1149.

PriceWaterhouse Coopers (2006). National Financial Sustainability Study of Local Government. PwC: Sydney.

Siricio, R. (1997). Subsidiarity, Society and Entitlements: Understanding and Application. *Notre Dame Journal of Law, Ethics & Public Policy* 11: 549-579.

Stalebrink, O. (2007). An Investigation of Discretionary Accruals and Surplus-Deficit Management: Evidence from Swedish Municipalities. *Financial Accountability & Management*, 23(4): 451-458.

Steccolinin, I., Jones, M. and Saliterer, I. (2017). Governmental Financial resilience: International Perspectives on how Local Governments face Austerity. Emerald: Bingley, U.K.

6 Appendix B: Financial accounting definitions

Ratio	Definition
Asset Maintenance Ratio	$$\dfrac{Actual\ asset\ maintenance}{Required\ asset\ maintenance}$$
Building and Infrastructure Renewal	$$\left(\dfrac{Asset\ renewals}{Depreciation, amortisation\ and\ impairment}\right) * 100$$
Capital Expenditure	$$\dfrac{Annual\ capital\ expenditure}{Annual\ depreciation}$$
Cash Expense Ratio	$$\left(\dfrac{Current\ year\ cash + cash\ equivalents + term\ deposits}{Payments\ from\ cash\ flow\ of\ operating + financing\ activities}\right) * 52$$
Debt Servicing	$$\dfrac{Operating\ results\ before\ capital - interest - depreciation\ and\ amortisation}{Principal\ repayments + borrowing\ costs}$$
Depreciation Rate	$$\dfrac{Depreciation\ expenses}{Carrying\ value\ of\ depreciable\ infrastructure, property, plant\ and\ equipment}$$
Expenditure Accuracy	$$\left(\dfrac{\begin{array}{c}Total\ contintuing\ operations\ expenditure\\ - budgeted\ total\ continuing\ operations\ expenditure\end{array}}{Budgeted\ total\ continuing\ operations\ expenditure}\right) * 100$$
Infrastructure Backlog	$$\left(\dfrac{Estimated\ cost\ to\ bring\ assets\ to\ a\ satisfactory\ standard}{Carrying\ value\ of\ infrastructure\ assets}\right) * 100$$
Nett Financial Liabilities Ratio	$$\left(\dfrac{Total\ liabilities - current\ assets}{Total\ revenue - grants\ for\ capital\ purposes}\right) * 100$$
Nexus Ratio	$$\dfrac{Total\ annual\ charges + total\ user\ charges\ and\ fees}{Total\ operating\ expenditure}$$

Ratio	Definition
Non-road Opex per Assessment	$$\frac{\begin{array}{c}Total\ expenses\ from\ continuing\ operations - road\ and\ bridges\ expenditure\\ -\ water\ expenditure - sewer\ expenditure\end{array}}{Total\ number\ of\ rateable\ properties}$$
Operating Ratio	$$\frac{\begin{array}{c}Total\ continuing\ operating\ revenue\ (excl.\ capital\ grants\ and\ contributions)\\ -\ total\ continuing\ operating\ expenses\end{array}}{Total\ continuing\ revenue\ (excl.\ capital\ grants\ and\ contributions)}$$
Own Source Ratio	$$\frac{Total\ continuing\ operating\ revenue - total\ grants\ and\ contributions}{Total\ continuing\ operating\ revenue}$$
Rates and Annual Charges Outstanding	$$\left(\frac{Rates\ and\ annual\ charges\ outstanding}{Rates\ and\ annual\ charges\ collectible}\right) * 100$$
Revenue Accuracy	$$\left(\frac{\begin{array}{c}Total\ contintuing\ operations\ revenue\\ -budgeted\ total\ continuing\ operations\ revenue\end{array}}{Budgeted\ total\ continuing\ operations\ revenue}\right) * 100$$
Roads and Bridges Operating Expenditure	$$\left(\frac{Total\ roads\ and\ bridges\ expenditure}{Total\ length\ of\ roads}\right) * 100$$
Sewer Supply Operating Expenditure	$$\frac{Total\ sewer\ supplies\ expenditure}{Number\ of\ sewer\ connexions}$$
Staff expenditure per assessment	$$\frac{Total\ employee\ benefits\ and\ on\ costs}{Total\ number\ of\ rateable\ properties}$$
Staff Expenditure / Total OPEX (%)	$$\frac{Total\ employee\ benefits\ and\ on\ costs}{Total\ operating\ expenditure}$$
Unrestricted Current Ratio	$$\frac{Current\ assets - external\ restrictions}{Current\ liabilities - special\ purpose\ liabilities}$$
Water Supply Operating Expenditure	$$\frac{Total\ water\ supplies\ expenditure}{Number\ of\ water\ connexions}$$

