Summary Workings and Notes - Fit for the Future Infrastructure Ratios

June 2015

1 INFRASTRUCTURE BACKLOG RATIO

Infrastructure Backlog Ratio	Estimated cost to bring assets to a satisfactory condition / Total (WDV) of infrastructure, buildings, other structures and depreciable land improvement assets	Less than 2%

Inventory at current year

Council has 107,618 assets recorded in its Asset Management Information System. Of these, 7,495 are not classified as Infrastructure (e.g. art works, land parcels, library books, IT) leaving 100,123 assessable infrastructure assets.

Value at current year

These assets are each valued using unit rates for asset replacement. The total sum of the current replacement cost (CRC) of all infrastructure assets is $3,225,550,000.

The Written Down Value (WDV) is a calculation of the replacement cost of the asset, less straight line depreciation over its life to its current 'market' value. The total sum of the WDV of all infrastructure assets is $1,461,422,098.

The total WDV equates to around 45% of the total CRC indicating that a little over half of Council's infrastructure assets have passed the midpoint of their useful lives.

Cost to Bring to Satisfactory (BTS) at current year

Historically Council had determined the BTS by totalling the replacement cost of assets below satisfactory condition, as specified in its Asset Management Plans. That is, the cost to bring those assets measured below a specified intervention level condition, back to condition 1, "as new". This was calculated as a percentage of the total CRC for that asset class.

This accounting method reflected the actual practice where assets in poor or severely declining condition nearing the end of their lives are reconstructed (renewed) to condition 1.

However, this methodology has been revised to consider the literal meaning of the definition of satisfactory stated under Special Schedule 7 - "satisfying expectations or needs, leaving no room for complaint, causing satisfaction, adequate". Based on advice from Council's financial auditors, 'satisfactory' condition can theoretically be achieved by bringing those poor condition assets to condition 2, "good".

During 2013 as part of the Securing Our Future program Council undertook community consultation on the levels of service provided by Council for a range of activities. As part of this process the community confirmed their satisfaction with footpath assets being at a condition 3. Thus, for the

purpose of the Fit for Future Assessment, the BTS is calculated as the cost to bring all assets from condition 4 and 5 to condition 2, except footpaths which will be the cost to bring to condition 3.

Condition

While Council has extensive condition testing data gained over many years assessing its roads, footpaths, bridges and buildings, it is not reasonable to assume that all 100,123 assets have current condition data. Some asset types, e.g. stormwater pipes, are very difficult to inspect and the network has limited physical condition inspection data.

For consistency, Council has utilised a residual-life based formula for determining condition of all assets:

Table 1: Definition of Condition 1 to 5

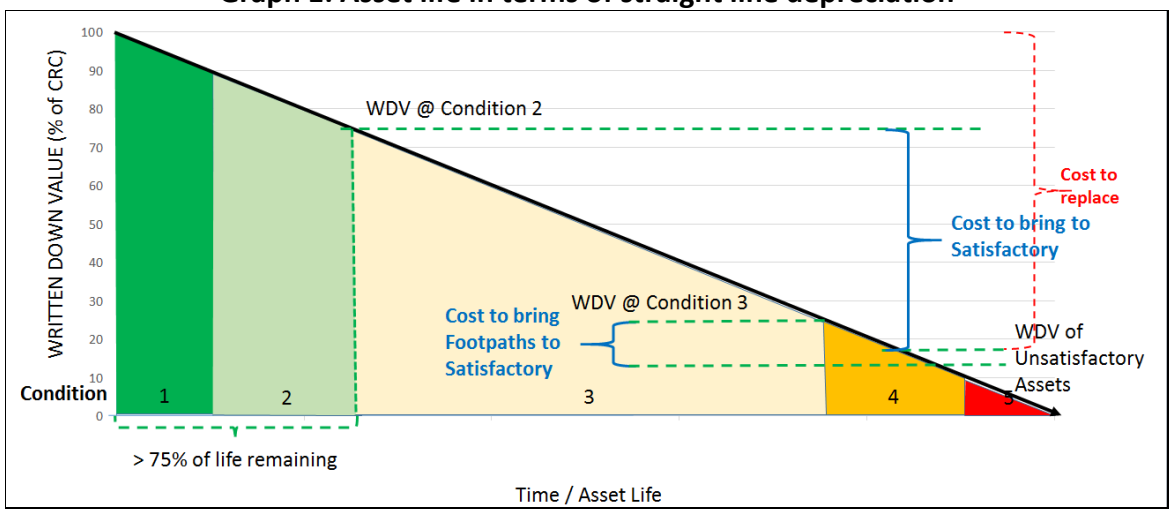
Rating	Condition	Description
1	Excellent	Residual life of asset > 95% of expected life
2	Good	Residual life of asset between 75% and 95% of expected life
3	Fair	Residual life of asset betwee >4 years and <75% of expected life
4	Adequate	Residual life of asset between 1 and 4 years (the period of the current capital program)
5	Poor	Residual life of asset 0 or 1 year, including assets imparied beyond use

