ACCOUNTING FOR INFRASTRUCTURE ASSETS

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1 Accounting for Infrastructure Assets

1.1 Introduction

An important part of asset management is the information needed to manage and account for the assets. There are three distinct levels of information needs that must be met to provide effective asset management:

- Management reporting – internal financial reports prepared for management and elected members;
- End of financial year reporting (under AAS27) – statutory reports prepared once a year for general purpose users of financial information; and
- Engineering/technical information requirements – both financial and non-financial information prepared to facilitate asset management.

The focus must be on managing the assets to meet the service demands of the community and the information needs to achieve effective asset management – management reporting and engineering / technical information requirements. Accounting and technical information systems need to be geared primarily to meet the information needs to manage all assets.

Additionally, the information needs for effective asset management must meet short, medium and long-term requirements as they are applied to the council plan, budget, business unit and operational plans.

1.2 Issues

The issues which this paper addresses are:

- What is an infrastructure asset (asset definition and recognition)?
- How long will an asset provide services (its useful life)?
- Depreciation – what does it measure?
- Asset record keeping (one database).

Some further technical detail is provided for convenience in appendix 1, though relevant, accounting standards should always be consulted for specific issues. This paper should also not be used as a substitute for seeking professional advice on detailed, complex or specific technical matters.

1.2.1 What is an infrastructure asset (asset definition and recognition)?

Key Points

- **Infrastructure assets are 'networks' of assets such as roads, stormwater drainage, parks and buildings.**
- **Infrastructure assets are characterised by the periodic renewal of components, rather than complete replacement of the asset.**

Infrastructure assets are typically large, interconnected networks (or portfolios). They are comprised of components and sub components that are usually replaced individually to continue to provide the functioning network.

Local Government in Victoria generally has responsibility for stewardship of the following infrastructure networks:

- Local roads;
- Storm water drainage;
- Municipal buildings including libraries and community halls;
- Parks, reserves and playgrounds;
- Recreation facilities including leisure facilities, sporting complexes and swimming pools.

Public infrastructure poses a different challenge than the management of other assets due to their unique characteristics which are:

- **they are long-lived** - where an optimum maintenance and renewal program is consistently applied to the asset, it should continue to be able to provide the optimum level of service required subject to obsolescence. For example, all other things being equal, a stone footbridge could continue to provide a service for in excess of 100 years.

- **they usually comprise a group, or network of related assets** – A road is part of a network of differing types of roads that facilitate the ready movement of many types of vehicles from place to place. The storm water system is a network of differing types of drainage equipment that facilitate the movement of water and prevents flooding. A building is a system of inter-linked and inter-connected components and sub-components, all of which are necessary to give the functionality the building provides to its users.

- **they are comprised of components which are renewed rather than the entire asset being replaced** - Typically, infrastructure assets are comprised of components and sub components which may be replaced / renewed individually to continue to prolong the serviceability of the network as a whole. The visible part of a road is the road surface, the bitumen seal (or concrete carriageway or gravel surface), but the road will have a base and a sub-base as components, as well as drainage and other components. The bitumen can be replaced, or treated

in some other manner, several times before any work may be necessary on the sub-base or the base. The drainage components may outlive all the other components, with little or no maintenance over their lives. Many buildings have a similar potential to serve over a long period of time, although the mechanical, electrical and other reticulation systems have been replaced several times and many coats of paint have been applied and stripped.

- **they are <u>fixed in place</u>** - the drainage inlet structure or pipeline is only useful if it is supporting the business operation in a particular place. There may be the potential to move some infrastructure assets, but they are generally left in the place of original construction. Parts of networks may be extended or no longer used but the overall asset remains in place, intact.

- **they often have <u>no market value</u>** – A market price may not always be available. Roads for example are not often bought and sold on the open market in the way that houses are. Instead the best indicator of infrastructure asset's value is "the replacement cost of the asset's remaining future economic benefits, which is not necessarily the cost of replicating the asset…" AASB 1041, 5.1.9 – refer Appendix 1.

The accounting standards define assets as "future economic benefits controlled by the entity as a result of past transactions or other past events" – e.g. a road provides the ability for motorists to travel from point to point for a number of years (future economic benefits) as a result of the council spending money to construct the road (past transaction). The capacity of an asset to provide services for the community is defined as its service potential or potential to provide services. So if a building with a life of 50 years has 25 years of that life left, it has a service potential of 50%.