7 Appendix D: Bellingen Financial Statement 2015-2018

2017-18									
	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Operating performance ratio	1.42	2.40	3.14	-8.10	12.81	-0.38	5.23	5.61	6.07
Own source ratio	63.41	61.05	62.33	39.30	73.20	56.16	67.92	11.77	9.39
Unrestricted current ratio	**2.33**	3.72	3.24	1.37	9.64	2.06	4.82	2.76	2.12
Debt service ratio	6.34	7.43	3.90	0.93	35.46	2.59	7.35	4.76	8.98
Rates and annual charges outstanding	5.25	6.28	5.70	3.38	13.29	5.02	6.95	1.93	2.46
Nett financial liabilities	-59.64	-9.92	-13.62	-107.21	63.23	-35.99	28.92	64.91	45.40
Cash expense ratio	11.76	13.16	11.44	5.76	26.14	10.15	13.69	3.53	5.88
Cash expense ratio (weeks)	50.96	57.03	49.57	24.96	113.27	43.99	59.30	15.31	25.49
Building and infrastructure renewals ratio	165.91	114.43	94.06	21.29	318.22	82.04	123.43	41.40	68.91
Infrastructure backlog	6.42	4.98	4.08	0.00	13.45	1.78	6.69	4.92	4.14
Asset maintenance ratio	100.00	98.18	98.10	74.49	119.15	95.03	100.07	5.05	10.42
Non-Rd Opex per assessment	2.73	2.64	2.52	1.56	4.93	2.24	3.01	0.76	0.78
Road Opex per kilometre	15.42	14.86	14.94	3.66	29.46	6.75	20.88	14.13	8.87
Water Opex per connection	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sewer Opex per connection	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Deviation from budgeted revenue (%)	18.24	15.81	13.28	-18.69	101.61	9.05	20.27	11.22	25.91
Deviation from budgeted expenditure (%)	3.94	7.32	6.01	-0.15	15.39	3.09	12.08	8.99	5.49
Population	12946	35235	26426	6656	94857	13440	45821	32381	27910
Population growth	0.41	0.62	0.41	-1.03	3.65	-0.19	1.24	1.43	1.21
Density	8.08	24.62	8.41	0.76	89.60	2.50	40.51	38.01	29.85
Under 15	17.70	17.92	17.40	15.60	21.50	16.98	18.53	1.55	1.56
Over 65	22.90	22.99	23.20	16.90	27.50	20.50	25.35	4.85	3.34
Aboriginal and/or Torres Strait Islander	3.50	5.83	5.00	1.80	11.60	3.95	7.30	3.35	2.77
NESB	3.20	3.36	2.75	1.70	7.50	2.25	3.90	1.65	1.69
Median income	38420	39281	39654	30210	44240	38246	41158	2912	3403
Aged pension (%)	16.00	15.93	16.24	9.19	20.52	13.93	17.71	3.78	3.14
Disability pension (%)	4.97	5.91	5.36	2.95	8.70	4.90	7.05	2.15	1.63
Newstart (%)	5.15	4.86	5.01	2.01	7.05	3.96	5.82	1.86	1.28
Single Parent Pension (%)	1.48	1.54	1.66	0.00	2.38	1.26	1.82	0.56	0.55
Depreciation Rate	3.14	2.68	2.71	1.97	3.54	2.32	2.96	0.65	0.48
Nexus (%)	50.50	47.50	48.77	29.49	58.54	45.15	51.65	6.51	8.00
Road grant per km	1758.12	1705.87	1714.02	1045.65	2639.55	1388.60	1941.19	552.59	496.20
FAG grant per person	201.17	176.29	136.56	54.55	458.72	79.23	216.35	137.13	124.51
Growth in total assessments (%)	0.30	1.88	0.76	-0.29	16.91	0.35	1.32	0.97	4.11
Growth in residential assessments (%)	0.42	1.53	0.78	-0.58	10.36	0.41	1.49	1.09	2.57
Growth in business assessments (%)	0.49	0.45	0.41	-5.42	3.70	-0.15	1.23	1.38	2.03