Wherever actual field condition data is available (e.g.: roads, footpaths, bridges, buildings, etc.), this is used to update and set the residual lives of assets within the Asset information Management System.

Calculated BTS

Thus the BTS is calculated as the cost to bring all assets currently in condition 4 and 5 to condition 2 (except footpaths to condition 3). This is shown on the diagram below. That is, 75% of CRC less current WDV, but for footpaths to condition 3.

Graph 1: Asset life in terms of straight line depreciation



- Sum total BTS for condition 4 assets = $74,990,753
- Sum total BTS for condition 5 assets = $18,520,549

Total BTS = $93,511,302

Therefore infrastructure Backlog Ratio for current year (14/15) = $93,511,302 / $1,461,422,098 = 6.40%

Future Year Infrastructure Backlog Calculations

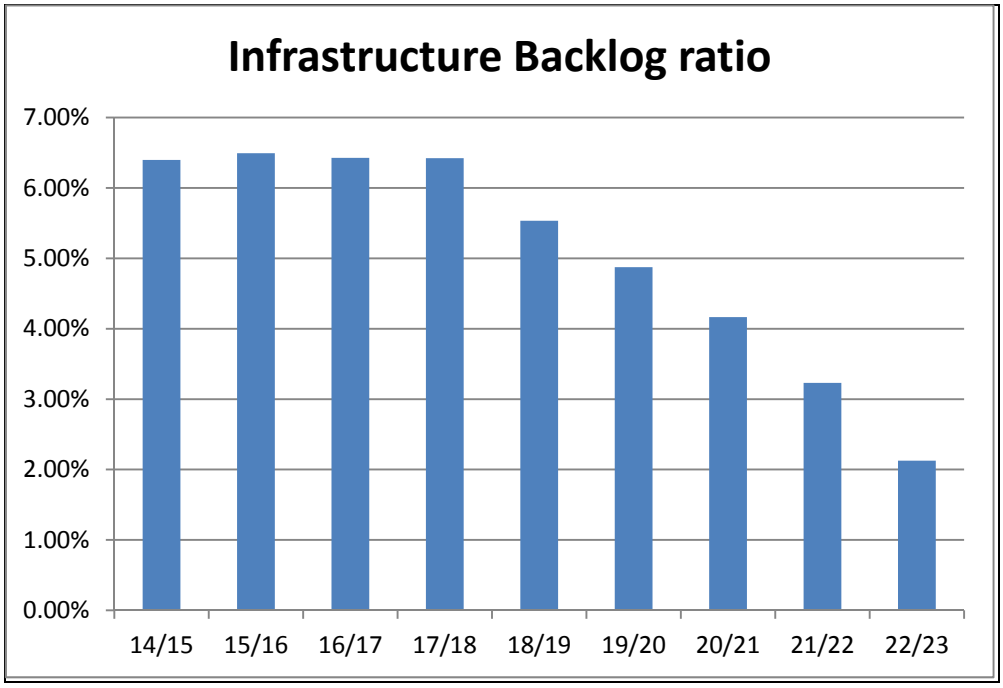
Through SRV and other measures from the Securing our Future program, Council is investing heavily in asset renewal. Actual renewal requirements based on residual lives (as opposed to a measure of depreciation as required in the asset renewal ratio) have been profiled over the next 20 years, from the Asset management plans. This profile represents the expected required expenditure, in today's dollars, of forecast asset renewal. The 20 year horizon was chosen to "level out" variations in forecast renewal needs between years. As tabled, this profile provides an average of $49,130,551 of assets reaching the end of life per year.

