A BASIC GUIDE TO DEPRECIATION

Purpose of Paper

This report provides a basic explanation of depreciation. It includes explanations of technical terms and examples of how depreciation is calculated.

Brief Explanation of Depreciation and how it relates to the Operating Statement

Depreciation is the measure of how much an asset has been used (consumed) during a period. Consumption of an asset will result in wear and tear and a decline in value, which is shown as depreciation.

Depreciation is an expense of operating a business and providing services. The amount of consumption used in a period needs to be reflected in the operating statement as an expense, so that the operating statement has a complete reflection of the total expenses of the business. The expenses of a business must match with income and vice versa. Where income has been received (for example rates) that relates to the use of assets and provision of services, then the cost (depreciation) of using those assets must also shown.

The amount of depreciation that is charged to the operating statement may not directly relate to a cash transaction, but is nevertheless just as important as other values in the operating statement (for example materials and contracts) that comprise of cash payments. Indeed depreciation may be recognised as a more important figure than other operating expenses as it features in more statutory ratios than other operating expenses.

Terminology

The table below summarises the terms relevant to depreciation.

Term	Definition
Fair Value	• 'Fair value' is the rational estimate of the potential market price of an asset at its current age. • 'Fair value' reflects the current market value of an asset, rather than its actual historical (purchase) cost. • Where there is no market data available to determine the current asset value (as with the majority of local government assets), there are other rational approaches that may be taken to determine the fair value.
depreciation	• Depreciation is the reduction in the value of an asset due to the consumption / use of the asset that is wear and tear. • The term depreciation normally just relates to one accounting period or year, as opposed to "accumulated depreciation" (explained below).
Residual Value	• Resale value of an asset at the point of its replacement. • Residual value is also defined as the remaining value of an asset at the point when the service level reaches the community's minimum expectations. This can apply to local government assets which may not have a resale value but still have a remaining value at the point of replacement.

	• The residual value is used within the calculation of depreciation as will be illustrated.
Expected Useful Life	• Service life of an asset based on expected performance of asset and current maintenance / operational practices. • For example a vehicle bought today which will be replaced in four years time has an expected useful life of four years.
Remaining Useful Life	• Expected useful life less current age of the asset. • For example a vehicle bought one year ago, which will be replaced after its fourth year will today have a remaining useful life of three years.
Straight Line	• The standard method of calculating depreciation within local government. • The 'straight-line' applies depreciation in equal portions for each accounting period, assuming that the consumption / wear and tear of the asset will be the same each year. • The City currently uses straight line for all assets, and is the basis of the examples below. There are other methods that can be used, but these will not be included in this paper.
Current Replacement Cost	• The overall gross cost of replacing an asset as new. • This is the starting point for revaluations in the calculation of depreciation.
Accumulated depreciation	• Total depreciation from its inception to now. • This may include several accounting periods. • For example a building that was built in 2004-05 will have accumulated 10 years worth of depreciation.
Depreciated Replacement Cost	• Current replacement cost less accumulated depreciation. • Depreciated replacement cost is the 'Fair Value' of an asset which becomes reflected in the balance sheet.

