APV

# Technical Paper

# Financial Reporting Valuation : IFRS v IPSAS

24 August 2023

# About APV

APV provides specialist valuation, asset management and asset accounting services for a wide range of organisations and sectors. While based in Australia, we enjoy close partnerships with our clients across the globe, including hundreds of local, state and national governments, their agencies, universities, manufacturing and transportation businesses and not-for-profit organisations.

Our services include:

- Financial reporting valuations delivered in accordance with the IFRS, IPSAS, FASB or jurisdictional standards (such as AASB / XRB) covering land, buildings, transport infrastructure, water and waste water infrastructure, energy infrastructure, plant and equipment, etc.
- Insurance valuations for public sector, not-for-profit sector and commercial assets.
- Asset accounting advice with respect to valuation and depreciation methodologies and compliance reviews
- Asset management advise and training with respect to asset management frameworks, plans and systems
- Customised training and professional development with a focus on asset accounting and asset management.

As leaders in our field, we are proud of our unblemished record of audit approval. APV is comprised of a mix of valuers, engineers, quantity surveyors, accountants and IT specialists. We tailor our services to meet client needs, helping them get the most from their assets and plan effectively for the future.

And while valuation and depreciation can be complex, we keep it simple. We're constantly evolving to offer customers more flexibility and control. We use leading methodologies and custom-built valuation tools that are compliant, comprehensive, logical and truly relevant.

# Table of Contents

# Introduction

With the recent publication of IPSASBs new standards on Infrastructure and Measurement, it is appropriate to summarise the key changes from the old IPSAS17 Property Plant and Equipment and reflect on how the new IPSAS requirements differ from the existing IFRS valuation requirements.

While there is a conceptual difference with IPSAS being an 'entity specific entry price' and IFRS being an 'exit price at highest and best use', in reality, almost of all of the requirements once the replacement cost of market value is determined are the same. This includes disclosures and the calculation of depreciation expense.

Perhaps the biggest change though is the very clear removal of Depreciated Replacement Cost (DRC) as an appropriate basis. While many entities still adopt the DRC approach and auditors seem comfortable signing off such valuations despite its removal from the IFRS in 2013, both the IFRS and IPSAS standards are now both fully aligned. i.e. Under the cost approach, the current value is determined by deducting from the replacement cost an allowance for obsolescence noting that the adjustment is conceptually different and not related in any way to depreciation.

An impact flowing from the closer alignment of requirements between IPSAS and IFRS is the changing level of sophistication required with valuations. Not only has the simple DRC approach been replaced with a condition and obsolescence based requirement, but as a consequence of depreciation requirements under IPSAS3 and IAS8, valuers will need to deliver current values for each 'part' of each 'component' of each 'asset'. For many, this will appear overly complex and challenging. However, in reality it is very easy to deliver. Especially if using specialised financial reporting valuation software like Asset Valuer Pro (www.assetvaluer.net).

This more sophisticated approach also enable very easy alignment between accounting and asset management and ensures the valuation process is not a financial reporting overhead but rather a key input to the asset management framework.

# Background

Over the past 30 years various governments around the world have adopted accrual accounting for their public sectors. In the early phases, the countries with advanced accounting systems, tended to adopt the International Financial Reporting Standards (IFRS) while more recently, increasing numbers of governments have moved to adopt the International Public Sector Accounting Standards (IPSAS). The United States via their GASB standards have adopted the IFRS Fair Value approach for asset valuations in recent years.

In the early years, the IFRS standards were preferred due to perceptions that the IPSAS standards required further development, especially in relation to the requirements relating to the adoption of accrual accounting verses cash accounting.

When IFRS13 Measurement was implemented in 2013, the IPSASB was concerned that the underlying 'market based exit pricet' was not appropriate for the public sector and as a result did not publish an IPSAS standard to mirror the requirements of IFRS13.

To address this, the IPSASB developed a new conceptual framework and based on that framework have updated a number of their accounting standards. This has included the March 2023 publication of new standards for Infrastructure and Measurement.

The net result of all of these changes is that –

- Under IFRS the concepts and requirements for valuation changed following the implementation of IFRS13 in 2013.
- Under IPSAS, the concepts and requirements for valuation have now also changed from the requirements of IPSAS17 prior to the March 2023 changes.

The net result is that conceptually, undertaking a valuation of public sector assets is different under the IFRS and IPSAS standards. Additionally, the approaches adopted under the existing standards is significantly different in concept and approach to the standards prior to the adoption of IFRS13 and the new IPSAS Measurement standard.

# Changes in IFRS

When IFRS13 Measurement was adopted in 2013, it changed the definition and concept of Fair Value from what was previously defined in IAS16, IPSAS17 and the International Valuation Standards (IVSC).

Under the new concept, the calculation of Fair Value is a 'market based assessment' that takes into account the 'key characteristics relevant to market participants'. These are specifically listed in paragraph 11 as –

- Condition
- Location
- Restrictions on sale or use.

Importantly, paragraph B9 also states very clearly than when using the 'cost approach' Fair Value is the 'Current Replacement Cost' which is calculated by deduction from the replacement cost and adjustment for obsolescence and that such an adjustment is conceptually different, and not the same as, depreciation.

While the changes in concept are subtle, this is a huge shift in practice from the previously commonly adopted method of Depreciated Replacement Cost (DRC) to Current Replacement Cost (CRC).