The BTS for the next year is therefore the current year +/- the difference between actual forecast asset renewal budget and the average required expenditure of $49,130,551.

Table 2: Forecast value of remaining life* of assets

YEAR	Asset remaining life	Value of assets with remaining life
2014/15	<=1	$ 29,875,091
2015/16	1 to 2	$ 23,824,469
2016/17	2 to 3	$ 45,962,239
2017/18	3 to 4	$ 51,176,599
2018/19	4 to 5	$ 37,193,608
2019/20	5 to 6	$ 52,972,834
2020/21	6 to 7	$ 27,037,713
2021/22	7 to 8	$ 37,721,170
2022/23	8 to 9	$ 44,607,880
2023/24	9 to 10	$ 24,109,099
2024/25	10 to 11	$ 48,599,558
2025/26	11 to 12	$ 33,902,560
2026/27	12 to 13	$ 18,596,988
2027/28	13 to 14	$ 34,851,097
2028/29	14 to 15	$ 53,744,370
2029/30	15 to 16	$ 283,578,108
2030/31	16 to 17	$ 35,571,742
2031/32	17 to 18	$ 20,592,982
2032/33	18 to 19	$ 27,022,095
2033/34	19 to 20	$ 51,670,815
Annual required renewal averaged over next 20 years (current value)		$ 49,130,551

*Remaining life based on anticipated lifecycle of assets or condition data as available.
NOTE: The large renewal allocation to year 2029/30 is primarily due to assets with an 80 year life such as road sub-base, kerb and footpaths. Wollongong Council has excellent records of the initial construction of assets dating back to 1960's. However, those assets which were known to exist prior to 1950 but have no recorded date of construction have been allocated an initial construction date of 1950, hence they are due to expire in 2030.



Graph 2: WCC Infrastructure Backlog Ratio

The 2015/16 Council budget for renewal expenditure on infrastructure assets is $444,126 less than forecast required so the BTS increases slightly to $93,995,428. The WDV for future years has been calculated on actual asset lives being moved forward one year with one year additional depreciation calculated. Those that were condition 5 are now condition 1. The WDV for 2015/16 is $1,447,735,248; therefore the Infrastructure Backlog ratio increases slightly to 6.49%.

However, as this process is iterative and repeated, Council's budgeted commitment to increase expenditure on asset renewal results in a decreasing backlog ratio as forecast expenditure rises well above the required expenditure. The ten year ratio is calculated at less than 1%.

Table 3: WCC Infrastructure Backlog Ratio
including Current Replacement Cost Calculation – 2015-2024

YEAR	Cost to bring to satisfactory	Total Infrastructure Written Down Value	Infrastructure backlog Ratio	*Total Current Replacement Cost*	*Ratio with Replacement Cost as denominator*
2014/15	$ 93,511,302	$ 1,461,422,098	6.40%	*$ 3,225,550*	*2.90%*
2015/16	$ 93,995,428	$ 1,447,735,248	6.49%	*$ 3,264,869*	*2.88%*
2016/17	$ 91,863,262	$ 1,429,043,956	6.43%	*$ 3,310,052*	*2.78%*
2017/18	$ 85,948,262	$ 1,338,327,396	6.42%	*$ 3,355,707*	*2.56%*
2018/19	$ 78,363,276	$ 1,416,174,144	5.53%	*$ 3,402,042*	*2.30%*
2019/20	$ 69,180,389	$ 1,419,263,056	4.87%	*$ 3,448,115*	*2.01%*
2020/21	$ 58,466,980	$ 1,403,315,232	4.17%	*$ 3,494,817*	*1.67%*
2021/22	$ 44,538,532	$ 1,378,351,257	3.23%	*$ 3,542,147*	*1.26%*
2022/23	$ 29,306,482	$ 1,378,748,433	2.13%	*$ 3,590,209*	*0.82%*
2023/24	$ 12,620,289	$ 1,351,598,990	0.93%	*$ 3,638,901*	*0.35%*

2 ASSET MAINTENANCE RATIO

Asset Maintenance Ratio	Actual asset maintenance / Required asset maintenance	Greater than 100% - average over 3 years

Actual Expenditure

Council's actual maintenance expenditure is calculated from the total expenditure of maintenance budgets in the year.