There are different categories of expenditures relating to infrastructure assets. It is important to be able to distinguish between these categories as their accounting treatments will differ according to their different characteristics. It is also important to be able to distinguish whether certain expenditure creates new assets, renews or replaces existing assets, maintains existing assets or merely enables them to operate. These categories are:

- **Operating expenditure** –continuously required to enable the asset to provide benefits to the community such as electricity, water, fertiliser, fuel;

- **Maintenance expenditure** –periodically or regularly required, generally not large in value compared with the value of the asset (not material) which enable the asset to continue to provide services to the community – servicing of plant and equipment, painting buildings, grading a gravel road;

- **Capital renewal expenditure** – which renews or replaces component or sub component parts and returns the service potential or the useful life of the asset to that which it had originally. Generally large in value compared with the value of the components (material). For example, the replacement of an

internal wall in a building, replacement of an engine in a grader, resurfacing a road (re-sheeting or resealing) or replacing girders on a bridge.

- **Capital expansion** – which extends an existing asset at the same standard as currently enjoyed by residents to a new group of users – such as providing a new library so that another group of residents have local access who previously did not.

- **Capital upgrade** – which enhances an existing asset to provide a higher level of service or increases its useful life beyond that which it had originally such as bituminising a road which previously had a gravel surface.

Exactly what is included in each of the above categories may vary between councils depending on the specific policy set by each Council and how their assets have been defined. In particular what is material for each council will differ due to the quantum of the council's asset base. Additional discussion on "materiality" is provided in appendix 1.

Operating and maintenance expenditure are 'expensed' or written off through the Statement of Financial Performance (Operating statement) in the financial year in which they are incurred, as generally they will have been used up by the end of the financial period.

Capital expenditure however is 'capitalised' to the Statement of Financial Position (Balance Sheet), as the value of the asset. The asset value is then 'expensed' or written off, as its life (or service potential) is used up through the depreciation charge. In this way the total cost or value of the asset is spread over the periods in which it is used and matched with the revenue received in those periods.

1.2.2 How long will an asset provide services (its useful life)?

The useful life of an asset or component to the council is the estimated or expected time between placing it into service and either renewing the asset in place or removing it from service.

The useful life is not necessarily fixed, but can change in the light of new circumstances. Some of the factors which affect the 'using up' of an asset are:

- **The maintenance provided to the asset** - one of the key factors affecting asset life is the regularity and consistency of asset maintenance. A cost-effective asset maintenance plan, regularly performed, can significantly extend the life of an asset.

- **The quality of the original asset** - the materials, methods and skill used to construct the asset will have an effect on the useful life of the asset.

- **The wear and tear the asset is subjected to** - a road subjected only to light vehicle traffic will last for a significantly longer period of time than an identical road subject to heavy vehicle traffic.

- **The environment in which the asset is operated or constructed** - for example, building assets constructed in areas with highly reactive soils will tend to have shorter lives compared with similarly constructed buildings in non-reactive soils.

- **Technical obsolescence** - as technology improves, assets can quite suddenly become no longer suitable for their purpose. They can become inefficient in supporting the business entity. For example the main frame computer giving way to the file server.

- **Commercial obsolescence** - some assets become redundant because there is no longer a demand for them or the products they produce. Ferries give way to bridges.

1.2.3 Depreciation – what does it measure?

Depreciation is the accounting term given to the allocation of the service potential of an asset over its useful life as an operating expense. The depreciation of an asset or component is calculated as the:

$$\frac{\text{Cost} - \text{residual value}}{\text{Useful life}}$$

Where the :

Cost of the asset is its initial purchase price or cost of acquisition, plus any costs necessary to place the asset into service - this includes one-off design costs. Note that **Cost** will be replaced in subsequent calculations by the **Revalued amount** or fair value when asset revaluation takes place. Where assets do not have a market price this is the replacement cost of the asset's remaining future economic benefit. The standards require regular revaluations of infrastructure assets as detailed in appendix 1.

- **Residual value** is the expected revenue from disposing of the asset (its sale price) at the end of its economic life.