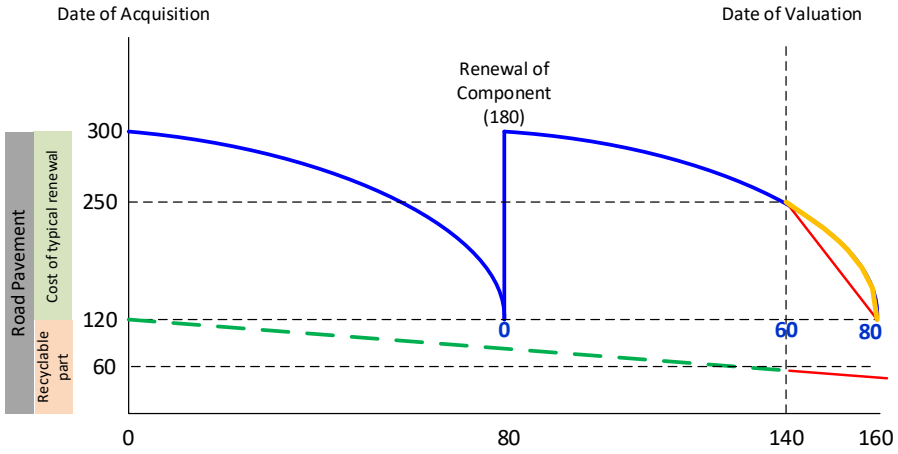
For depreciation Expense, IAS16 requires each 'part' of the asset that has a significant cost and different useful life to be depreciated separately. However, one aspect of the IFRS standards often overlooked by valuers and engineers is that IAS8 also clarifies via Example 3 that when calculating depreciation expense, you must depreciate the carrying amount down to the residual value over the remaining useful life (RUL).

Commonly this requirement has been misinterpreted as depreciating the replacement cost less residual value over the useful life. Likewise, many assume that an asset 'component' is the same as a different 'part'.

The net impact is that under the IFRS, it is critical that a Fair Value be calculated for each 'part' (rather than component') of each asset so that it can then be depreciated over its RUL.

A separate technical paper 'Accounting verses Asset Management Concepts' provides a detailed example of the differences in concepts between accounting and asset management. The example below from that paper shows how to calculate Fair Value using the cost approach in accordance with IFRS13 and the new IPSAS measurement standard.

# Accounting v Asset Management Terminology




**Example: Assume typical renewal treatment for a Road Pavement is to renew via chemical stabilisation after approximately 80 years with overall road pavement assumed to have a total useful life of 300 years. Cost of renewal is 180 whereas cost to construct full pavement is 300.**

Note: Example assumes application of straight-line depreciation. Ideally, the depreciation method should match the expected pattern of consumption (shown as amber).

**For Asset Management Purposes**

Replacement Cost = 300
Estimated renewal = 180
Useful life = 80

Projected asset management funding needs
When = 20 years from now
Amount required = 180

Total acquisition and renewal cost over 300 years =

| | | |
|---|---|---|
| Acquisition | * 1 | 300 |
| Renewals | * 4 | 720 |
| Total | | 1,020 |
| AAAC | | 3.4 |

If only funding renewal = (180/80) = 2.25

**For Asset Accounting Purposes (IFRS & IPSAS)**

(assumes Residual Value = 0)

Gross Figures
Gross Replacement Cost = 300
Gross Short-life (renewal part) = 180
Gross Short-life Useful life = 80
Gross Long-life (recyclable) part = (300 – 180) = 120
Gross Long-life Useful Life > 80. Assume = 300

Valuation and Depreciation
**Short-Life Fair Value** = (250 – 120) - 130
Short-life Depreciable Amount = 130
Short-life RUL (based on condition) = 20
Short-life Depreciation = 130/20 = 6.50
**Long-Life Fair Value** = 60
Long-life Depreciable Amount = (60 - 0) = 60
Long-life RUL = (300 – 140) = 160
Long-life Depreciation = 60/160 = 0.375
Component Fair Value = 80 + 60 = 140
Component Depreciation = (6.50 + 0.375) = 6.5375

# Changes in IPSAS

Prior to the publication of the new IPSAS Measurement and Infrastructure standards, IPSAS17 referred to the pre-IFRS13 definition of Fair Value and, if using the cost approach, enabled using either depreciated replacement cost, or the restoration cost or service units approaches.

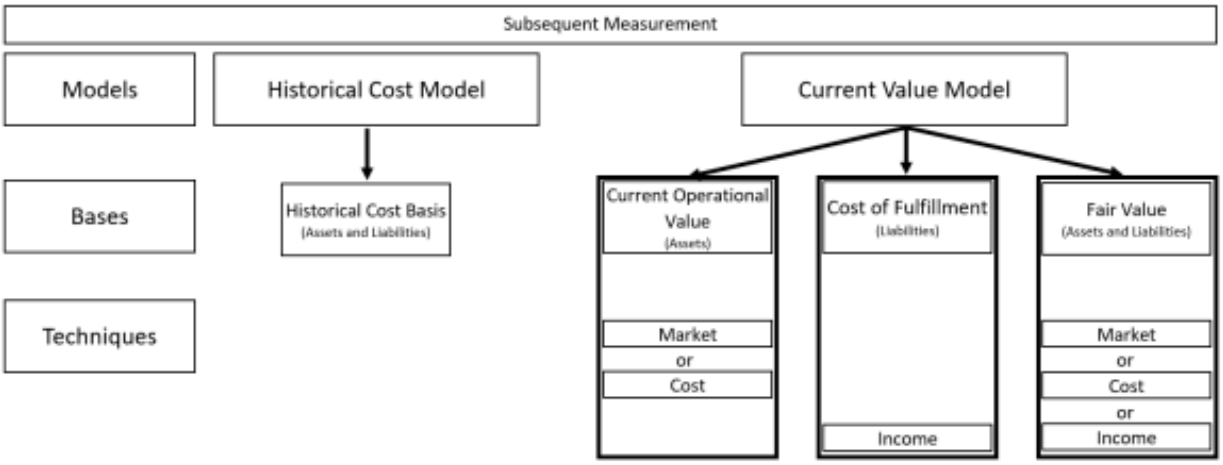
The new Measurement Standard provides for three valuation approaches for assets –