2017-18

	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Proportion of expenditure on staff	30.73	31.80	30.88	27.94	36.93	28.96	35.14	6.19	3.50
Staff expenditure per assessment	1.53	1.56	1.50	1.00	2.70	1.38	1.62	0.25	0.39
Operating CF Nett per rev	29.42	35.26	35.11	18.17	54.42	29.38	38.16	8.78	9.47
Invest CF Nett per rev	-29.01	-37.42	-34.18	-78.56	-6.34	-49.26	-28.48	20.78	17.11
Finance CF Nett per rev	-1.76	-0.34	-1.12	-4.70	11.12	-2.43	0.33	2.76	3.84

2016-17

	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Operating performance ratio	0.68	8.82	7.77	-3.78	18.74	5.00	15.45	10.45	6.74
Own source ratio	68.10	62.74	68.12	45.28	74.40	54.53	70.42	15.89	10.87
Unrestricted current ratio	2.47	4.46	3.50	1.50	14.77	2.62	4.53	1.91	3.18
Debt service ratio	6.29	8.95	4.16	2.73	46.02	3.34	7.19	3.84	11.69
Rates and annual charges outstanding	5.78	6.62	6.35	3.39	14.94	5.05	6.87	1.82	2.81
Nett financial liabilities	-86.02	-13.91	-14.79	-90.33	51.26	-46.87	17.87	64.74	46.29
Cash expense ratio	17.68	13.49	12.30	6.50	25.31	9.24	17.34	8.10	5.21
Cash expense ratio (weeks)	76.61	58.44	53.28	28.17	109.68	40.02	75.12	35.10	22.57
Building and infrastructure renewals ratio	87.95	108.03	83.57	25.61	281.82	63.99	135.52	71.53	74.40
Infrastructure backlog	11.59	5.99	4.13	0.00	19.95	1.90	9.30	7.40	5.33
Asset maintenance ratio	89.31	98.64	99.00	69.00	118.00	90.58	108.75	18.17	13.62
Non-Rd Opex per assessment	2.74	2.48	2.46	1.42	4.42	1.95	2.81	0.86	0.74
Road Opex per kilometre	12.46	13.69	12.64	4.18	24.13	9.94	18.75	8.80	6.54
Water Opex per connection	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sewer Opex per connection	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Deviation from budgeted revenue (%)	-23.87	10.10	9.97	-23.87	42.89	3.75	18.96	15.21	16.56
Deviation from budgeted expenditure (%)	-3.85	6.37	4.82	-5.14	23.78	2.68	10.14	7.46	7.32
Population	12893	34858	26309	6667	93458	13442	45882	32440	27446
Population growth	-0.90	-0.68	-0.58	-4.88	2.29	-1.76	0.75	2.51	2.16
Density	8.05	24.24	8.39	0.77	87.89	2.53	40.07	37.55	29.27
Under 15	17.80	18.12	17.50	16.30	22.30	17.10	18.80	1.70	1.65
Over 65	23.10	22.53	23.10	16.40	26.70	19.93	24.83	4.90	3.29
Aboriginal and/or Torres Strait Islander	3.50	5.83	5.00	1.80	11.60	3.95	7.30	3.35	2.77
NESB	3.20	3.36	2.75	1.70	7.50	2.25	3.90	1.65	1.69
Median income	36732	37824	38015	29238	42385	36459	39609	3150	3105
Aged pension (%)	16.00	15.68	15.68	15.68	15.68	15.68	15.68	15.68	15.68
Disability pension (%)	5.19	6.15	5.67	3.04	8.89	5.16	7.41	2.24	1.63
Newstart (%)	5.13	4.95	5.17	2.14	6.92	4.22	5.65	1.43	1.24
Single Parent Pension (%)	1.49	1.66	1.68	1.03	2.46	1.34	1.87	0.53	0.40
Depreciation Rate	2.94	2.62	2.66	2.03	3.36	2.25	2.94	0.69	0.43
Nexus (%)	44.89	48.79	48.11	30.34	61.33	44.66	55.65	10.99	8.86
Road grant per km	1642.40	1642.25	1632.78	1008.44	2543.14	1340.99	1897.20	556.20	475.09