<u>Example 1 – Straight Line depreciation of an Asset just Purchased</u>

The depreciation calculations for an asset just purchased are the easiest to illustrate as there are no complications regarding revaluations. The actual purchase cost is simply used as the basis of depreciation.
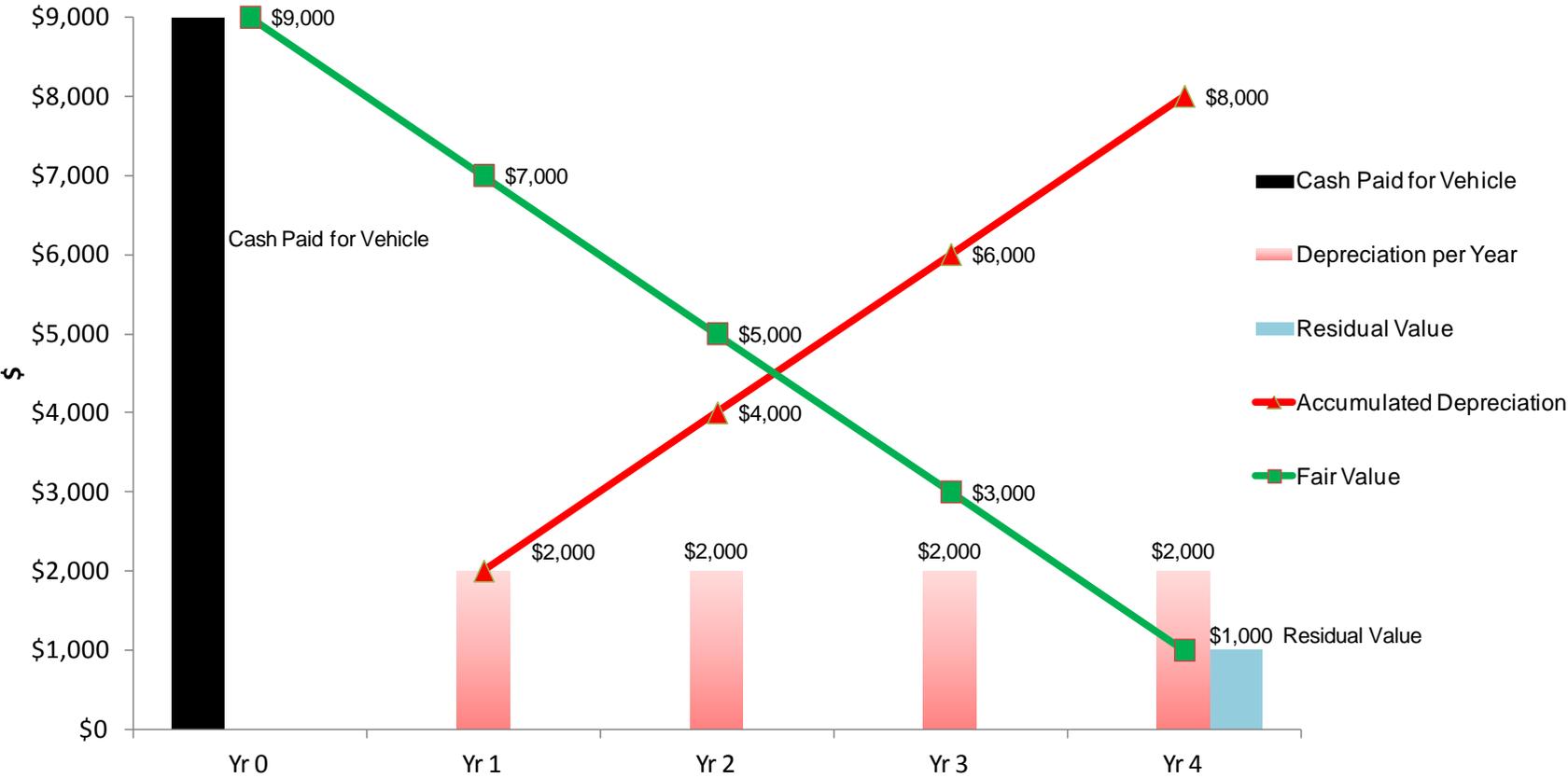
Assumptions

- Asset purchased at a cost of $9,000.
- Expected useful life four years
- Residual value $1,000. It is estimated that in four years time, $1,000 may be received at auction. This is estimated with reference to the expected usage (kilometers) of the asset and available market data of second hand car sales.

The projected depreciation and asset values for this asset are shown on the chart below.

- Total amount to depreciate is $8,000 (asset cost of $9,000 less residual value of $1,000).
- Expected useful life is four years.
- Depreciation (per year) is $2,000 ($8,000 divided by four).

Depreciation Illustration - Example 1 - Values at Purchase

Example 2 – Asset Revaluation after Two Years

Using the same asset in the example above, and assuming a revaluation at Year 2, the further assumptions are:

Assumptions

- Current Replacement Cost (as new) $10,000. It is now assumed, with reference to current purchase costs, that it would cost $1,000 more than it did two years ago.
- Expected useful life four years, Age is two years, remaining useful life is two years.
- Residual value $1,200. There are less kilometers being used on the asset than originally estimated and as a result a slightly higher residual value is now estimated.

The projected depreciation and asset values for this asset are shown on the chart below.