- Historical cost basis
- Current operational value basis
- Fair value basis

Paragraph 36 sets out –

> *An entity shall use measurement techniques that are appropriate in the circumstances and for which sufficient data are available to estimate the measurement basis or determine deemed cost*

The following diagram sets out the subsequent measurement framework based on the *Conceptual Framework: Chapter 7, Measurement of Assets and Liabilities in Financial Statements*. This diagram illustrates the three levels of measurement and the relationships between them.




The main point of difference between 'Current Operational Value' and 'Fair Value' is that –

- Fair value measurement is an exit, market-based measurement, based on the key characteristics relevant to market participants; whereas
- Current Operational Value –
  - *Is explicitly an entry price and includes all the costs that would necessarily be paid for the remaining service potential of an asset;*
  - *Reflects the value of an asset in its existing use, rather than the asset's highest and best use (for example, a building used as a hospital is measured as a hospital); and*
  - *Is entity-specific and therefore reflects the economic position of the entity, rather than the position prevailing in a hypothetical market.*

Under the new IPSAS Infrastructure standard, if the asset is held for financial capacity it will be revalued to Fair Value while assets held primarily to deliver services to the community are to be valued at Current Operational Value.

Under the Cost approach for Current Operational Value -

> *B1. The objective of a current operational value measurement is to estimate the amount an entity would pay for a non-financial asset at the measurement date. A current operational value measurement requires an entity to determine all of the following:*
>
> *(a) The amount the entity would pay. This includes assessing the price that would be paid in a market, or the cost the entity would incur, for the asset in the least costly manner.*
> *(b) The remaining service potential of the asset. This considers the current condition of the asset.*
> *(c) The asset (consistent with its unit of account). This includes assessing the asset's existing use and location.*
> *(d) The measurement technique(s) appropriate for estimating (a) to (c) considering the availability* of data that faithfully represents the assumptions that are specific to the entity.
>
> *B2. Current operational value provides an entity specific measurement of an asset held for its operational capacity in its existing use, location, and current condition.*

The determine the level of remaining service potential -

> *B16. Current operational value reflects the value of the remaining service potential of the asset. The remaining service potential of the asset takes into account the current age, functionality, and condition of the asset held by the entity.*
>
> *B17. In order to reflect the current age, functionality, and condition, the following factors are considered:*
>
> *(a) Physical obsolescence relates to any loss of service potential due to the physical deterioration of the asset or its components resulting from its age and use.*
>
> *(b) Functional obsolescence relates to any loss of service potential resulting from inefficiencies in the asset that is being valued compared with its modern equivalent.*
>
> *(c) Economic obsolescence relates to any loss of utility caused by economic or other factors outside the control of the entity.*

# Differences between IFRS and IPSAS

While conceptually 'Current Operational Value' (IPSAS) is different to Fair value (IFRS), the approach used to determine both is effectively the same with one exception. -

- IPSAS Current Operational Value is an entity specific 'entry price' value based on the current use of the asset and the current utilised capacity of the asset.
- Whereas, Fair Value is an 'exit price' based on the highest and best use from the perspective of market participants.

Under both standards, where there is an open an active market (observable market evidence), both standards would require valuation using the market approach.

The key difference is the determination of the replacement cost when using the 'cost approach'. Both take into account the same costs that would be necessarily incurred and both are based on the asset being constructed in the same location. However, the IPSAS approach is only interested in the entity's own use for the asset and the capacity it requires to deliver its service. Whereas IFRS considers the cost from a highest and best use perspective.

For example, if we assume we asset being valued is a school and the school has capacity to handle 1,000 students but currently only has 300 enrolments.

- Under IFRS, assuming that capacity for 1,000 is required in the long-term or for other alternative uses of the school, the replacement cost would be based on the existing buildings and capacity
- Under IPSAS, the replacement cost might only be based on the assets required to provide education to 300 students.

Other than the adjustment to the replacement cost, the process to determine the current value (Current Operational Value or Current Replacement Cost) is the same. i.e. The replacement cost is adjusted downwards for obsolescence and not depreciation.

> *IPSAS xxxx.43. The cost approach reflects the amount that would be required currently to replace the service provided by an asset (often referred to as current replacement cost) through the acquisition, construction, or development of a substitute asset of comparable utility, adjusted for obsolescence. Obsolescence encompasses physical deterioration, functional (technological) obsolescence and economic (external) obsolescence and is broader than depreciation for financial reporting purposes.*

As a result, the old Depreciated Replacement Cost approach (IPSAS17 prior to the new standard) is no longer consistent with either IFRS or IPSAS.