Although budget reports include both operational and maintenance expenditure totalling $42,020,830 in the 2013/14 financial year a large proportion of these funds are operational, so were discounted in calculating the figure used in Councils Special Schedule 7 as Actual Maintenance: $14,919,000.

In preparing the Fit For the Future submission for current year figures, the final year figure from 2013/14 was reviewed and additional maintenance expenditure identified including that on regional roads, and some maintenance expenditure on parks that was previously counted as operational. For current year, asset maintenance budgets total $16,541,515, segregated as per the table below.

Table 4: WCC Asset Maintenance Budget 2013/14

	Roads	Footpaths	Car parks	Drainage	Parks	Buildings	
Central	$ 1,295,685	$ 759,711	$ 136,193	$ 417,936	$ 542,632	administrative	$ 570,463
North	$ 1,089,203	$ 464,841	$ 223,847	$ 342,952	$ 419,633	commercial	$ 507,727
South	$ 1,203,087	$ 790,332	$ 154,046	$ 375,376	$ 288,076	non commercial	$ 3,334,749
City wide	$ 2,287,373			$ 511,311	$ 286,199		
regional	$ 540,143						
	$ 6,415,491	$ 2,014,884	$ 514,086	$ 1,647,575	$ 1,536,540		$ 4,412,939
	Total	$ 16,541,515					

In 2015/16 an additional recurrent $500,000 has been allocated from operational accounts to the indexed maintenance expenditure, bringing the total to $17,089,485. Forecast expenditure for following years is further increased from operational accounts.

Required Asset Maintenance

In Special Schedule 7, Council has historically allocated maintenance budget to specific asset classes which provides a level of maintenance developed over time to provide class-specific 'reasonable' upkeep of the City's asset stock. 'Required' asset maintenance is relative to these amounts and determined as a percentage of the CRC of the asset stock. For buildings, roads, stormwater assets and bridges the figure of 1% of the CRC has generally been used. This has resulted in a total required maintenance value of $18,701,408.

A review of these percentages for current year onwards was undertaken and the following changes made:

BRIDGES – Due to size and complexity, almost all road bridge works are costed against capital budgets and not maintenance budgets. Maintenance budgets for bridges are allocated to pedestrian

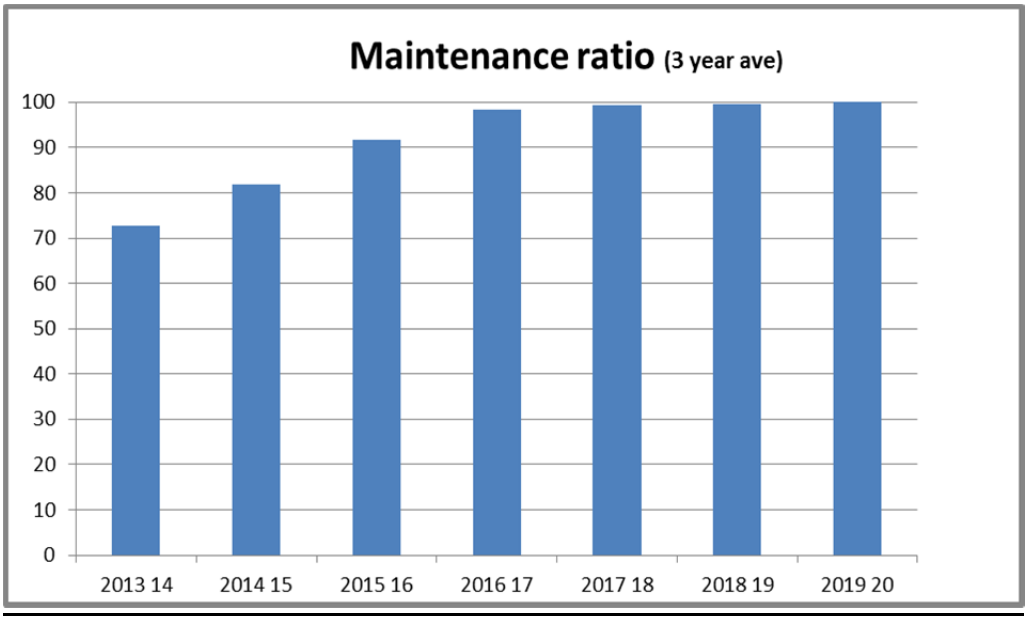
bridge works such as deck repair and painting. Therefore 1% of CRC of all bridges is too high to be considered reasonable; the figure of 0.25% has been allocated.