- Total amount to depreciate is $8,800 (asset cost of $10,000 less residual value of $1,200).
- Expected useful life is four years.
- Depreciation (per year) is $2,200 ($8,800 divided by four).

Note that there are some issues to deal with in the accounts to ensure that the correct amounts are charged to the operating statement and that the 'fair value' is shown in the balance sheet. The issues are:

- Depreciation for Year One has already been charged to the operating statement of $2,000. The revaluation indicates now that $2,200 should have been charged. However the accounts for Year One are closed and cannot be amended for this year.
- Accounts for Year Two have not been finalised, so the revised depreciation amount of $2,200 can be charged to the operating statement for Year Two. As the budget for Year Two depreciation did not forecast the impact of revaluations, the budget for depreciation would have been $2,000. Therefore the actual costs for the year of $2,200 would cause a variance of $200 in the year.
- Based on the two issues above, the combined depreciation charged to each of the years is $4,200 ($2,000 in Year One and $2,200 in Year Two). This does not reflect the correct accumulated depreciation that needs to be shown. The accumulated depreciation that for the asset should be $4,400 (two years x $2,200). Therefore an additional $200 charge to the operating statement is shown as changes on revaluation of non-current assets. This $200 cost is the difference between the revised depreciation of $2,200 and the Year One depreciation charge of $2,000.
- Current replacement cost of the asset will be amended to $10,000.
- 'Fair value' (depreciated replacement cost) at Year Two will be shown as $5,600. This is calculated as:

  o Current replacement cost of $10,000 less accumulated depreciation of $4,400.
  o Alternatively the 'fair value' can also be recognised as the residual value of $1,200 plus the remaining depreciation to be charged of $4,400.

Depreciation Illustration - Example 2 - Revaluation at Year 2
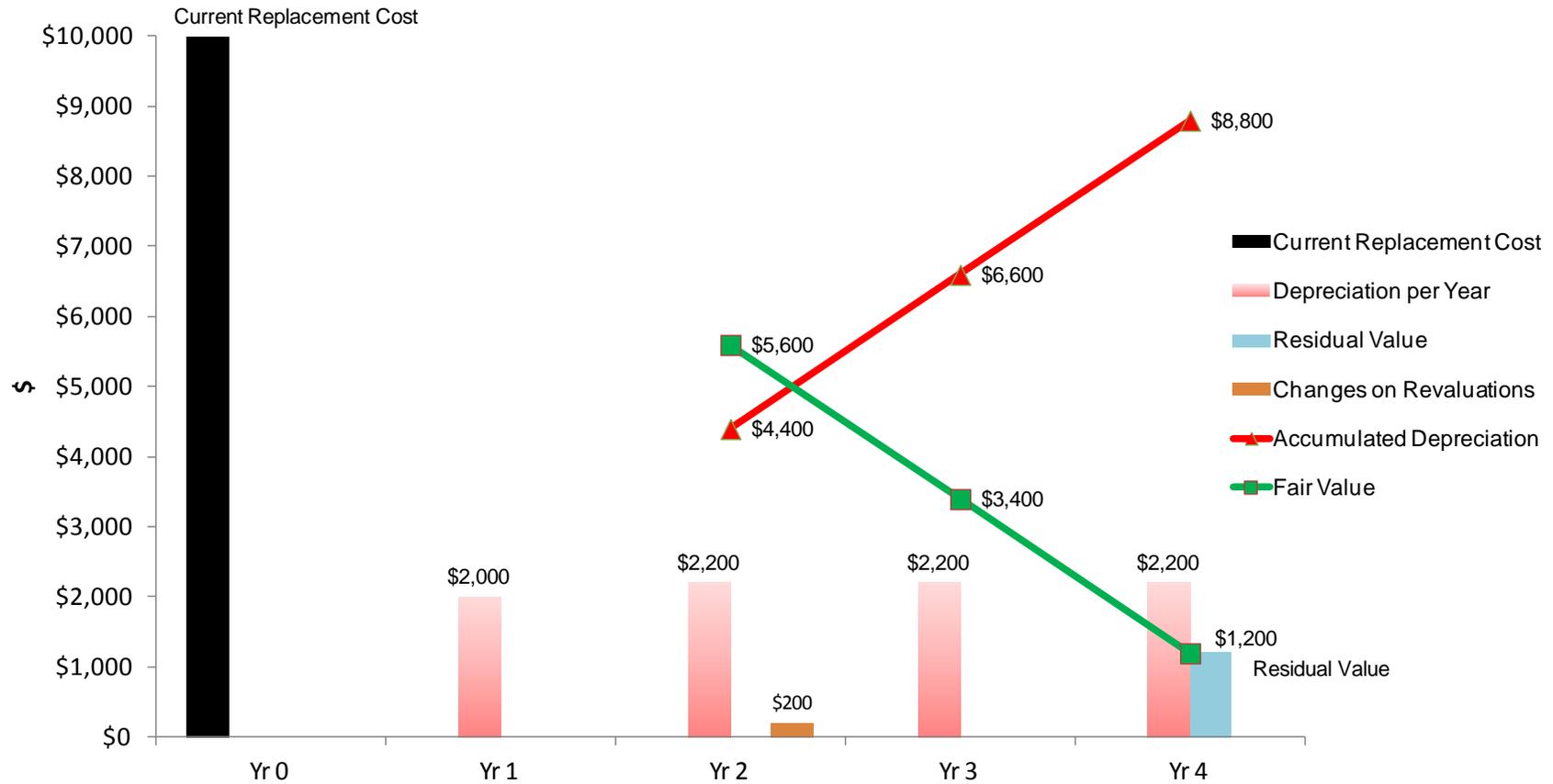
<u>'Elimination' Method for Revaluations</u>