Both sets of standards also require the calculation of depreciation expense to be based on depreciating the carrying amount down to the residual value over the RUL. As a result, both sets of standards require the calculation of the current value at the 'part' level for each asset. This is achieved in practice by splitting assets into components and then further splitting the components into a short-life (renewal) and long-life (recyclable) part.

# Key Inputs and algorithms

The benefit of old and non-compliant DRC approach was that it was very easy to calculate. However, the resulting calculations did not typically result in values that reflected the actual asset management reality or provide information that enabled good asset management planning. Part of the issue was that DRC calculations were often applied too simplistically and at the whole of asset or component level rather than for each part of the asset.

Whether you apply Fair Value or Current Operational Value, the relevant standard require –

- Selection of an appropriate measurement technique (Market, Income or Cost)
- Consideration of technical, functional, and physical obsolescence (including condition) to determine the current value.
- Irrespective of the technique used, the calculation of a carrying amount (current value at timer of revaluation) for each 'part' of the asset that has a different RUL. This is required to enable the correct calculation of depreciation expense.
- If using the cost approach, that the adjustment to the replacement cost down to the current value is an adjustment of obsolescence and not an adjustment for depreciation.

While this is relatively straight-forward there are of course many scenarios and different drivers that require professional judgement which in turn impact the calculation the current value.

The wide range of the impacts of these inputs on the calculation on both current value and prospective depreciation expense, highlight the need for very complex and sophisticated algorithms. Trying to build these into spreadsheets would be extremely challenging and would result in highly complex spreadsheets which in turn results in a high risk of error.

As such, we would strongly recommend the use of a specialised financial reporting valuation software solution, such as Asset Valuer Pro, that already addresses the various alternative scenarios and delivers all the key outputs required for the external audit process.

Some factors and inputs to consider include –

- Selection of the appropriate valuation technique
- Disaggregation of the asset for valuation verses financial accounting and asset management purposes and impact on design of the valuation framework
- Financial verses measurement classification
- Whether observable evidence of cost is at whole-of-asset, component or sub-component level
- Whether assumptions and hierarchy reflect asset management reality
- Initial adjustment for optimisation, excess capacity or differences between highest and best use and entity specific use.
- The key characteristics that drive physical, technical and functional obsolescence and resulting impact on the 'pattern of consumption' and valuation methodology
- Whether or not there is a known acquisition or decommission date
- What is the perceived 'pattern of consumption'
- The perceived relationship between condition and value
- Should there be an adjustment for depreciation since last comprehensive revaluation
- Scenarios that require adjustments to useful life, RUL or pattern of consumption

## Selection of valuation technique

Both IFRS and IPSAS standards maximising the use of observable market evidence. If there is an open and active market (such as sales of residential houses or motor vehicles) then it would be appropriate to use the market approach.

Sometimes however, there will be instances where there is no active ands open market for assets which sometimes are traded in an open and active market. For example – land that it restricted in use or from sale (therefore by there is no active and open market) or residential buildings in remote locations where there is insufficient sales evidence. In these cases, due to the lack of an open and active market, the cost approach should be applied.

If the value of the asset is primarily held for its income generating capability, either the market (if there is an open and active market) or income approach would be the appropriate technique to use.

Where there is no active and open market or income approach is not appropriate the cost approach should be used. This approach is the most commonly used in the public sector. It is most appropriate for specialised buildings, restricted land, open space and recreational assets and all forms of infrastructure (unless operated as a for-profit cash generating unit).

## Disaggregation of the asset

In order to properly determine the carrying amount to enable the calculation of depreciation expense, it is required that the asset be disaggregated into the different parts with a different remaining useful life. This is so that the carrying amount of the different parts can be depreciated down to its residual value over its RUL.

However, the design of the financial asset register and asset management asset register or registers may be different in order to meet their own needs.