STORMWATER – Stormwater pipes, similar to road bridges, have the majority of expenditure to repair allocated to capital budgets. Stormwater asset maintenance expenditure is mainly limited to pit lintel and headwall repair. The 1% of CRC of all stormwater assets is too high to be considered reasonable; the figure of 0.25% has been allocated.

As a result of these amendments, the value of required maintenance for current year is reduced to $17,163,492. This figure is indexed for following years.

Table 5: WCC Asset Maintenance Ratio 2013-2020

YEAR	maintenance budget	Required maintenance	Single year ratio	3 year average ratio
2013/14	$ 14,919,384	$ 18,701,408	79.78%	72.63%
2014/15	$ 16,541,515	$ 17,163,492	96.38%	81.92%
2015/16	$ 17,089,485	$ 17,213,266	99.28%	91.81%
2016/17	$ 17,151,456	$ 17,263,184	99.35%	98.34%
2017/18	$ 17,212,426	$ 17,313,248	99.42%	99.35%
2018/19	$ 17,347,179	$ 17,363,456	99.91%	99.56%
2019/20	$ 17,675,468	$ 17,413,810	101.50%	100.28%



Graph 3: Maintenance ratio increasing over time

3 ASSET RENEWAL RATIO

Building and Asset Renewal Ratio	Asset renewals (building and infrastructure) / Depreciation, amortisation and impairment (building and infrastructure)	Greater than 100% - average over 3 years

ASSET RENEWALS

Building and Infrastructure Separated From Total Expenditure

Asset classes considered in the total of building and infrastructure are: Roads and related, West Dapto (Roads and related), Footpaths and Cycleways, Car parks, Stormwater and Floodplain Management, Buildings, Commercial Operations, Parks, gardens and sports fields, Beaches and pools, Natural Area management, Emergency Services and non-project allocations.
Asset classes not considered are: Waste Facilities, Plant and equipment, Information Technology, library books, public art.

Asset Renewal Expenditure Separated from New/Upgrade Expenditure

For those asset classes considered, in recent years a review of funds allocated to capital renewal has been undertaken, at a project-by-project level, to determine the actual forecast renewal expenditure on projects. The current year, this includes several hundred infrastructure projects. For future years, the same process has been adopted, however, at an asset class (capital program) level as funds have yet to be allocated to individual projects in the capital budget process. For example, 100% of funds in 'road reconstruction' have been attributed as 100% renewal, while the 'road upgrades' budget has been attributed a 30% renewal component.

Increased Renewal Expenditure

A significant review of operational revenue available for capital has been undertaken. This has resulted in an increasing allocation to overall capital renewal budgets of $10,382,711 over the next 9 years, from $48,646,425 to $59,029,136.

A review of grant and contribution allocations to renewal projects from the past 4 years averaged $5.4m per year, not including loans. It is considered reasonable to expect this allocation to renewal projects will continue, however, 2015/16 and 2016/17 already have some grant allocations in budget. It is reasonable to apply this figure and therefore we have included the indexed amount from 2017/18 onwards.

These forecasts provide a total which steadily increases renewal expenditure on buildings and infrastructure from $48,646,425 in current year to $65,816,744 in 2022/23.