2016-17									
FAG grant per person	193.07	168.59	131.17	54.07	434.31	76.96	207.22	130.26	117.68
Growth in total assessments (%)	0.35	0.48	0.36	0.12	1.15	0.24	0.68	0.44	0.32
Growth in residential assessments (%)	0.48	0.58	0.54	0.03	1.33	0.32	0.77	0.45	0.37
Growth in business assessments (%)	-0.96	0.14	-0.11	-1.62	2.98	-0.48	0.36	0.84	1.13
Proportion of expenditure on staff	33.33	32.25	31.60	26.80	38.10	29.46	34.95	5.49	3.64
Staff expenditure per assessment	1.59	1.55	1.47	1.00	2.52	1.36	1.68	0.32	0.36
Operating CF Nett per rev	32.00	38.16	34.03	29.33	58.86	32.12	44.62	12.50	8.78
Invest CF Nett per rev	-50.69	-41.13	-37.49	-87.90	-21.04	-51.68	-26.80	24.88	18.59
Finance CF Nett per rev	-2.03	0.09	-1.79	-6.62	22.28	-2.91	-0.39	2.53	6.81

2015-16									
	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Operating performance ratio	-3.63	4.42	2.93	-4.67	27.40	-0.78	7.90	8.67	8.03
Own source ratio	65.98	64.65	66.97	45.94	78.03	57.29	72.25	14.97	10.04
Unrestricted current ratio	2.58	3.76	2.99	1.45	8.93	2.35	4.32	1.97	2.18
Debt service ratio	5.04	8.28	3.56	1.79	40.70	2.54	6.16	3.62	10.80
Rates and annual charges outstanding	6.99	6.87	5.96	4.00	17.00	5.34	7.12	1.78	3.16
Nett financial liabilities	-86.84	-8.76	-7.33	-105.20	74.39	-43.07	38.21	81.27	58.64
Cash expense ratio	15.16	12.95	10.56	5.16	24.88	8.35	16.51	8.16	6.46
Cash expense ratio (weeks)	65.69	56.11	45.74	22.36	107.81	36.18	71.54	35.36	27.99
Building and infrastructure renewals ratio	89.35	103.66	98.59	30.51	206.23	83.41	118.11	34.71	46.14
Infrastructure backlog	1.18	5.22	3.10	0.00	21.55	1.23	7.15	5.92	5.79
Asset maintenance ratio	52.00	100.81	101.00	52.00	181.00	95.50	106.50	11.00	26.65
Non-Rd Opex per assessment	3.11	2.45	2.32	1.56	4.34	2.07	2.88	0.81	0.71
Road Opex per kilometre	10.25	13.84	14.33	3.55	24.69	8.84	19.72	10.87	7.12
Water Opex per connection	0.58	0.80	0.78	0.58	1.15	0.70	0.89	0.18	0.16
Sewer Opex per connection	1.04	0.94	0.95	0.46	1.33	0.83	1.10	0.27	0.23
Deviation from budgeted revenue (%)	18.58	11.00	8.57	-12.17	45.06	5.57	16.56	11.00	15.22
Deviation from budgeted expenditure (%)	-5.38	1.93	2.14	-7.39	12.30	-2.70	5.07	7.77	5.50
Population	13010	34676	26433	6986	92460	13648	46316	32668	26833
Population growth	0.67	0.58	0.59	-0.53	1.94	0.19	0.88	0.69	0.61
Density	8.12	24.02	8.45	0.79	86.24	2.64	40.44	37.80	28.81
Under 15	18.90	18.36	18.20	16.50	21.30	17.18	18.93	1.75	1.43
Over 65	21.00	21.84	21.60	15.30	27.30	19.63	23.80	4.18	3.45
Aboriginal and/or Torres Strait Islander	3.00	5.42	4.90	1.80	11.10	3.25	6.85	3.60	2.62
NESB	3.10	2.96	2.30	1.80	6.30	1.90	3.40	1.50	1.40
Median income	36732	37824	38015	29238	42385	36459	39609	3150	3105
Aged pension (%)	16.33	16.08	16.57	9.71	20.66	14.42	18.15	3.73	3.12
Disability pension (%)	5.14	6.09	5.62	2.99	8.82	5.14	7.36	2.22	1.55
Newstart (%)	5.09	4.91	5.15	2.10	6.58	4.17	5.60	1.44	1.17