For example –

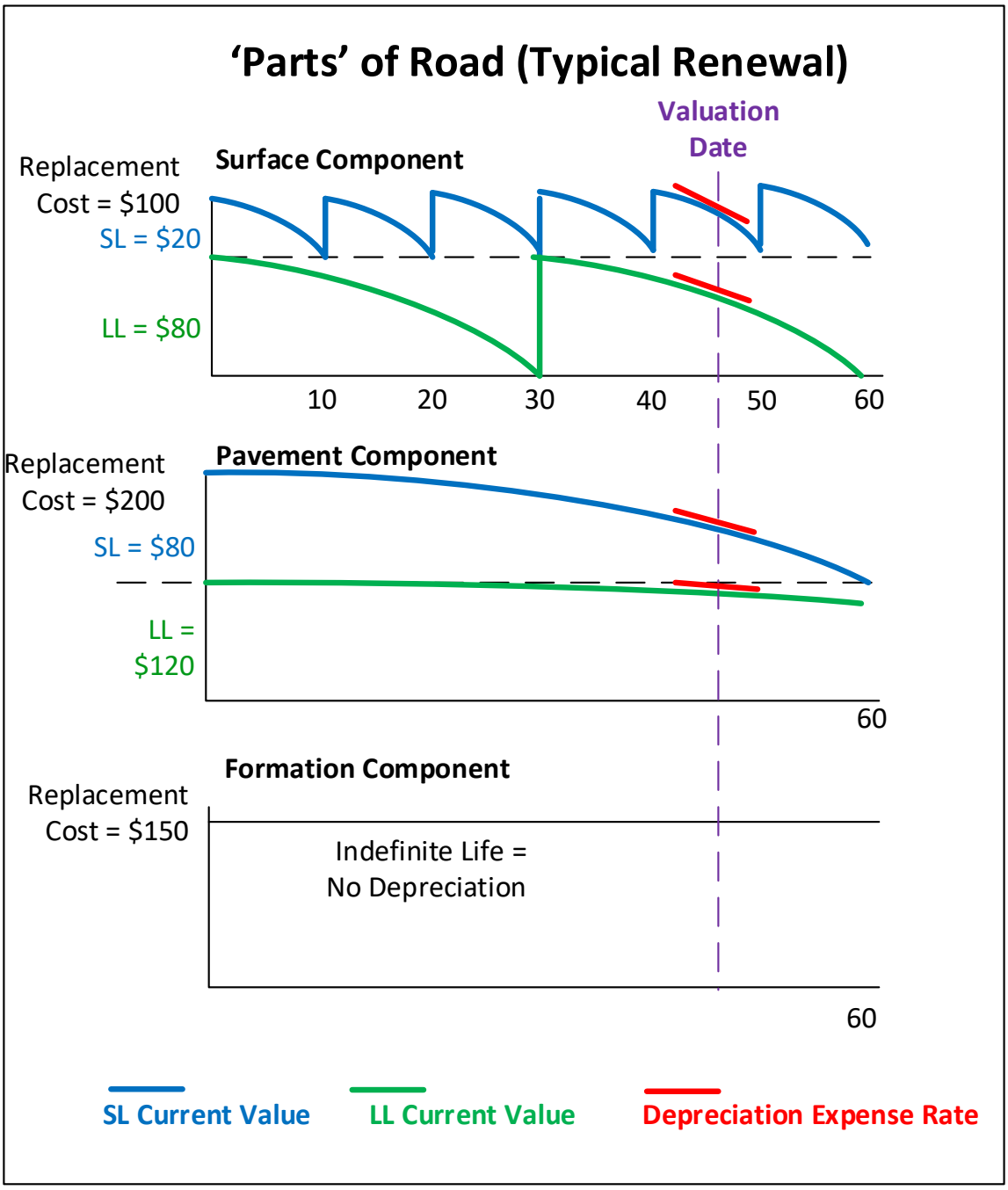
- For asset management purposes, a roads register might split a road into three or four 'components' to enable modelling using different renewal treatments, maintenance spending and intervention points based on different levels of service. A pavement component might be modelling using three or four different renewal treatments to apply depending upon the specific condition and type of issues.
- The financial asset register might only record the road segment as an asset, each component as an asset or even each part as a separate asset.

For valuation and depreciation purposes, the asset is normally split into components and then further disaggregated into a –

- short-life part representing the estimated cost of renewal with a useful assigned based on the intervention period and a
- long-life (or recyclable) part which represents the balance between the component and the short-life part costs.

If the financial asset register mirrors the asset management register and records assets at the component level, a weighted average RUL can be calculated from the short and long life parts any recorded in the financial asset register to ensure depreciation is correctly calculated.

The example below highlights the typical approach to disaggregation of a road.



Some asset types are simple in that they only have a single component. However, this does not mean they do not have two different parts. For example –

- if a stormwater pipe is likely to be renewed by digging up the old pipe and replacing it with a new pipe, the estimated cost of replacement is the same as the replacement cost of the pipe and therefore there is only one part.
- In contrast, if the pipe is more likely to be renewed by inserting a sleeve, the cost to do so is normally significantly less than full replacement of the pipe. The treatment also results in an extension to the overall pipe life. As a result, the pipe asset, while only having one component, consists of two different parts. The short-life part being the renewal with the sleeve (cost to be depreciated over its useful life) and the balance (long-life part) to be depreciated over the new total useful life of the pipe.

Buildings also can be very complex. From an asset management perspective, they are often split into the following components with each component effectively being managed indeprendently from the other components.

- Sub-structure
- Structure
- Floor Coverings
- Internal Fit-out
- Roof
- Services – Mechanical
- Services - Electrical
- Services - Hydraulic
- Services - Security
- Services - Fire
- Services - Transport

Each of these components may also have different renewal options (such as replacing the roofing cladding or refurbishment of the fit-out) or may only be subject to full replacement (such as replacing the floor tiles or carpet).

Even with sub-structure and structure, typically these components are subjected to some renewal after an extended period rather than full replacement.

As such, these components should be further split into short-life and long-0life parts for valuation and depreciation purposes. However, how they are recorded in the financial asset register or asset management register may be different.

## Financial verses measurement classification

If valuing using the Fair Value method, both IFRS and IPSAS require disclosures relating to the level of the valuation hierarchy and two distinctly different reconciliations.

- A reconciliation, based on financial asset class of the movements during the year reconciling to the property, plant and equipment values on the face of the balance sheet
- A reconciliation, based on the different valuation measurement classes also reconciled to the figures on the face of the balance sheet.

The measurement classes relate to the different underlying approaches and level of the valuation hierarchy used to determine the values rather than the nature of the asset (financial asset class). For example –

- A local government may have a range of different asset classes disclosed in the movements reconciliation note include land, buildings, roads, footpaths, drainage, water and wastewater assets.
- However, for the purposes of the measurement reconciliation note –
    - Some land and buildings may have been valued using cost approach while others using market or income approaches
    - The roads, footpaths and drainage assets may have been valued using the same methodology and sources of data using level 3 inputs and therefore should be classified as the 'road and drainage infrastructure' measurement class
    - Likewise, water and wastewater assets may be recorded as 'waste and waste water infrastructure' measurement class.