DEPRECIATION

Not Amending Asset Lives

After consideration, Wollongong Council chose not to revise any life of any asset or asset class for the purpose of decreasing depreciation.

The lives of footpaths and shared paths were reviewed and amended as part of the Securing Our Future program in 2013, resulting in an overall reduction in depreciation of around $1 million.

Depreciation of Infrastructure and Buildings

Depreciation is as per the table below. Those highlighted are not included in the summation of building and infrastructure depreciation.

Table 6: Forecast Depreciation of Infrastructure and Buildings 2014-2025

Project Id	Description	15GLBUD 2014/2015 Current	GLLTM 2015/2016 Current	GLLTM 2016/2017 Current	GLLTM 2017/2018 Current	GLLTM 2018/2019 Current	GLLTM 2019/2020 Current	GLLTM 2020/2021 Current	GLLTM 2021/2022 Current	GLLTM 2022/2023 Current	GLLTM 2023/2024 Current	GLLTM 2024/2025 Current	GLLTM 2025/2026 Current
By Budget Item													
1599	Depreciation	193,713	674,581	1,277,439	1,655,500	2,110,980	2,469,520	2,877,209	3,238,384	3,605,591	4,031,367	4,464,095	0
1600	Depreciation Motor Vehicles	978,161	993,295	1,004,000	1,014,816	1,025,750	1,036,803	1,047,974	1,059,270	1,070,687	1,082,230	1,093,897	0
1601	Depreciation Plant & Equipment (excl MV)	3,162,104	3,195,936	3,231,677	3,267,738	3,304,230	3,341,143	3,378,499	3,416,293	3,454,536	3,493,232	3,532,386	0
1602	Depreciation Office Equip Computers	1,342,424	1,342,423	1,342,423	1,342,423	1,342,423	1,342,423	1,342,423	1,342,423	1,342,423	1,342,423	1,342,423	0
1603	Depreciation Other Office Equipment	197,064	197,064	197,064	197,064	197,064	197,064	197,064	197,064	197,064	197,064	197,064	0
1604	Depreciation Furniture & Fittings	211,509	215,733	220,040	224,435	228,918	233,490	238,152	242,908	247,758	252,706	257,752	0
1609	Depreciation Specialised Buildings	6,367,454	6,526,956	6,656,654	6,788,943	6,923,871	7,061,494	7,201,867	7,345,042	7,491,077	7,640,027	7,791,953	0
1610	Depreciation Other Structures	565,204	576,492	588,005	599,747	611,725	623,939	636,400	649,109	662,071	675,294	688,779	0
1611	Depreciation Sealed Roads Surface	13,950,497	14,131,854	14,315,568	14,501,669	14,690,191	14,881,165	15,074,619	15,270,587	15,469,107	15,670,205	15,873,916	0
1614	Depreciation Bridges	1,545,889	1,565,985	1,586,342	1,606,965	1,627,856	1,649,017	1,670,454	1,692,170	1,714,170	1,736,453	1,759,027	0
1615	Depreciation Footpaths	2,576,013	2,609,502	2,643,426	2,677,789	2,712,601	2,747,865	2,783,587	2,819,773	2,856,430	2,893,564	2,931,180	0
1617	Depreciation Stormwater Drainage	9,331,175	9,452,481	9,575,363	9,699,843	9,825,942	9,953,679	10,083,076	10,214,156	10,346,940	10,481,450	10,617,709	0
1619	Depreciation Library Books	1,119,961	1,019,961	1,019,961	1,019,961	1,019,961	1,019,961	1,019,961	1,019,961	1,019,961	1,019,961	1,019,961	0
1620	Depreciation Other Assets	781,328	819,744	858,159	896,891	925,948	955,335	985,058	1,015,128	1,045,548	1,076,324	1,107,468	0
1621	Depreciation Carparks	536,772	543,749	550,819	557,979	565,232	572,580	580,023	587,565	595,204	602,939	610,778	0
1623	Depreciation Kerb & Gutter	5,132,577	5,199,300	5,266,891	5,335,361	5,404,720	5,474,982	5,546,156	5,618,257	5,691,293	5,765,281	5,840,229	0
1624	Depreciation Cycleways	836,961	847,841	858,863	870,028	881,339	892,797	904,403	916,160	928,070	940,135	952,356	0
1625	Depreciation Other Infrastructure	1,174,249	1,189,512	1,204,978	1,220,642	1,236,509	1,252,585	1,268,869	1,285,365	1,302,073	1,319,001	1,336,148	0
1627	Depreciation Waste Facility Remediation	318,348	318,348	326,944	335,444	344,166	353,114	362,295	371,715	381,379	391,295	401,469	0
1628	Depreciation Non Specialised Buildings	5,955,590	6,074,524	6,195,831	6,319,563	6,445,764	6,574,485	6,705,778	6,839,693	6,976,281	7,115,598	7,257,696	0
1630	Depreciation Intangible Assets Software	538,380	538,380	538,380	538,380	538,380	538,380	538,380	538,380	538,380	538,380	538,380	0
1632	Depreciation Recreation/Open Space	3,364,900	3,434,551	3,500,636	3,570,547	3,641,850	3,714,577	3,788,755	3,864,420	3,941,589	4,020,306	4,100,590	0
1633	Depreciation Swimming Pools	594,110	605,974	618,075	630,418	643,007	655,848	668,946	682,305	695,930	709,828	724,003	0
		60,774,383	**62,074,186**	**63,577,538**	**64,872,146**	**66,248,427**	**67,542,246**	**68,899,948**	**70,226,128**	**71,573,562**	**72,995,063**	**74,439,259**	**0**
By Infrastructure & Other													
	Infrastructure	52,906,432	54,253,046	55,697,049	56,931,885	58,247,535	59,479,868	60,775,200	62,038,114	63,321,374	64,677,772	66,055,927	0
	Other	7,867,951	7,821,140	7,880,489	7,940,261	8,000,892	8,062,378	8,124,748	8,188,014	8,252,188	8,317,291	8,383,332	0
		60,774,383	62,074,186	63,577,538	64,872,146	66,248,427	67,542,246	68,899,948	70,226,128	71,573,562	72,995,063	74,439,259	0