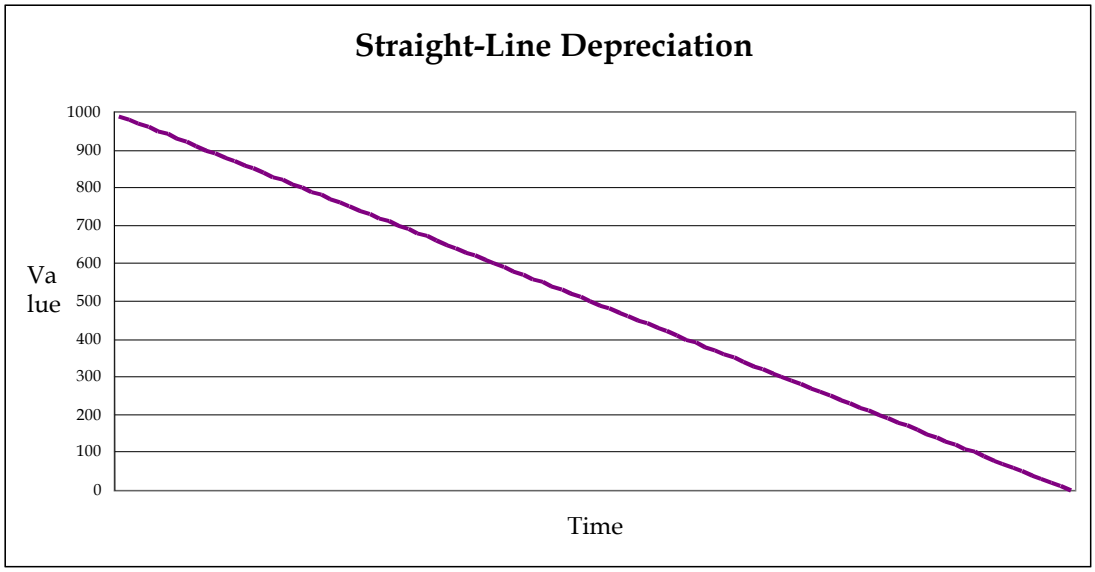
- **Useful life** of the asset or component to the council is the estimated or expected time between placing the asset into service and removing it from service.

Depreciation therefore measures the using up of the asset over time and is expensed through a charge to the Statement of Financial Performance (Operating statement).

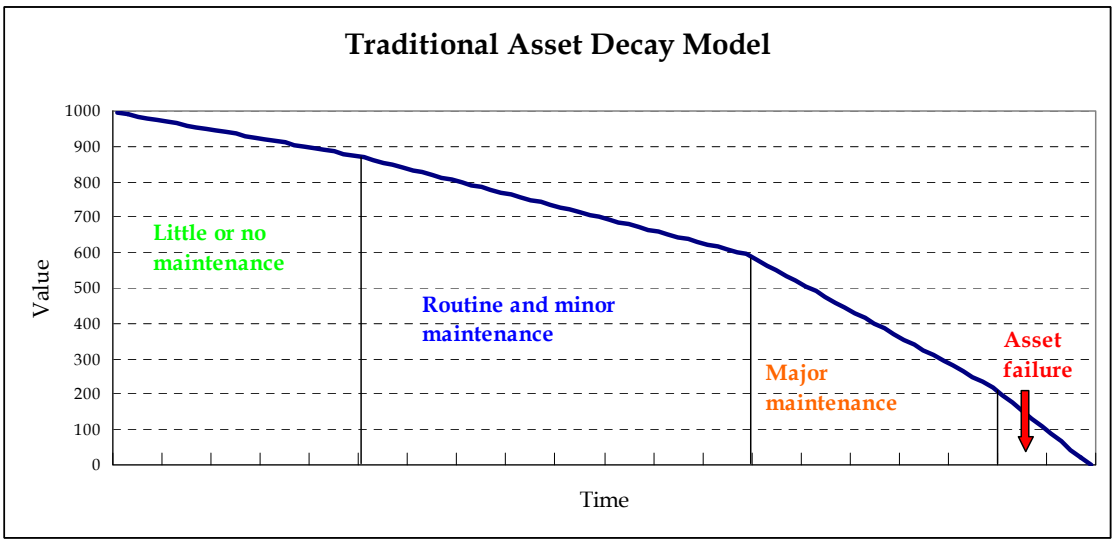
Key Points

- **The depreciation charge is a measure of the assets 'consumed' by the council in providing services for that particular financial year.**
- **If the Statement of Financial Performance (Operating statement) shows a deficit, then the deficit measures the amount of asset consumption that has not been 'provided' by that year's ratepayers and revenues received.**