2015-16									
Single Parent Pension (%)	1.48	1.64	1.66	1.01	2.45	1.34	1.86	0.52	0.39
Depreciation Rate	2.85	2.59	2.65	2.01	3.28	2.20	2.92	0.72	0.43
Nexus (%)	48.06	47.75	47.63	30.44	56.47	45.10	53.37	8.28	7.34
Road grant per km	1634.90	1645.02	1629.99	993.66	2488.31	1353.14	1980.00	626.85	471.66
FAG grant per person	191.20	162.89	132.44	49.25	414.88	77.31	202.61	125.29	110.02
Growth in total assessments (%)	2.60	0.70	0.48	0.02	2.60	0.31	0.99	0.68	0.65
Growth in residential assessments (%)	2.47	0.74	0.50	-0.08	2.47	0.27	1.15	0.88	0.68
Growth in business assessments (%)	6.12	0.69	0.26	-3.55	6.12	-0.14	1.49	1.62	1.99
Proportion of expenditure on staff	34.84	32.94	32.35	26.04	40.12	29.37	37.05	7.68	4.71
Staff expenditure per assessment	1.72	1.53	1.41	0.99	2.57	1.36	1.72	0.36	0.36
Operating CF Nett per rev	30.18	37.65	37.72	24.96	55.15	30.26	40.59	10.33	8.48
Invest CF Nett per rev	-13.68	-35.05	-36.70	-57.01	-13.68	-41.98	-28.26	13.72	12.03
Finance CF Nett per rev	-1.75	-2.77	-3.13	-7.60	8.18	-4.15	-1.51	2.64	3.64

8   Appendix D: Water and sewerage 2015-2018

2017-18

Water	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Operating performance	15.00	4.29	7.50	-36.70	20.69	1.47	12.53	11.06	14.46
Own source operating revenue	94.05	80.33	84.35	29.88	97.05	75.01	93.53	18.52	18.21
Unrestricted current ratio	67.68	53.06	4.50	0.00	592.11	2.35	13.51	11.16	147.13
Debt service ratio	0.00	4.09	1.88	0.00	35.76	0.00	3.64	3.64	8.67
Rates and annual charges outstanding %	18.76	20.68	9.12	3.82	155.61	6.91	17.73	10.82	36.64
Cash expense cover ratio	2.86	18.36	12.76	0.00	63.22	8.20	23.71	15.51	17.72
Building and infrastructure renewals ratio	55.56	77.56	49.65	0.00	548.36	25.06	55.78	30.72	130.36
Infrastructure backlog	0.00	10.96	0.72	0.00	83.38	0.10	7.25	7.15	23.00
Asset maintenance ratio	100.00	103.69	100.00	82.69	147.12	98.83	101.03	2.20	17.23
Sewerage	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Operating performance	67.92	4.63	-0.68	-18.90	67.92	-5.90	6.68	12.58	21.22
Own source operating revenue	4.82	83.32	90.45	68.38	99.03	82.75	95.05	12.31	22.88
Unrestricted current ratio	7.35	9.51	6.85	0.00	42.63	4.16	11.52	7.36	10.62
Debt service ratio	6.95	2.83	2.64	0.00	7.35	1.08	3.14	2.06	2.38
Rates and annual charges outstanding %	28.92	10.94	5.97	2.65	34.76	4.85	13.58	8.73	9.86
Cash expense cover ratio	59.30	17.38	9.46	0.00	59.30	4.16	27.69	23.53	18.44
Building and infrastructure renewals ratio	6.69	76.57	36.74	0.00	378.80	10.21	71.91	61.71	111.43
Infrastructure backlog	100.07	11.80	1.98	0.00	100.07	0.63	9.92	9.29	25.08
Asset maintenance ratio	3.01	95.95	97.61	79.11	190.02	88.96	100.19	11.23	35.27