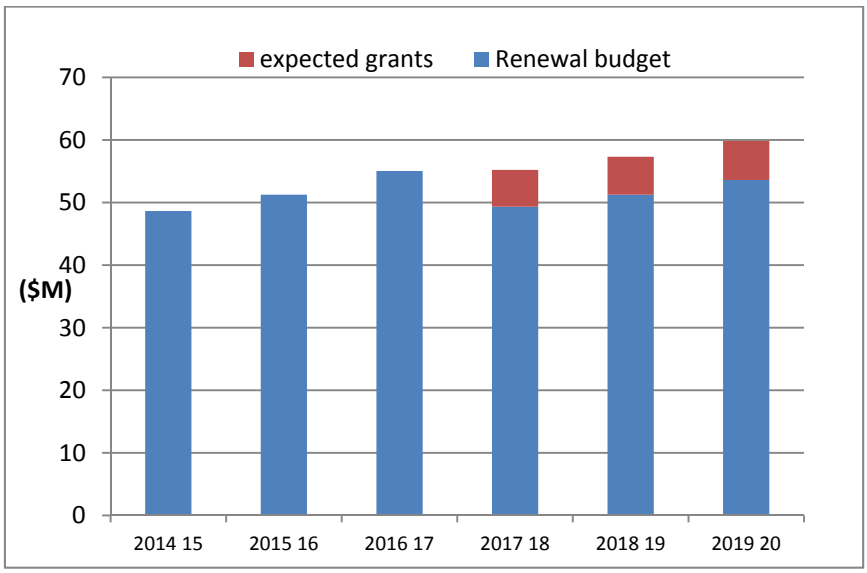
SUMMARY

The increase in renewal expenditure provides a 3-year average that rises to 100.12% at 2019/20. It should be noted this position strengthens in subsequent years to 103.82% in 2022/23.