Relevant (and extensive) disclosures are then requirement for each measurement asset class. This includes information about the valuation approach, key inputs and how level three inputs (assumptions) were assessed for reasonableness.

## Evidence to support cost

Sometimes the evidence to support the underlying market value or replacement cost is at the whole-of-asset level. For example – buildings. If so, the overall cost needs to be apportioned across the various components and then further split into short and long life parts.

However, sometimes the evidence to support the cost is at the component level. In such cases, the cost needs to be determined independently for each component. For example, while a road has a specified length, the width may vary between surface, pavement and formation and the material type and specification for each component may be determined completely independently of the other components. The cost of each component will need to be further split into the short and long life parts.

For some assets, the evidence of cost is at a more detailed level. For example a set of traffic signals may consist of three components (lights, poles and controller) but each component may consist of different types of sub-elements with different costs. For example – three different type of poles and four different types of lights. In this scenario, the valuer needs to determine a cost at the component level by summing together the different sub-component costs.

## Assumptions and hierarchy

Public sector entities tend to have very large portfolios of the same types of assets. For example, a local road network might consist of 15,000 different road segments but within that portfolio there might be only twelve combinations of different surface types across different road classifications.

To make both asset valuation and asset management efficient, a hierarchy needs to be developed that enables to application of assumptions across the entire portfolio. For example, for the same types of components on the same classes of roads with similar levels of service, applying the same unit rate, asset management and depreciation assumptions.

Even though two different assets may have been constructed at the same time with the same materials in exactly the same manner and with same dimensions, they may have different replacement costs and current values.

Critical to the calculation sis the development of an appropriate valuation hierarchy which enables the population of different assumptions depending upon the key characteristics of the asset, both physical and non-physical. The use of the old DRC approach simply does not comply with the accounting standards or provide meaningful asset management information.

## Initial adjustments

Under both IFRS and IPSAS there needs to be an assessment of whether or not the existing asset inherently includes a level of obsolescence due to differences in capacity or changes in demand, technology, etc. For example – a single lane timber bridge has a different level of total potential service capacity when compared to the modern equivalent of a double land concrete bridge.

In the case of IPSAS, they may also be a need to adjust the total market value or replacement cost to reflect a difference in the capacity and design of the existing asset, based on highest and best use, and what the entity requires in order to satisfy its service needs.

For example, there may be two identical buildings constructed in the same year at the same cost. However, one building is rarely used because the population in the area it was built has since dwindled significantly and there is no demand to use the building. Furthermore, if severely damaged, the building would not be replaced or repaired. Whereas the other building is being used at full capacity an would benefit from an upgrade. The first building has clear signs of obsolescence and over-capacity and the associated replacement cost would be significantly less than the replacement cost of the second building.

## Key characteristics that drive physical, technical and functional obsolescence

Both IFRS and IPSAS standards require consideration of condition as well as other indicators of physical, functional and technical obsolescence. The value of the remaining service potential of an asset is governed by these factors and not solely on the age of the asset.

Condition is very important in determining the value of an asset where it is likely that the asset will continue to be maintained. This is because assets in poor condition will require the increased maintenance cost and earlier cashflow to renew the asset compared to assets in good condition. Whereas, in cases where there is a known decommission date, the impact of condition on value is less relevant. For example, a bridge is in good condition but is planned to be replaced by a new bridge within two years.

Likewise, the condition of the asset may have no impact on the assessment of the remaining value. This is especially the case for the long-life parts of the components as this part represents the balance between the component total cost and the estimated cost of renewal.

The impact of functional and technical obsolescence can also occur at different rates. In some cases, a change in legislative requirements or decisions by higher levels of government can sometimes result in an asset becoming obsolete very quickly. For example Governments –

- Mandating the closure of coal fired power stations within five years
- Approving the construction of an alternative transport corridor which in turn will result in the closure of the existing road upon opening of the new road
- Replacing microwave communication devices on towers constructed on top of mountains with underwater optic cable.

Alternatively, the obsolescence can occur gradually and at an in increasing pace simply due to advancements and changes in technology or changes in community expectations. For example –

- Changes in national standards for water quality driven by advancements and improvements in technologies
- Increases in traffic volumes and weights resulting in increased congestion and wear and tear to road pavements
- Decreased demand for use of community halls due to demographic change
- Decreasing demand for low lying land due to risk of inundation from rising sea levels

The determination of the current value of an asset is not based on the assets age but rather a combination of condition and obsolescence (physical, functional and technical). Any calculations undertaken to determine the current value needs to clearly show how such factors have been taken into account. The factors, and their associated impact, may also differ between the components and parts of the asset.

Linked with this requirement, is the need for professional judgement to assess the impact of age on the level of obsolescence. For example, if we assume a road formation has an indefinite useful life, and despite being 100 years old the road pavement is in very good condition, should the assessment of obsolescence on the road pavement be negligible or based on the theoretical RUL as a percentage of the theoretical pavement useful life? The 'pattern of consumption' arguably reflects little drop in value with most loss of value occurring when there are clear signs of obsolescence for the total road due to planned road closure.