The previous illustration was based on the assumption that depreciation for the year of the revaluation would be based on the results of the revaluation that is $2,200, as opposed to $2,000 that was included in YearOne.

The *Accounting Standards* have allowed a choice of how the depreciation may be treated during the year of the revaluation. The alternative method is known as the 'elimination' method. The 'elimination method would have the following entries for Year Two:

- Depreciation for Year Two of $2,000 (same as Year One).
- Changes on revaluations $400.

The end result in the balance sheet for the asset is the same that is 'fair value' of $5,600. The depreciation charges for the next two years would also be the same that is $2,200 per year.

The table below is the Statement of Comprehensive Income for 2013-14 and is used to help illustrate the different treatment that can be applied. The elimination method would include $2,000 depreciation within the top section of the report and included within the 'Profit/Loss', whereas the non-elimination method has $2,200 depreciation included in the Profit/Loss section. The elimination method has $400 within the changes on revaluation of current assets (underneath the Profit/Loss) whereas the non-elimination method has $200 in the changes for revaluation of current assets. The overall impacts within the 'Total Comprehensive Income' would be $2,400 for both methods.

CITY OF JOONDALUP
STATEMENT OF COMPREHENSIVE INCOME
BY NATURE OR TYPE
FOR THE YEAR ENDED 30 JUNE 2014

	NOTE	2014 Actual $	2014 Budget $	2013 Actual $
REVENUE				
Rates	3 (q)	82,573,393	81,884,952	77,390,492
Grants and Subsidies	7	2,349,439	4,305,925	4,146,871
Contributions, Reimbursements and Donations		2,073,239	2,258,993	2,039,458
Interest Earnings	8	4,740,101	4,545,377	5,720,488
Profit on Disposal of Assets	22	3,927,540	75,812	2,199,816
Fees and Charges	6	37,743,422	37,468,658	35,454,496
Other Revenue		271,806	147,500	471,132
		133,678,940	**130,687,217**	**127,422,753**
EXPENSE				
Employee Costs		(55,127,264)	(55,626,943)	(51,791,112)
Materials and Contracts		(47,435,690)	(49,374,973)	(46,846,840)
Utilities		(6,029,342)	(6,139,451)	(6,075,148)
Depreciation, Impairment & Revaluation Decrement	4	(27,476,675)	(21,016,218)	(25,301,724)
Loss on Disposal of assets	22	(200,087)	(215,682)	(232,067)
Interest Expense	24(a)	(488,961)	(490,458)	(582,814)
Insurance		(1,625,926)	(1,602,758)	(1,429,157)
		(138,383,945)	**(134,466,483)**	**(132,258,862)**
Net Result from Operating Activities		**(4,705,005)**	**(3,779,266)**	**(4,836,109)**
Non-Operating Activities				
Grants and Subsidies	7	4,318,894	5,834,548	9,254,652
Other Capital Contributions		1,484,104	330,000	209,555
Acquired Infrastructure Assets	5	-	500,000	1,837,337
Profit/(Loss)		**1,097,993**	**2,885,282**	**6,465,435**
Other Comprehensive Income				
Changes on revaluation of non-current assets	17	363,171,530	-	(10,708,137)
Total Comprehensive Income		**364,269,523**	**2,885,282**	**(4,242,702)**