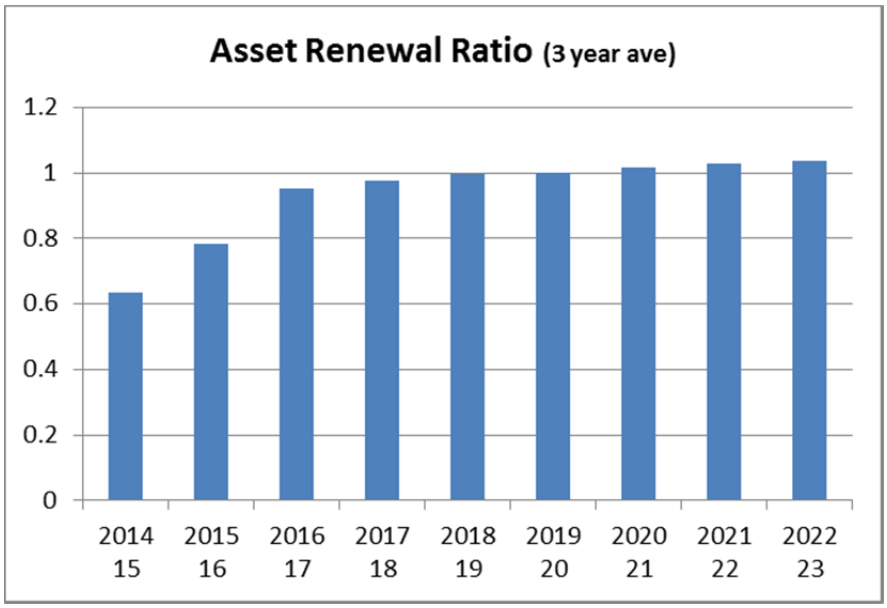
Table 7: WCC Asset Renewal Ratio 2014-2023

YEAR	Total Sum of Gross New and Renew Expenditure	Total Sum of Gross New Expenditure	Total Sum of Gross Renew Expenditure	Sum of infrastructure Renew Expenditure	Future grants	Renew expenditure + future grants from 16/17	Infrastructure depreciation	Asset Renewal Ratio
2014/15	$ 93,379,063	$ 32,906,589	$ 60,472,474	$ 48,646,425	$ 5,400,000	$ 48,646,425	$ 52,906,432	63.38%
2015/16	$ 86,255,721	$ 25,997,803	$ 60,257,918	$ 51,262,718	$ 5,556,600	$ 51,262,718	$ 54,253,046	78.55%
2016/17	$ 97,127,636	$ 27,083,486	$ 70,044,150	$ 55,045,550	$ 5,717,741	$ 55,045,550	$ 55,697,049	95.09%
2017/18	$ 100,969,641	$ 39,635,160	$ 61,334,481	$ 49,331,981	$ 5,883,556	$ 56,715,537	$ 56,931,885	97.65%
2018/19	$ 96,520,005	$ 36,349,246	$ 60,170,759	$ 51,259,259	$ 6,054,179	$ 58,313,438	$ 58,247,535	99.52%
2019/20	$ 79,566,505	$ 15,117,496	$ 64,449,009	$ 53,614,209	$ 6,229,750	$ 59,843,959	$ 59,479,868	100.12%
2020/21	$ 75,819,005	$ 16,031,853	$ 59,787,153	$ 56,648,586	$ 6,410,413	$ 63,058,999	$ 60,775,200	101.49%
2021/22	$ 78,185,505	$ 17,216,503	$ 60,969,003	$ 57,766,286	$ 6,596,315	$ 64,362,601	$ 62,038,114	102.71%
2022/23	$ 80,616,185	$ 17,956,883	$ 62,659,303	$ 59,029,136	$ 6,787,608	$ 65,816,744	$ 63,321,374	103.82%

The below graph presents expected future income from grants and contributions for renewal. Council has received an average of $5.4m p.a. over the past 4 years, spent on renewal of infrastructure. This does not include loans or subsidised loans. For the Asset Renewal Ratio forecasts this figure has been indexed and included in renewal expenditure from 2017/18 onwards. It is not included in the former years as these budgets already have a component of grant and contribution money.



Graph 4: Renewal budget including expected future renewal grant



Graph 5: 3-year Average Asset Renewal Ratio