## Acquisition and decommission dates

When assessing the impact on value due to condition of the asset, the impact of the date of acquisition is not as critical as understanding the likely costs, and associated timing of those costs, to renew the asset. For example, the condition of the road surface indicates that it needs to be resealed within the next 10 years. It is of little value to know that the road was originally constructed eighty years ago and over that time has undergone numerous reseals.

However, in assessing the impact of technical, functional and other physical obsolescence, knowing how old the asset is and its likely overall total remaining useful life is important.

Sometimes the known date of construction is known and sometimes it is not. Likewise, sometimes the date when the asset was last renewed in known and sometimes it is not. Additionally, the date of acquisition recorded in the asset register is sometimes the date the computer system was installed rather than the actual date of acquisition.

Any methodology and its associated algorithms needs to deal with the impact of known, unknown or estimated acquisition dates on the various parts of the asset

If there are plans to decommission an asset, the impact of the asset condition becomes less relevant. This is because the impact of general obsolescence is far more critical. i.e. Irrespective of the condition, the asset's value will be eliminated upon decommissioning and the closer the date, the lower the remaining value.

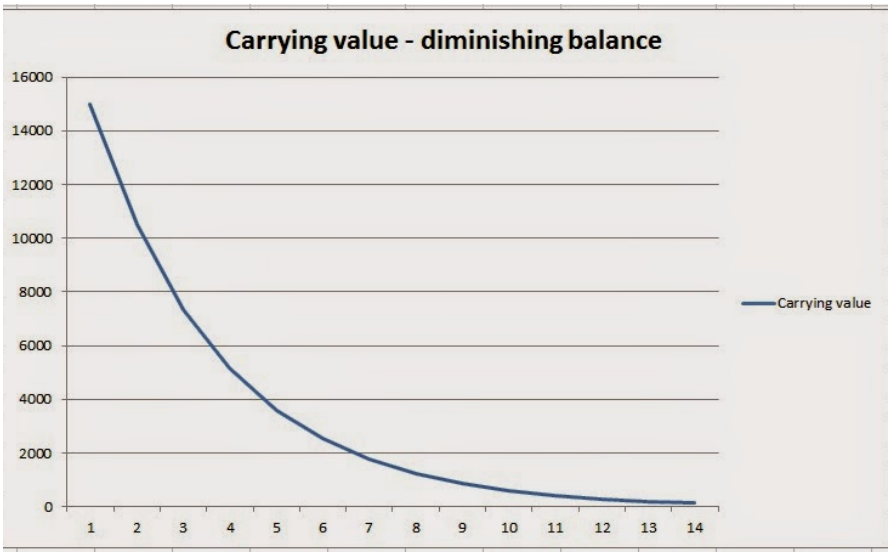
While the renewal (short-life) part of an asset is traditionally based on condition as it relates to the estimated cost of renewal, the valuation algorithm needs to ensure a known or likely decommission date takes precedence over any calculations.

In some cases, the acquisition date and decommission date may be known. In other cases, neither may be known or only one known. If both are known, the actual age can be calculated and should over-ride any assumptions. If the assessment of general obsolescence is based on age and RUL, the methodology and algorithms need to ensure there is a sound basis to determine the useful life and RUL.

## Pattern of consumption'

The 'pattern of consumption' concept is one which over the years has caused the most consternation and argument between valuers, accountants, engineers and auditors. It is not linked to what service is delivered and how it is delivered but rather to the pattern in which the economic benefit retained in the asset is consumed. i.e. It is linked to perceived loss in relative value and takes-into-account the impact of general obsolescence as well as condition, location and restriction on sale or use.

As an example, a common used method to depreciate motor vehicles is to adopt the reducing (diminishing) balance method. This reflects that as a new car leaves the show room floor and is driven on the road, the market value drops significantly in the first year. As the vehicle ages and drives more distance, the loss in value reduces incrementally until it starts to plateau.



Using a bridge as an example and assuming we have two bridges constructed in exactly the same way with the same date of acquisition and at the same cost –

- if one bridge was in poor condition and the other a good condition, market participants would place a higher value on the bridge in the better condition. This is because the poorer condition bridge will require renewal or replacement earlier than the other bridge. Additionally, it will require increased maintenance costs as maintenance costs generally increase incrementally as an asset degrades. As a result, the bridge in poor condition provides a lower value proposition to a potential buyer and would attract a lower value.
- If one bridge was in a location that either had increased traffic flows or due to some other environmental or political reason, was identified for full replacement with a bigger and better bridge, the market participants would assign a lower value to that bridge. This is because of the impact of obsolescence rather than age or condition.
- If one bridge serviced a road that, due to a new bypass being constructed, was going to be closed or only used for fishing, market participants would consider the value of the bridge to be much lower than the other bridge.
- One bridge is on a low use road and the other on a high use road. If both bridges were constructed in timber but new standards and requirements have driven a bridge replacement program to replace all bridges on medium and high use roads with concrete within the next 10 years and those on low use roads within 30 years, then the market participants would consider the bridge on the high use road to have a lower value due to the impact of obsolescence.

As very long-lived assets age, the impact of general obsolescence typically becomes greater. Likewise, the impact of condition on the cost to renew is usually non-linear.

The perceived impact of these factors and where each asset is its lifecycle will drive the valuers assessment of value. If the perceived pattern is non-linear, the same profile used to drive the valuation should be used to calculate depreciation expense.