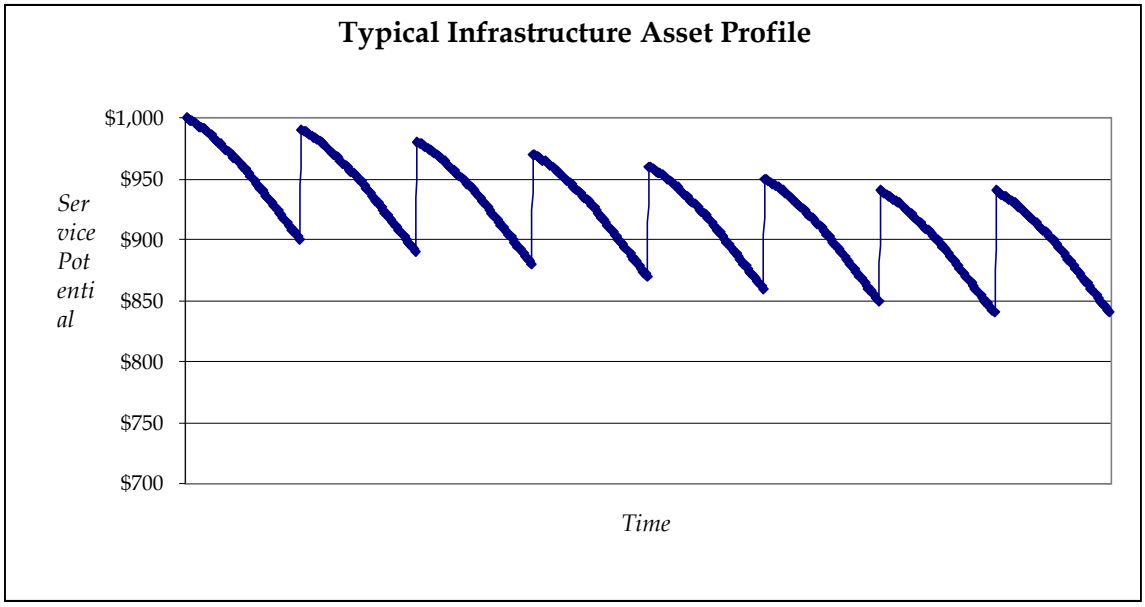
In its simplest form, the depreciation formula creates a depreciation charge that is uniform over each financial year – straight- line depreciation. However, the accounting standards require the depreciation calculation to be revised annually and for the depreciation charge to be adjusted to reflect any changes. (For further detail see appendix 1 and the accounting standards.)



Many assets however do not loose their service potential in a uniform way. They may for example degrade or decay on a curve as shown below.



Infrastructure assets may however be continuously renewed, rather than left until they fail. If components and sub-components of a road asset for example are renewed as they reach the end of their useful lives, then the service potential of the road is renewed before it expires. The following saw-toothed curved can be used to demonstrate the life cycle of such assets and how the asset value is rejuvenated as components and sub-components are renewed.



Such lifecycles could at first appear to cause a dilemma in the calculation of depreciation as the useful life and residual value of the entire asset may be difficult to determine.

The accounting standards require council's infrastructure assets to be revalued regularly, so the value of the asset to be depreciated is known. It is then a matter to decide, what the likely residual value will be when the asset is likely to cease service or be renewed. As discussed in section 1.2.2 above, changes in expectations can occur very quickly due to factors such as obsolescence so these decisions may well change over time as new information becomes available.

Key Points

- **When an asset is revalued, or the estimate of its residual value or useful life changes, then the depreciation charge will change.**
- **With regular revaluations, reviews of residual values and asset lives, the depreciation of individual assets will reflect what is actually happening to the asset.**

The actuality for one infrastructure asset or component may well not follow a straight line, but when looking at a portfolio of assets the combined effect of the depreciation of all the individual assets or their components may approximate to a straight line.

1.2.2 Asset record keeping (financial / technical databases)

The whole process of asset management displays a critical need for information to 'manage' assets. Technical databases are the most useful repositories for asset management information.

But there is also a need for financial information to manage the assets and to meet statutory reporting requirements. This data could be held in a separate database – a financial database. However, there is an emerging trend to use a single database to record all information about assets. There is no doubt that technical databases are extremely capable of providing information suitable for valuation, revaluation and depreciation and other financial information. What is exciting is that from the perspective of asset valuation and revaluation, the information is likely to have greater currency than financial databases and be much easier to maintain and update because all the information is held in the one area. A word of caution – the technical database will need to be both secure and auditable.