2016-17

Water	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Operating performance	12.72	4.89	9.48	-32.54	17.32	-0.95	13.17	14.12	13.01
Own source operating revenue	95.11	75.51	87.36	29.05	97.56	61.72	94.28	32.56	24.26
Unrestricted current ratio	112.53	24.26	12.08	0.00	132.47	4.59	20.61	16.02	39.28
Debt service ratio	0.00	3.86	2.25	0.00	25.69	0.00	4.48	4.48	6.32
Rates and annual charges outstanding %	20.21	18.63	10.81	3.82	111.87	6.50	13.14	13.14	25.85
Cash expense cover ratio	450.00	79.46	11.93	0.00	583.00	10.01	18.98	18.98	172.99
Building and infrastructure renewals ratio	18.68	139.13	26.54	1.51	1083.73	16.89	77.57	77.57	281.23
Infrastructure backlog	0.00	5.66	0.88	0.00	46.19	0.31	4.82	4.82	11.64
Asset maintenance ratio	98.58	109.16	100.00	78.00	168.00	93.75	26.25	26.25	25.06
Sewerage	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Operating performance	3.25	1.91	3.96	-31.89	33.66	-6.27	9.55	15.83	16.27
Own source operating revenue	96.30	86.04	92.06	42.28	98.19	86.00	95.40	9.40	15.83
Unrestricted current ratio	18.21	152.04	6.80	-14.40	2302.00	3.26	16.47	13.22	573.44
Debt service ratio	0.00	1.80	1.40	0.00	4.54	0.75	2.60	1.86	1.48
Rates and annual charges outstanding %	5.67	8.06	5.65	1.67	24.72	4.26	10.17	5.90	6.13

2016-17

	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Cash expense cover ratio	322.50	99.55	15.28	0.00	948.50	7.50	45.01	37.51	239.70
Building and infrastructure renewals ratio	82.63	157.87	35.17	4.42	1759.46	19.94	83.39	63.46	429.17
Infrastructure backlog	0.00	5.34	1.21	0.00	30.50	0.15	4.60	4.45	8.81
Asset maintenance ratio	85.03	106.44	100.00	79.00	177.00	92.00	113.00	21.00	24.60

2015-16

Water	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Operating performance	11.64	6.43	6.54	-7.27	33.22	3.73	9.02	5.29	9.55
Own source operating revenue	96.84	82.02	88.59	23.93	97.60	76.22	93.79	17.57	19.36
Unrestricted current ratio	1942.3	152.96	9.47	-10.12	1942.33	5.88	27.76	21.88	482.66
Debt service ratio	0.00	3.73	1.53	0.00	22.97	0.00	3.52	3.52	6.34
Rates and annual charges outstanding %	110.94	18.61	11.00	4.14	110.94	5.96	19.61	13.65	25.68
Cash expense cover ratio	0.00	17.59	16.26	0.00	44.53	8.38	23.75	15.37	13.33
Building and infrastructure renewals ratio	19.65	87.37	65.93	0.00	321.67	18.99	115.56	96.57	91.20
Infrastructure backlog	0.00	5.00	0.72	0.00	20.38	0.06	6.09	6.03	7.73
Asset maintenance ratio	110.00	93.41	93.00	5.57	127.00	82.50	112.50	30.00	29.00
Sewerage	Client	Mean	Median	Min	Max	Qtr. 1	Qtr. 3	IQR	SD
Operating performance	6.55	3.01	3.77	-21.61	38.22	-5.60	8.81	14.41	14.17
Own source operating revenue	77.20	83.95	85.93	40.08	98.18	76.88	93.55	16.67	14.18
Unrestricted current ratio	187.44	24.76	8.76	-0.93	187.44	3.59	17.79	14.20	46.85
Debt service ratio	0.00	2.78	1.65	0.00	14.46	0.95	2.73	1.78	3.65
Rates and annual charges outstanding %	6.81	7.99	6.04	3.48	26.28	4.57	7.81	3.24	5.86
Cash expense cover ratio	0.00	15.09	13.36	0.00	37.60	9.42	18.67	9.25	10.37
Building and infrastructure renewals ratio	17.90	136.08	38.83	0.00	1453.95	24.25	59.27	35.02	355.42
Infrastructure backlog	0.71	4.57	0.92	0.00	36.52	0.15	3.57	3.43	9.43
Asset maintenance ratio	95.00	96.45	98.50	1.13	175.00	90.75	103.00	12.25	33.52