Applying inconsistent patterns of consumption for valuation and depreciation is contrary to the accounting standards and will either –

- Result in misstatement of the fair value
- Result in misstatement of depreciation expense

## Relationship between condition and value

Both the IFRS and IPSAS standards highlight the need to consider condition in assessing an assets value. While this sounds easy, there is significant professional judgement required.

First, a scale needs to be designed to allow the systematic assessment of the asset condition. Perhaps on of the most adopted scales is IPWEAs 1 – 5 scale with 1 representing an asset in very good condition and a 5 being a very poor condition and close to the intervention point.

While this scale allows for a high level assessment, it is too broad for the purposes of asset valuation. For example, both an asset that is brand new and one which might be more than 10 years old and almost, but not quite, at condition 2 would be assessed as being in condition 1. For valuation purposes the brand new asset should be valued at 100% remaining value whereas the second asset, while still on condition 1, might be closer to 80% value than 100%. If we use a mid-point for both (90%) the associated valuation, RUL and projected renewal funding requirements for both assets would be significantly wrong.

It is therefore important than any scoring scale provides the ability for granularity. In the case above, the 1 – 5 scale would be converted to 0 – 5 with the brand new asset at 0 (100%) and the second asset perhaps assessed as 0.9 (assume 83%).

Further judgement is required to set the relationship between the assessed score and perceived level of remaining service potential. Based on this professional judgement it may be necessary to design different valuation profiles for different asset classes.

## Adjustments since last comprehensive revaluation

In the years after a comprehensive valuation, it is common for entities to undertake a 'desktop' update. This is a particularly smart way of eliminating any risks associated with impairment events or auditors perceived changes in the underlying cost of assets. It also provides for a much lower long-term valuation cost.

As the asset is another year older, any calculations of value need to take into account the impact of any depreciation since the last comprehensive valuation. This is relatively straight-forward. However, as assets are either renewed or subjected to impairment events, the associated condition scores should be updated. If so, there should not be any further adjustment for depreciation as the valuation should be based on the revised condition.

In the second year after the comprehensive, unchanged original score assets will require two-years depreciation deduction whereas the ones changed in year will only require one-years depreciation adjustment.

## Adjustments to useful life, RUL or pattern of consumption

As noted earlier, if the acquisition date and decommission date are known, it will be possible to calculate the actual useful life and this needs to over-ride any theoretical assumptions.

However, other scenarios can occur which require the over-ride of assumptions with more accurate estimates.

For example –

- If based on condition the RUL plus the actual age-to-date is greater than the total useful life, the useful life needs to be adjusted.
- If the RUL till next expected intervention point (short-life part) is great than the RUL for the long-life part, the useful life and RUL of the long-life part needs to be adjusted. This is because the short-life part by definition must have a RUL equal to or less than the long-life RUL.
- An asset may have previously been valued using a non-linear pattern of consumption but due to a council decision the asset is soon to be disposed. This in turn would necessitate a change in the pattern of consumption

# Conclusion

Other than the conceptual difference that under IPSAS the current value is reflected as an 'entry price' and under IFRS it is reflected as an 'exit price', both sets of standards effectively mirror the same requirements.

The 'entity specific entry price' verses the 'highest and best use based on the key characteristics relevant to market participants exit price' impacts the assessment of the replacement cost when using the cost approach. Likewise, it potentially may impact the market value of assets valued at Current Operational Value.

However, once these initial adjustments are made, the process to disaggregate the assets into the different parts and provide estimates of the current value and RUL, all other processes are effectively the same.

Likewise, both standards, under the cost approach, require the valuer to adjust the replacement cost for obsolescence and not depreciation. Ie. Depreciated Replacement Cost, which tries to calculate the current value based on depreciation expense estimates, is no longer compliant with either IFRS or IPSAS standards.

We do however expect many valuers, entities and auditors will take quite a while to understand the subtle differences between the new IPSAS and not so new IFRS requirements when compared to the old and commonly adopted Depreciated Replacement Cost approaches.

The process to undertake the detailed calculations is extremely complex if attempting to do via spreadsheets. However, if using specialised financial reporting valuation software such as Asset Valuer Pro (www.assetvaluer.net) the overall process is very easy.

# About the Author

**David Edgerton FCPA**
**E: David@apv.net**

David is an accountant (Fellow CPA Australia) with a valuation, audit and asset management background. He is internationally recognised as a leading expert in the valuation and depreciation of public sector assets. He is a regular presenter at national and international conferences and is a Director of APV Valuers and Asset Management.

He has been actively involved with both the asset accounting and asset management of public sector assets over the past 30 years. This has included –

- Author of CPA Australia's guides to the valuation and depreciation of public and NFP sector assets under the international (IFRS and IPSAS -2013) and Australian (2016) accounting standards.
- Member of the Australian Accounting Standards Board special project team for 'Fair Value in the Public Sector' (2017–22)
- Chair of the Public Sector Assets Collaborative Group which is a special interest committee of 'the Asset Institute'. The group is comprised of representatives of the peak bodies with an interest in the asset management of public sector assets.
- Member of 10 person international review panel for the IPWEA International Infrastructure Financial Management Manual (IIFMM) (2023)

Prior to joining APV in 2006 he spent over 20 years with the Queensland Audit Office where he –

- Held responsibility for the audit of Queensland's local government sector and water sectors
- Managed the audit office's 'Contract Auditors Section'
- Chaired the 'Asset Valuation and Audit Advisory Group'