The City has not used the 'elimination' method for the revaluation of infrastructure assets, and as a result the depreciation for 2013-14 published in the account is much higher than the previous year or the budget. The Cities of Stirling and Wanneroo have used the 'elimination' method and as a result there is not a high change to the depreciation for 2013-14.

Depreciation versus Renewal

It is useful to compare the amount of depreciation to the amount of money spent on capital renewals. If a business spends a lot less on capital renewals compared to depreciation, over a period of time, then it is storing up problems, because at some stage in the future the assets that have deteriorated and will need to be renewed. If insufficient renewals have been made then there could be a large backlog, which could be unaffordable.

The asset sustainability measure compares the amount of capital renewals to depreciation. In the long-term it is a useful measure, although like any ratios there needs to be care in how it is interpreted. For example, there could be large depreciation charges for new assets which do not require any renewals at all. Therefore it is not necessarily the case that the amount of capital renewals each year would match exactly to depreciation.

However, long term plans need to consider the renewal points of assets and the funding required. This may involve saving up (for example reserves) cash so that when large renewals are required there are funds available. By setting aside cash to do this, also helps to ensure that the community of today are paying for the assets that they are consuming. These issues will be explored more as *Asset Management Plans* become updated in the next couple of years.

COMPARISON TO THE CITIES OF STIRLING, WANNEROO, GOSNELLS, MELVILLE AND SWAN

The table below summarises the implementation of 'Fair Value' by five other local governments.

Issue	Joondalup	Stirling	Wanneroo	Gosnells	Melville	Swan
Implementation of Fair Value	2013- Property, Plant & Equipment (PPE) 2014 - Infrastructure 2015 – the rest	As per Joondalup	As per Joondalup	2012 - Roads 2014 – PPE 2015 - Drainage	2013 - Plant and Equipment 2014 – Land, Infrastructure	2013 – Land, Buildings, Plant 2014 – Infrastructure
Approach for Revaluations	Market for Fleet/Plant only, Cost for rest	Same as COJ, but some furniture and recreation equipment at Market	Infrastructure was at cost, but the other asset classes not specified	Same as COJ	Same as COJ, but Furniture also assessed at Market	Same as Stirling, but indicated that some Plant/Fleet at Cost
Auditor	Grant Thornton	Grant Thornton	Grant Thornton	MACRI	MACRI	MACRI
Capitalisation Threshold	$5k, except Software $20k	$1k PPE	$1k	$2k Buildings, Plant, Furniture $5k Infrastructure	Not specified	$1k Software & Furniture $2k – Plant $20k – Infrastr'e
Depreciation Basis	Straight Line(SL)	SL	SL	SL	SL	Not specified
Useful Lives: Buildings Roads Drainage	20 – 100 20 - 100 80	25 - 75 10 - 75 10 - 75	40 18 – 40 50 – 100	30 – 50 20 – 50 50 – 100	40 -80 20 – 50 80	Not Listed
Increase in Infrastructure Asset Value 2012-13 vs 2013-14	72%	153%	79%	0%	13%	8%
Depreciation: Actual 2013-14 vs Budget 2013-14	$27.5m $21.0m	$30.7m $30.7m	$30.1m $29.6m	$15.3m $14.7m	$13.7m $15.9m	$27.8m $29.3m
Deprecation as % of: 2012-13 Act Asset Value 2013-14 Act	3.2% 2.4%	3.7% 1.6%	3.1% 1.9%	1.9% 1.9%	4.0% 2.5%	2.7% 2.6%
Implications for LTFP	Yes	??	??	No	??	No

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Implications for LTFP	Yes	??	??	No	??	No